Copies of this Catalog are available for examination in all Iowa high schools, offices of the county superintendents of schools, public libraries, and junior and community colleges, at the major state government offices in Des Moines, and in each office of the University. Copies may be purchased from the Office of Admissions without charge. Reprints of individual sections of the Catalog are also available without charge. This Catalog is published for informational purposes and should not be construed as the basis of a contract between a student and The University of Iowa. Every effort is made to provide information that is accurate at the time the catalog was prepared. However, information concerning regulations, policies, fees, curricula, courses, and other matters contained in this Catalog is subject to change at any time during the period for which the catalog is in effect. Current information regarding fees, important dates and the availability of courses can be found in the Schedule of Courses that is available before each term or by request from the Office of Admissions.
# University Calendar

## First Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1980-81</th>
<th>1981-82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>August 25</td>
<td>August 14</td>
</tr>
<tr>
<td>Classes begin</td>
<td>August 28</td>
<td>August 20</td>
</tr>
<tr>
<td>University Holiday</td>
<td>September 1</td>
<td>September 7</td>
</tr>
<tr>
<td>Homecoming</td>
<td>October 18</td>
<td>October 10</td>
</tr>
<tr>
<td>Thanksgiving recess</td>
<td>November 26</td>
<td>November 24</td>
</tr>
<tr>
<td>University holidays</td>
<td>November 27-28</td>
<td>November 26-27</td>
</tr>
<tr>
<td>Classes resume</td>
<td>December 1</td>
<td>November 30</td>
</tr>
<tr>
<td>Classes and Examination week</td>
<td>December 12</td>
<td>December 11</td>
</tr>
<tr>
<td>Commencement</td>
<td>December 19</td>
<td>December 19</td>
</tr>
<tr>
<td>University holidays</td>
<td>December 20</td>
<td>December 14-18</td>
</tr>
<tr>
<td>University holiday</td>
<td>December 26-28</td>
<td>December 24-25</td>
</tr>
<tr>
<td></td>
<td>January 1</td>
<td>January 1</td>
</tr>
</tbody>
</table>

## Second Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1980-81</th>
<th>1981-82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>January 15</td>
<td>January 14</td>
</tr>
<tr>
<td>Classes begin</td>
<td>January 19</td>
<td>January 18</td>
</tr>
<tr>
<td>Foundation Day</td>
<td>February 25</td>
<td>February 25</td>
</tr>
<tr>
<td>Spring vacation begins</td>
<td>March 20</td>
<td>March 18</td>
</tr>
<tr>
<td>Saturday classes only meet</td>
<td>March 21</td>
<td>March 20</td>
</tr>
<tr>
<td>Classes resume</td>
<td>March 20</td>
<td>March 29</td>
</tr>
<tr>
<td>Classes and Examination week</td>
<td>May 8</td>
<td>May 7</td>
</tr>
<tr>
<td>Commencement</td>
<td>May 11-15</td>
<td>May 10-14</td>
</tr>
<tr>
<td>University holiday</td>
<td>May 18</td>
<td>May 15</td>
</tr>
<tr>
<td></td>
<td>May 25</td>
<td>May 31</td>
</tr>
</tbody>
</table>

## Summer Session

<table>
<thead>
<tr>
<th>Event</th>
<th>1981</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td>June 8</td>
<td>June 7</td>
</tr>
<tr>
<td>Classes begin</td>
<td>June 9</td>
<td>June 8</td>
</tr>
<tr>
<td>University Holiday</td>
<td>July 3</td>
<td>July 5</td>
</tr>
<tr>
<td>Session ends</td>
<td>July 31</td>
<td>July 30</td>
</tr>
<tr>
<td>Commencement</td>
<td>July 31</td>
<td>July 30</td>
</tr>
<tr>
<td>Independent Study Unit classes for law and graduate students</td>
<td>August 3</td>
<td>August 2</td>
</tr>
<tr>
<td>Close of Independent Study Unit</td>
<td>August 21</td>
<td>August 20</td>
</tr>
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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 seven schools: Art and Art History, Journalism, 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 classes in the College of Liberal Arts, including an increasing number of interdisciplinary courses. Total University enrollment during 1979-80 was about 33,300 students.

Founded on February 25, 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 institution of higher education to accept women and men on an equal basis (the year was 1860). It became the first university to accept creative work in law of the traditional academic thesis from graduate students in the arts. It pioneered the now world-recognized Iowa Writers Workshop for creative literature. It is recognized as the place where the field of speech therapy originated. It has earned recognition for the quality and breadth of its teaching and research programs in space science, exobiology, writing, and the teaching of composition, and in graduate programs in speech, dramatic art, and communications, to name just a few recent examples.

The UI faculty includes some 1,500 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is significantly 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 undergraduates and graduate/professional instruction.

The University's undergraduate enrollment is about evenly divided between men and women students. Approximately four out of five undergraduates are Iowa residents. The balance consists of students from all other 49 states and more than 80 foreign countries.

About 68 percent of the University's entering freshmen had a "B" average or above in high school. Approximately 87 percent ranked in the upper half of their high school class, and about 59 percent ranked in the upper tenth.

The University of Iowa offers a comprehensive program of student financial aid. Half of the University's students have some form of employment, one-fifth have education loans. One in ten undergraduates and one of five freshmen have scholarships. Most UI scholarships are awarded on the basis of demonstrated financial need and academic excellence, with a small number of grants awarded solely for scholarly achievement.

Reflecting a growing trend toward lifelong learning, the University in recent years has substantially expanded educational programs both on and off campus for individuals who cannot enroll as regular full-time students. These "nontraditional" learning opportunities range from mini-courses, conferences, workshops, and continuing education programs for professionals, to Saturday and evening classes offered on campus and credit courses taught off campus. In 1977 the University, in cooperation with Iowa's other two state universities, introduced a new Bachelor of Liberal Studies, a 12-hour 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, June Doctor, Doctor
of Medicine, Master of Arts, Master of
Science, Master of Business
Administration, Master of Fine Arts,
Master of Social Work, Master of Arts in
Teaching, Education Specialist, Doctor
of Musical Arts, and Doctor of
Philosophy.

Accreditation and Associations

The University of Iowa has been accredited by the North Central Association of Colleges and Secondary Schools since the association’s organization in 1913. The University is a member of the Association of American Universities. It is associated with Northwestern Indiana, Purdue, Ohio State, and Michigan State universities, and twelve universities in the


Schools

Journalism—American Council on
Education in Journalism
Library Science—American Library
Association
Music—National Association of
Society of Music
Sociological Work—Council on Social Work
Education

Departments and Programs

Chemistry—American Chemical
Society
Dental Hygiene—American Dental
Association Council on Dental
Education
Diabetes—American Diabetic
Association
Hospital Administration—Accrediting
Commission on Education for Health
Service Administration
Medical Technology—National
Accrediting Agency for Clinical
Laboratory Sciences
Physician’s Assistant—American
Medical Association Council on
Medical Education in collaboration
with the Joint Review Committee on
Educational Programs for the
Assistant to the Primary Care
Physician
Physical Therapy—American Medical
Association Committee on Allied
Health Education Accreditation and
the American Physical Therapy
Association
Nuclear Medical
Technology—American Medical
Association
Psychology—American Psychological
Association
Speech Pathology and
Audiology—American Speech and
Hearing Association

Sessions

The University’s academic year consists of two semesters of approximately 17 weeks each. The University also conducts an eight-week summer session and, following that, an independent Study lot 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. The freedom to learn and the freedom to teach depends upon appropriate opportunities and conditions in the classrooms, on the campus, and in the larger community. Students are expected to respect the general conditions conducive to such freedoms. Accordingly, the University has developed a Code of Student Life that is intended to provide and safeguard the right of every individual student to exercise fully his or her freedom to learn without undue interference by others. This code applies only to student misconduct which adversely affects 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 a difference in the treatment of persons because of race, creed, color, national origin, age, sex, or any other classifications which deprive the person of consideration as an individual, and 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 works cooperatively with the community in furthering this principle.

University Marking System

<table>
<thead>
<tr>
<th>Rank</th>
<th>Definition</th>
<th>Code</th>
<th>Grade Point/ Semester Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>superior</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>above average</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>average</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>below average</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>failing</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>incompletes</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>D*</td>
<td>no grade</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>pass</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>W*</td>
<td>audit</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>satisfactory</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>(Graduate College only)</td>
<td>withdrawal</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>

W* not used in computing grade point averages

Recognition of High Scholastic Achievement

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

- Undergraduate: 3.50+ GPA
- Other College: 3.75+ GPA

School classification
- High distinction: 3.00-3.74: next highest 2%
- Distinction: 3.75-4.00: next highest 3%

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, Mortar Board, and Omicron Delta Kappa are among 84 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, 108 Calvin 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 formal applications to the Admissions Office and must furnish official transcripts and other supporting material as specified.

Application Fee

A $10 application fee must accompany applications submitted by prospective students not previously enrolled for full-time study at the University during the regular academic year. 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 date 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, June 1 for fall semester, November 15 for spring semester

College of Dentistry—December 1, fall semester only

College of Engineering—Ten days before classes begin, all sessions

Graduate College—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 advised. To be considered for graduate awards, students must apply by February 1 for the fall semester.

College of Law—March 1, summer or fall semester

College of Medicine—December 1, fall semester only, Early Decision Plan, August 1 for the following year

College of Nursing—March 1 for fall semester, June 15 for spring semester, December 15 for summer session

College of Pharmacy—March 1, fall semester only

Dental Hygiene Program—March 1, fall semester only

Physical Therapy Certification Program—February 1, fall semester only

Physician’s Assistant Program—January 15, fall semester only

Teacher Education Program—May 1 preceding 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 have satisfied all the application procedures and submitted his or her complete application file to the Admissions Office by the dates given below:

Graduate College—Students applying...
Tuition and Fees
The following is the University's schedule of tuition and fees, per semester, for the academic year 1980-81:

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>hours</td>
<td>rates</td>
</tr>
<tr>
<td></td>
<td>in</td>
</tr>
<tr>
<td>0-4</td>
<td>$3657</td>
</tr>
<tr>
<td>5-9</td>
<td>469</td>
</tr>
<tr>
<td>10-14</td>
<td>130</td>
</tr>
</tbody>
</table>

*one hour or over

General fees provide for the student's use of Iowa Memorial Union facilities, and of libraries, laboratories, and gymnasia; free admission to minor sports events and to student-faculty concerts and plays; reduced rates for admission to major sports events and to performances by visiting stage and concert artists; subscriptions to the student newspaper, the Daily Iowan, on a housing unit basis; certain student hospital services; and other activities and services as announced. However, extension and correspondence fees do not provide for the above listed benefits.

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
and Nursing may audit courses with proper approval. Students who audit courses will be assessed fees based on the lowest credits for which the course is available that semester.

**Procedure for Payment of Student Accounts**
Tuition and fees, board, room, and other University-related expenses are charged as library and parking fees, are payable on an installment basis, with billing the first of September, October, and November for the fall semester, and the first of February, March, and April for the spring semester. Students with accounts overdue on the fifteenth of the month are reported to the registrar for cancellation of registration. There is a $20 fee for reinstatement.

**Refund Schedule**
Students who cancel their registrations during a regular semester receive a reduction of fees as follows: during the first week of classes—90%; during the second week—75%; during the third week—50%; during the fourth week—25%. There is no reduction of fees for cancellations after the fourth week of classes.

**Numbering of Courses**
Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department, or program by which the course is administered. For example, "3.1" is the code for the course numbered 1 in the Botany Department (2), entitled "Introduction to Botany." Courses numbered below 100 designate courses "primarily for undergraduates." Courses numbered 100 or above designate courses "for undergraduates and graduates," and numbers 200 and above designate courses "for advanced students."

**College of Business Administration**
- 04 Accounting
- 05 Economics
- 06 Finance
- 07 Management Sciences
- 08 Industrial Relations and Human Resources

**Engineering**
- 72 Division Specialty Courses
- 73 Mechanical Engineering

**College of Dentistry**
- 81 Fixed Prosthodontics
- 82 Operative Dentistry
- 83 Endodontics
- 84 Removable Prosthodontics
- 85 Oral Pathology and Diagnosis
- 86 Oral Surgery
- 88 Dental Hygiene
- 89 Orthodontics
- 90 Periodontics
- 91 Prevention and Community Dentistry
- 92 Dentistry Nordardental
- 93 Family Dentistry

**College of Education**
- 7C Counselor Education
- 7D Educational Administration
- 7E Early Childhood and Elementary Education
- 7F Social Foundations and Comparative Education
- 7H Post-Secondary and Continuing Education
- 7P Educational Psychology, Measurement, and Statistics
- 7Q Secondary Education
- 7U Special Education
- 7V Instructional Design and Technology
- 7X Education Interdisciplinary

**College of Engineering**
All courses are offered by the divisions for the academic program. Division course offerings are distinguished by the first two digits of the course prefix.

## Prefix Division
- 52x Energy Engineering
- 54x Information Engineering
- 58x Materials Engineering
- 59x Systems Engineering

## The third digit of the course prefix denotes the academic program for which the course is offered:
- 0 Engineering Core Courses
- 1 Biomedical Engineering
- 2 Chemical and Materials Engineering
- 3 Civil and Environmental Engineering
- 5 Electrical and Computer Engineering
- 6 Industrial and Management

## Resources
- 6M Marketing
- 6S Business Education

## College of Liberal Arts
- 0 Nondepartmental Courses
- 10 Lakeside Laboratory
- 1A Fundamentals
- 1B Elements of Art
- 1C Ceramics
- 1D Design
- 1E Art Education
- 1F Drawing
- 1G Metalworking and Jewelry
- 1H Art History
- 1J Multimedia
- 1K Painting
- 1L Photography
- 1M Printmaking
- 1N Sculpture
- 1P Interdepartmental
- 2 Botany
- 3 Speech Pathology and Audiology
- 4 Chemistry
- 5 English
- 5L English Language and Linguistics
- 5M English Professional
- 5W English Writing
- 6 French
- 10 Basic Skills
- 11 Core Courses
- 12 Geology
- 13 German
- 13D Dutch
- 14 Greek
- 16 History
- 17 Home Economics
- 18 Italian
- 19 Journalism and Mass Communication
- 20 Latin
- 20F Library Science
- 22A Applied Mathematical Science
- 22C Computer Science
- 22M Mathematics
- 22S Statistics
- 23 Military Science
- 23A Aerospace Military Studies
- 24 Museum Training
- 25 Music
- 26 Philosophy
- 27 Physical Education—Field House
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 undeclared 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 maintain an advisory office. These offices are available to all students to assist with questions concerning admissions, academic majors and course requirements, grading options, career and degree plans, and other items of concern. They assist students who wish to change advisors and/or majors, and they also act on student complaints.

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

Campus Information Center
Located in the south lobby of the Iowa Memorial Union, the center provides information about campus and community activities and University services and operations, and provides referrals to inappropriate services to meet needs related to University life. The center is open from 8 a.m. until 9 p.m. Monday through Saturday and from noon until 4 p.m. Sunday. During hours the center is not staffed, a telephone answering service records questions or messages for answer or referral as soon as the center opens.

Career Services and Placement Center
Career Planning
The staff in the planning and resources areas provides students with the information and resources necessary for good, sound career decision making. Students have the opportunity to avail themselves of information through individual advising appointments, seminars, workshops, and a 2-semester hour course, Making a Vocation/An Educational Choice. The center assists interested students in expanding their career options, in making realistic career plans, and in learning how to use career information to their best advantage.
learning how to use career information to their best advantage.

Career Resource Center

The Career Resource Center contains a wealth of information students can use to help them make career/academic decisions, conduct a job search, and prepare for interviewing. The resources contain information from professional associations, government agencies, Occupational Outlook Handbook, Dictionary of Occupational Titles and job search guides. A career information specialist is always on duty to help students use the resources to meet their specific needs.

Cooperative Education

Coordinated by the Career Services and Placement Center, the Cooperative Education Program offers students the opportunity to alternate academic studies with related work experiences. Students in business, engineering, or liberal arts who meet the prerequisites of their respective colleges or academic departments generally enter the program during their freshman year. Cooperative education positions are filled on a competitive basis, with participating employers making the final selections from among the student candidates.

Placement

The center provides job placement assistance for all students and graduates seeking employment in business, industry, government, and nonprofit agencies. Assistance includes individual consultations with professional placement counselors, seminars for developing job-hunting/interview skills, on-campus interviews with prospective employers, information on employment trends, and current job openings for college graduates. Information sent by employers is made available to students and alumni in the Employer Literature Room. This material provides background information about organizations interviewing on campus or listing positions with Career Services. (Also see the "College of Engineering" and "College of Education" sections of the catalog for placement services offered colleges after.)

Community College Affairs

The Office of Community College Affairs (OCCA) provides a variety of services to students transferring from community colleges. Students are encouraged to contact the office whenever questions arise concerning university services and procedures, the campus environment, or particular transfer policies.

The semester transfer consultants and peer counselors (former community college transfer students) conduct several programs to assist new transfer students in making a smooth, effective transition 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 public service-eligible to transfer students.

OCCA also coordinates the TRANSPO computerized information system. TRANSPO files contain complete lists 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 staff of professional psychologists and advanced doctoral students offers vocational, educational, and personal counseling/therapy through individual or group sessions. It also offers a number of workshops, seminars, 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 students at the University and all students who are registered in the University may require 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 services under the student health hospitalization fund. Fees are established for all treatment rendered, and patients are to pay cash or use Master Charge cards.

Health Service

The Student Health Service is located in the Children's Hospital in the University medical complex. All regular 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, accident 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 individual students or as a family plan.
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 at the University of Iowa include basketball, cross-country, field hockey, golf, gymnastics, softball, swimming, tennis, track and field, and volleyball. Athletic scholarships are available to qualified athletes in all sports.

The University is a state, regional, and national member of the Association for Intercollegiate Athletics for Women (IAAW), and fully supports its athletes in state, regional, and national AIAW competitions. Regularly scheduled competition includes other Big Ten universities.

Through the Women's Intercollegiate Sport Committee, each student-athlete has a voice in the determination of Women's Athletics Department policies. The voting membership of the committee comprises a team representative in each sport, the coach in each sport, a student-elected president, and the women's athletic director.

Intramural Sports and Recreational Activities

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

International Education and Services

Advisees in the Office of International Education and Services promote and facilitate interaction between the University's American and foreign students and professionals, and provide University foreign students and professionals with information, advice, and counseling in such areas as immigration, personal and social adjustment, and financial planning.

The OIES operates the International Center, which students, faculty, and Iowa City community members use for meetings, meals, and activities with an international focus.

Overseas Study and Travel Abroad

This office maintains an extensive reference collection of information on study abroad programs offered by the University and by foreign or domestic institutions of higher learning, as well as material on foreign university libraries and special collections, volunteer work, student flight and land travel, hosteling, overseas accommodations, etc. The office gives students individual counseling on study abroad programs which will complement their on-campus academic programs; assists them in obtaining correct credit assignment for foreign study; and provides current information on overseas conditions, health regulations, customs and duties, and all aspects of foreign travel. The International Student Identity Card is available in this office.

Iowa Memorial Union

The Iowa Memorial Union is the center of University social activities. It houses the Student Activities Center, University Counseling Services, Career Services and Placement Center, and Campus Information Center. It includes a variety of food services, a bowling and billiards area, a barber shop, an art resource center, a bookstore, a sundries shop, a television room, lounges, meeting rooms, auditoria for lectures and concerts, art and sculpture display areas, and, in the adjoining Iowa House, 106 guest rooms for visitors, alumni, conference and workshop participants, and other visitors to the campus.

Orientation

With the aid of representative student, faculty, and staff personnel, the Orientation Department designs and conducts a wide variety of programs to help new students—freshmen, transfer, and graduate—with their transition to University life. Orientation is intended not only to assist new students with scholastic 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 provide new students with 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 and class instruction for any University student who wishes to improve their college-level reading performance. Students were asked to specify what reading problems they have, and then adapt practical 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 than if they wish, and may enroll at any point during that time if they feel their need reading help. The lab service course carries no credit and awards no grade. Ordinarily, there are no outside assignments. Developmental reading work is restored in lab hours, and makes exclusive use of lab materials and the students' own texts in other courses.

The lab also offers: 10:9 Rhetoric, a one-semester, two-credit course for students who need exceptional help preparing for college-level reading; and BP-30 Advanced Reading Comprehension, BP-30 Speech Reading, and BP-40 Practical College Vocabulary, independent five-week modular courses for one semester hour of credit each.

Registrar

The Office of the Registrar determines the enrollment status of each student, issues University identification cards, administers registration procedures, assesses fees, and maintains all students' academic records and official transcripts; issues official transcripts; assists students in determining graduation requirements, processes 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.

Special Support Services

The Office of Special Support Services (SSSS) was established to make it possible for more students from economically 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 Upward Bound Project; the Undergraduate Educational Opportunities Program; New Dimensions in Learning: The Educational Opportunities Program; the Afro-American Cultural Center; and the Chicano/Navajo 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 needed 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 Student Programs maintains a resource center, which contains information on federal and state aid 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 a weekly newsletter, Research and Graduate News, which combines program and deadline information and carries a special section devoted to graduate fellowships. These newsletter are available at departmental offices; further inquiries about these opportunities are welcome at the resource center.

In some instances, the center provides direct assistance with applications for graduate fellowships, as is the case with graduate fellowships authorized under the Fulbright-Hays Act, with the Tushingham Exchange Scholarship, and with dissertation support applications to federal agencies in the United States.

Student Activities

Members of the Student Activities staff work with students who are interested in forming new organizations, becoming active in existing organizations, or improving the quality of organizations. Student Activities offers consultative assistance in programming, planning, budgeting, membership recruitment, decision making, goal setting, and other aspects of organizational administration. Through the College of Education's Division of Counselor Education, Student Activities offers a three-credit Course, 7C:187 Management and Motivation in Organizations and Activities, for leaders and members of student organizations. Student Activities designs mini-courses to meet student organizations' needs at their request. The Office of Student Activities in the Iowa Memorial Union provides typewriters, duplicators and mimeograph machines, a photocopier, two telephones, and office supply purchasing services for use by recognized student organizations. The Student Activities Resource Center contains readings related to personal growth and organizational development.

Transcripts

Students who have completed work at The University of Iowa may obtain an official transcript of their work upon request to the Office of the Registrar. Fees are $2 for the first copy, $1 each for the second through fifth, 50 cents each beyond the fifth. An official transcript may 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, and servicemen 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 the academic, vocational, and personal needs of women. It staff acts as a resource for many women's organizations, sponsors numerous cultural programs, seminars, support
groups, and consciousness-raising groups; sponsors a Brown Bag
Luncheon program featuring speakers
from the community and the University;
and publishes a monthly WRAC
Newsletter. The WRAC houses the
Seabrook Truth Women's Resource
Library, and maintains extensive
reference catalogs. The WRAC’s Rape
Victim Advocacy program provides a 24-
hour telephone service for emergency
advice and counseling, is active in
preventive education, and maintains
information and speaker bureaus.

Writing Lab

The lab offers individual instruction in
writing to any University student. Each
participating student’s own writing
provides the material for the course for
that person. The teacher responds to
what each person writes and, in
personal conferences, helps him or her
identify and overcome particular writing
problems.

Any student who believes he or she
cannot do the writing expected in the
required rhetoric course may confer with
the director of the lab about taking
individual instruction in writing for credit
(toward a minor) before registering for the
required course. Noncredit students may
enroll throughout the semester.
Housing

Fair Housing Policy

The following is the University’s statement on fair housing practices:

"Any person who shall be the owner of any real estate shall not make any refusal or discrimination in the sale or rental of any such real estate on the basis of race, creed, color, or national origin."

Iowa City has a fair housing ordinance providing for equal opportunity in the sale or rental of real estate. A Human Relations Commission is responsible for the observance of this ordinance and for the initiation of redress for violations of it.

University Residence Halls

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

Single, double, triple, and quadruple rooms with hall or partial toilet are available in the Grand Avenue Residence Halls (east side of the campus), which include Hillcrest, Quadrangle, Westwinds, South Quadrangle, Rienow, and Slater halls, and in the Clinton Street Residence Halls (east side of the campus), which include Burge Hall, Currier Hall, Daum House, and Stanley Hall. There are lounges, study rooms, borrowing libraries, game rooms, coin operated laundry facilities, and suny stores in or available to each residence hall.

Each residence hall is divided into small living units. Each hall has a full-time head resident, and there is a student resident assistant in each living unit. All students are encouraged to participate in residence hall government of the unit, building, area, or system level.

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, tutorial sessions, and computer terminals are also available.

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 to his or her check in the amount of $50 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, nationalities, or religion.

Students already living in University residence halls are given priority in the assignment of accommodations.

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

Upon written request, the $50 advance payment will be refunded to applicants who are not admitted to the University, and to those who cancel their residence hall contracts in accordance with the terms and conditions set forth in the contract.

Rates
Basic rates for University residence hall accommodations for the 1980-81 academic year are $1,876 for a single room and $1,932 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 700 University-operated apartments available to married students or legally defined family units in the Hawkeye Drive, Hawkeye Court, Hawkeyes Park, and Parklawn complexes. Rates for 1980-81 range from $119 to $127 per month for one-bedroom units (there are only 41 available at the lower rate) to $184.50 for two-bedroom units, not including gas, electricity, and telephone. All units are furnished. Rates 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 $25 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—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
Nineteen 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 Kappa Phi, Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Sigmas Pi, and Tau Kappa Epsilon.

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

Sororities
The 13 national sororities active at Iowa are Alpha Chi Omega, Alpha Delta Pi, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Beta Phi, 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.

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 94701-0038) or ACT Financial Aid Services (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 must submit only one application each year to be considered for all types 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 freshman who have participated successfully in the National Merit Scholarship competition. Based on financial need, these awards range from $250 to $1,800 per year and are renewable for a four-year period.

Freshman Honor Scholarships
Entering freshman who qualify for participation in the University’s Honors Program by achieving a composite ACT score of 28 or above are recognized as Freshman Honor Scholars and receive $100 Freshman Honor Awards.

Transfer Honor Scholarships
Community college students transferring to the University with a 3.25 grade-point average or above qualify for $100 Honor Scholarships.

General Scholarships
To qualify for general scholarship assistance, an entering freshman must apply for financial assistance, show a need for assistance, and either achieve an ACT composite score of 28 or above or rank in the upper 10 percent of her or his 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 2.75 average to continue the scholarship.

LaVerne Noyes Scholarships

Noyes Scholarships, covering basic fees in the colleges of Business Administration, Liberal Arts, Nursing, and Pharmacy, are available to United States citizens directly descended from army or navy veterans of World War I. Awards are based on need and scholastic achievement. Special application forms are available from the Office of Student Financial Aids.

Basic Educational Opportunity Grants (BEOG)

Students applying for University financial aid should also apply for entitlement to federal BEOG assistance. The United States Office of Education determines eligibility for a BEOG award. The maximum award is $1,600 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 BEOG eligibility, or may obtain a BEOG 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 $1,000 per academic year or one-half of the student’s academic-year expenses, whichever is less. The University must match the amount of the SEOG aid. There are no special 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 education is required.

National Direct Students 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 $5,000 over all, graduates up to $2,500 a year and $10,000 over all. 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 3 percent interest, begins nine months after the recipient ceases to be at least a half-time student.

Guaranteed Student Loans

Under either the Iowa Guaranteed Student Loan Program or the Federally Insured Student Loan program, undergraduate students may borrow up to $2,000 a year, graduate students up to $5,000 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 7 percent interest, when he or she ceases to be at least a half-time student.

Health Professions Scholarships and Loans

This program assists United States citizens and nationals studying full-time to be doctors of medicine, dentistry, osteopathy, optometry, podiatry, or veterinary medicine, or toward degrees in pharmacy, nursing, or allied health professions. Amounts available depend on federal funding. 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 7 percent.

Low Enforcement Education Grants

Grants of up to $400 per semester for actual tuition and book costs are available to in-service law enforcement personnel enrolled at least part-time in law enforcement studies. A special application is required. Forms are available from the Office of Student Financial Aid.

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.

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, Work-Study jobs are arranged to give students work experience related to their educational goals. Work-Study employees may work an average of 20 hours per week.

Other Sources of Aid

For information about departmental financial aid, the student should inquire at the office of the academic program in which he or she is interested.

The resource room of the University’s Division of Sponsored Programs is devoted entirely to information on student aid available from such non-University sources 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 Student Support Services.

Information about financial assistance for physically handicapped students is available from the University's Office of Services for the Handicapped.

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

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

Information about Education Aid to War Orphans is available from the Iowa Bonus Board (State House, Des Moines, IA 50319).

An itemized list of the University's financial aid sources is available from the Office of Student Financial Aids.
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 directions of skilled practitioners who teach while providing health care for thousands of patients from the community, state, and region. The University of Iowa Health Center is thus simultaneously a center of learning and of service. It is one of the most advanced, comprehensive health science centers in the United States.

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

Programs, facilities, and 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 Bureau of Dental Health Education

The Bureau of Dental Health Education is sponsored jointly by the Iowa State Department of Health, which provides personnel, space, and office supplies, and the University, which provides space and equipment.

The bureau's primary purpose is to promote a program of dental health education and disease prevention in the public and parochial schools of the state. Senior dental hygiene students from the University conduct team programs with the public health dental hygienists of the Iowa State Department of health. These programs include instruction in oral hygiene, good dental health practices, and nutrition as related to dental health. The bureau also supplies dental referral cards to schools to remind parents of the need for regular dental care for children.

Health Sciences Library

The Health Sciences Library serves the combined information and research needs of the colleges of Dentistry, Medicine, Nursing, and Pharmacy, and the Department of Speech Pathology and Audiology. The largest of the depositories in the university library system, the Health Sciences Library contains over 150,000 volumes and receives more than 2,700 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space to accommodate approximately 1,100 people. Special features of the library range from computerized access to the latest health sciences literature, via MEDLINE and other data bases, to the rare books (some dating back to the fifteenth century) in the John Martin Rare Book Room.
Health Services Research Center
See "research activities" section of the Catalog.

Iowa Mental Health Authority
The Iowa Mental Health Authority is a state agency affiliated with The University of Iowa College of Medicine and located at The University of Iowa Oakland Campus. The primary function of the authority is to provide state-level support for Iowa’s 32 community mental health centers, which are private nonprofit corporations. The authority provides consultation, staff development, assistance in information management, standards development, and evaluation, and research in support of services for these centers. The authority consults with communities about developing local services, performs liaison and planning activities with other local, state, and federal programs in the mental health delivery system; and provides consultation on federal mental health construction and staffing grants through the National Institute of Mental Health.

Oakdale Campus
Located seven miles northwest of the health center, the 605-acre Oakdale campus includes an inpatient treatment unit, psychology and pediatrics research laboratories, the Institute of Agricultural Medicine, research animal-care facilities, a model office for family practice, a model rural health center, and University House, which provides facilities and support for faculty research and curriculum development. Among the several policy research components of University House are the Health Services Research Center, Gerontology Center, and Institute of Child Behavior and Development.

Psychiatric Hospital
Part of the University Hospitals system, Psychiatric Hospital contains clinical and research laboratories in neuropharmacology, biochemistry, and psychology. The electroencephalographic laboratories serve the entire University of Iowa Health Center.

University Hygienic Laboratory
Laboratory staff members perform a variety of diagnostic, surveillance, training, and consulting functions in such areas as bacteriology, parasitology, industrial hygiene, serology, epidemiology, health physics, radiation chemistry, water and air pollution, drinking water analysis, pesticides and herbicides, toxicology, mineral analysis, and disease surveillance. The laboratory provides virological and aerological diagnostic services for The University of Iowa Hospitals and Clinics and Stoumen Health Service.

State Services for Crippled Children
At child health clinics conducted annually in communities throughout the state, and at University of Iowa clinics, State Services for Crippled Children (SSCC) provides Iowa residents under age 21 with diagnosis and evaluation services in pediatrics, orthopedic surgery, otolaryngology, speech pathology, audiology, clinical and educational psychology, dentistry, and ophthalmology. A free clinic sponsors child health centers in which a number of new health programs are conducted. It administers demonstration programs on special health problems related to handicaps such as muscular dystrophy, mental retardation, phenylketonuria, and prevention of coronary heart disease, and initializes a University of Iowa graduate training program in audiology and speech pathology.

University Hospital School
A University-affiliated facility dealing with the problems of developmentally disabled children and young adults, the University Hospital School provides services involving medicine, dentistry, nursing, nutrition, speech and audiology, physical and occupational therapy, activity and music therapy, psychology, social work, mental education, physical education, vocational, and residential activities.

The hospital school’s residential program provides educational and therapeutic services for children judged to require services not available in the local community. The program is to return the children as quickly as possible to their home communities and schools.

The day program provides special education, therapy, and functional training for mentally retarded children and young adults who live in the Iowa City area.

The hospital school’s training activities include pre- and in-service lectures, workshops, practicums, and seminars for care providers who work in other facilities or community programs.

The school cooperates with the State Developmental Disabilities Council and other state agencies in providing technical assistance for their programs.

The hospital school’s Child Development Clinic serves the learning-disabled child, the socially disruptive child, the child or his family, and the child with selected metabolic disorders.

The hospital school houses the University hospitals’ genetics and biobehavioral laboratories, which it uses 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/or 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 336-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 if its teaching is to have the relevance, freshness, and effectiveness expected of a distinguished institution of higher 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 commitments of the institution and actively promotes, in a variety of ways, the research mission of the University and the educational development efforts of the faculty. This office has an interlocking relationship with the Graduate College, because of the all-University character of the college and the close connection between the graduate programs and research and creative activity.

The University Research Council assists the vice-president for educational development and research in 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, proposal writing, clerical and related assistance for specific research projects, for faculty travel related to specific research projects, or for the purpose of acquiring skills, knowledge, or techniques which will enhance research at the University; and for honoraria 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 Microprobe Facility
Located in the College of Dentistry, this facility has potential applications in widely diverse scientific areas, such as metallurgy, mineralogy, oreology, chemistry, biochemistry, pathology, zoology, physics, and electronics, and holds particular promise in the area of environmental science.

The microprobe facility has an Applied Research Laboratory DXM-5M microprobe equipped with three automated crystal spectrometers and a Tracee Northern TN-3000 solid state detector system. The ability of the instrument to do high resolution analyses of extremely small volumes of material, such as inclusions and particles, permits the characterization of materials on a micrometer scale. The instrument is automated to provide online, corrected quantitative results in the wavelength dispersive, energy dispersive, and combined (EDS-WDS) modes of operation.

Image modes of nodular resolution (about 0.1 micrometer) are available for backscattered electrons, secondary electrons, transmitted electrons, sample current, and elemental mapping. A quadrupole mass spectrometer has also been interfaced with the instrument for the examination of specimens which are volatile under the electron beam.

Transmission Electron Microscopy (TEM) Facility
Equipment includes high resolution electron microscope, an automatic tissue processor, glass knife makers, diamond knives, ultramicrotomes, a digital image analysis system, electron evaporators, light microscopes, cameras, photography, and photomicrographic darkrooms. The facility also provides all solutions and supplies necessary for investigations involving ultramicrotomy including specialized staining and embedding techniques, negative staining, metal coating, autoradiography, enzyme-cytochemistry, immuno-cytochemistry, and all stages of sample preparation for scanning electron microscopy and freeze fracture, and other procedures. A modern library containing texts and reviews of various applications of TEM is also available.

The facility is intended to serve both the experienced and novice investigator and to provide training for those who need it. It is located in the Basic Sciences Building.

Flow Cytometry Facility
A laboratory for flow cytometry is located in the Medical Laboratories of the College of Medicine. The facility's B-D FACSYS IV fluorescence-activated cell sorter has extensive applications in the fields of cell biology, immunology, endocrinology, hematology, and cancer. The flow cytometer causes single cells to flow through a laser beam (argon ion or HeNe laser, with 0.1% of the 488 nanometer beam) and analyze the cells in one or two spectral regions, or fluorescence polarization, and forward angle light scatter are measured for each cell. Data is presented as two- or three-dimensional plots and can be stored on computer disk memory. The system can also sort viable cells on the basis of any optical signal, and maintain sterility.

Biological support equipment for sample preparation is available within the facility. Many fluorochromes, enzymes, and reagents are provided, along with staining procedures. A tissue culture microscope and a fluorescence microscope with phasen for sample observation.

Educational tours through the facility are given upon request. Frequent users of the FACSYS-IV will be instructed in data analysis and display, if desired. Consultation with the director concerning flow cytometry in system for projects, or proposals is provided.

Laser Facility
Theional Facility consists of a wide variety of modern instrumentation. In particular, a state-of-the-art CW Argon ion laser/modular dye laser system is routinely operated with a linewidth of one-tenth of a millimeter of a repeated estimator. This instrument is installed in a 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 48-foot long enclosed optical bench with a variety of work stations for users.

Scanning Electron Microscope (SEM) Laboratory
The SEM Laboratory provides facilities and technical assistance to research programs involving the use of a scanning electron microscope. Located in the Zoology Building, the laboratory is equipped with a JEDL JSM-35C instrument. Rotary cold storage and gas flow lock systems were recently added. A Balzer's freeze-fracture, freeze-etch equipment is currently under construction for projects involving investigations into the organization of biological membranes. The facility is a vacuum evaporator for specimen coating as well as a state-of-the-art species drying apparatus for biological tissue preparation.

Computing Center
The Gerald R. Weig Computing Center provides research and instructional computing facilities to all students, faculty, and staff of the University. The center maintains systems capable of an expanding range of applications, and provides network connections with off-campus facilities. It has a large number of terminals, both batch and interactive, conveniently distributed around the campus. The center provides educational and consultative services to users. Although the center is an entity distinct from the Computer Science Department, there is an interchange of students, faculty, and ideas between the two staffs.
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. Staff members are available to locate potential funding agencies, assist in the preparation of budget and cover material, and give editorial assistance to achieve effective organization and technical correctness in an application. The staff also assists in processing an 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 for matters other than expenditure accounting.

University House

University House began in 1977 as a program dedicated to three 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 Oakland 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 the exchange of ideas.

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 also is able to support research and other educational development activities jointly pursued by faculty members from the University and from the independent, four-year colleges of Iowa.

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

University House also assists the Office of the Vice President for Educational Development and Research in its role as a broker in important, joint-research efforts that serve the public policy concerns of the state government and the people of Iowa.

University House has nearly six thousand square feet of newly furnished space in the Oakland Hospital, including private faculty offices, several conference and project rooms, and a lounge. Secretarial services are available. Located in the same building are a cafeteria, a theater, a high conference room, a copy center, a bath terminal connected to the University Computer Center, a terminal with text-editing capabilities, and a full-time assistant for computer services. Photocopying and book delivery services are also available from the 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 in the regional basis to aid them in diagnosing and treating the problem of child abuse.

Gerontology Project

The purpose of the multidisciplinary, interdisciplinary Gerontology Project is to promote curricular development, research, and services which relate to the elderly and their problems.

Health Services Research Center

Organized to foster research, education, and demonstration projects relevant to the health needs of nonmetropolitan areas, the center consists of a multidisciplinary core of scholars drawn from the colleges of Medicine, Dentistry, Nursing, Pharmacy, Education, Engineering, Business Administration; several social science departments in the College of Liberal Arts; University Hospitals and Clinics; and the Veteran Administration Medical Center. These individuals have a mutual interest in improving the health services delivery system in Iowa, the Midwest, and the nation as a whole.

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.

Video Center

The University Video Center provides high-quality video services and facilities including those necessary to sustain and promote research activities. It also cooperates in video equipment purchase and inventory and promotes efficient University support of campus video. Toward this end, the center has the personnel and facility resources to assist units in the purchase of equipment and supplies, and in production and postproduction activities. Additionally, the center provides centralized video maintenance and system design and maintains guidelines for equipment standardization.

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 context of research at the University:
Institutes
Dows Institute for Dental Research
Contact the College of Dentistry for information.

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

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

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

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

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

Centers
Agricultural Law Center
See the "College of Law" section of the Catalog.

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

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

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

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

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

Center for 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.

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.

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

Health Services Research Center
See "University House" in this 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.

Statistics 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
Iowa Lakeside Laboratory
See "Iowa Lakeside Laboratory" in the "College of Liberal Arts" and

"Continuing 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.
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 reflects 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. McBie Theatre, Clapp Recital Hall, and the new Music Building, 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 structures 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 art in America for more than half a century. The original art building dates from 1928. 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 Drewelow, who in 1924 became the first recipient of the Center of Arts degree in studio art at The University of Iowa.

The school's Corroborate 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 paintings, prints, 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 business firms contributed toward the museum's construction costs. The museum opened in 1966 and quickly earned recognition as one of the nation's finest university museums.

A gift from industrialist Roy Carver of Muscatine made possible the construction of a major addition opened in 1976. With the Carver Wing, the museum has 48,000 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, photography, and African and pre-Columbian art.

The Stanley Collection of African sculpture, currently on extended loan to the museum, is a promised gift from Max and Betty Stanley of Muscatine. 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 receptions, openings of exhibitions, and an active Print and Drawing Study Club.

University Theatre

University Theatre houses the Division of Dramatic Art of the Department of Communication and Theatre Arts. It is the home of Central, University of Iowa Theatre productions each year. Medieval Theatre seats 477.

Four additional theater spaces in other parts of the campus greatly extend the range of University Theatre productions.

Old Armory Theatre features a thrust stage and seats an audience of 200.

MacLean 301 Theatre is used for original works by students.

Studio II in the Old Armory is used for student-produced works, often as an establishment of production requirements.

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

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

School of Music

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

In a given year, faculty artists and the many student ensembles of the school present about 100 major concerts, plus an additional 270 to 300 student vocal and instrumental recitals.

Clapp Recital Hall, with its hand-crafted Casavant tracker organ, seats 720 for public concerts. The 200-seat Harper Hall is both a classroom and the setting for many recitals. The school’s largest ensembles (symphony orchestra, bands, and chorus) perform regularly in Hancher Auditorium.

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

The School of Music is in the vanguard of innovation in the arts, creating and performing works in new forms. Its Center for New Music, funded originally by the Rockefeller Foundation, is a laboratory and extension of the composition area. Faculty and student members of the Center for New Music are a repertoire ensemble for the performance of new music.

Two electronic music studios provide a wide range of technical capability for creative audio-musical forms. In Video/Laser III, the school has the most advanced laser deflection system of any university, utilizing laser beams in brilliant colors to produce visual analogues to sound. Outstanding recording facilities link 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 2,684. In its first seven seasons, the auditorium hosted audiences totaling more than a million people.

In addition to performances by the various units of the Iowa Center for the Arts each year, leading artists from throughout the world appear on the Hancher stage—solists, ensembles, theater and dance companies, major symphony orchestras, and ethnic companies from other nations and cultures. For such stellar attractions, nearly half the Hancher audience are students of the University, who have priority in the purchase of tickets, at reduced prices. Non-student patrons regularly attend auditorium events from a wide region in Iowa and western Illinois.

The auditorium has become a Midwest showcase. Handsome lobbies, excellent acoustics, and a surprising intimacy in its interior design make it one of the foremost concert halls in America. It is much more than a showcase, however. It is also a splendid educational plant, designed as an extension of the classroom and laboratory facilities of all of the performing units of the Iowa Center for the Arts.

For students of the various theater arts, the auditorium has splendid scene construction and costume shops, nearly 50 sets of rigging for scenery changes, and one of the most sophisticated lighting control and sound systems in the western United States. For music students, Hancher is an on-the-premises concert hall.
The stage itself is an uncommon educational resource. Its proscenium is 70 feet wide. With its adjacent wings, the stage area is 175 feet long, 55 feet deep, and eight stories high. Mobile units of a concert shell may be quickly installed on stage for various concert requirements.

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

Hancher Auditorium refills a new dimension in the University's educational and cultural services to its students and to the people of Iowa.

Arts Center Outreach

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

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

Dance

The University of Iowa Dance Company is centered in the dance division of the Department of Physical Education and Dance. The company appears in its own productions during the year and participates with other units of the Iowa Center for the Arts in interdepartmental projects and programs. The company is enriched by the frequent campus visits of professional dancers, choreographers, and leading dance companies of this and other countries. The professional visitors come not only to perform but often to provide lecture demonstrations and classes.

Broadcasting and Film

The Televising Center and the studios of radio stations KUSC and KRIM are key classrooms and laboratories for students in the broadcasting and film division of the Department of Communication and Theatre Arts. The major community serves as the "on-location" 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 won widespread private support from foundations, business corporations, individuals, and the U.S. State Department.

Windhover Press

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

The Windhover Press is one of the nation's small company of distinguished hand presses. Its limited editions are frequently cited for their excellence by the American Institute of Graphic Arts, whose prestigious companions involve all of the major publishers in the country.
Children's Reading Clinic

The Children's Reading Clinic at the University of Iowa College of Education trains classroom teachers, supervisors, and consultants. It also offers child psychologists, and counselors to assess the reading abilities of school-age children, and to recommend and use instructional materials which are suited to their needs and interests.

During the academic year the clinic provides practice in Iowa City schools at in-class diagnostic and remedial centers. During the summer the clinic is in the Wenden Johnson Speech and Hearing Clinic, where the staff provides reading instruction for children who attend the Summer Residential Program for therapy in speech, hearing, and reading. Student clinicians do all Children's Reading Clinic teaching under the close supervision of clinic staff members.

International Education and Services

The Office of International Education and Services (OIES) is the focal point for University international education activities. It works in the area of international studies, international educational exchange, and technical assistance.

The OIES seeks to promote development and cooperation among the various aspects of international studies—foreign language and area studies, comparative and topical studies, and foreign language departments. It also assists faculty and students seeking grants or fellowships for study or research that has an international perspective.

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

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

Foreign student advisers in the OIES provide assistance to foreign students, faculty members, and professionals on immigration and other matters relating to international educational exchange. The International Center, a facility operated by the OIES, is open to all University and Iowa City community members who have international interests. Facilities and programs are designed to encourage the interaction between people of all cultures.

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

Museum of Natural History

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

Habitat exhibits of North American mammals include the bison, antelope, mountain lion, moose, and beaver. The Layman Island Cyclorana is a large and well-known bird habitat exhibit comprising a complete representation of a bird island of the Hawaiian group.
Other habitat exhibits include the Bering Sea, Louisiana Swamp, Fall Migration, and Cranes on the South Dakota Prairie. The crane exhibit includes both the sandhill crane and the rare whooping crane as they appear on the prairie during migration.

The major invertebrate phyla are represented in several exhibits and include such familiar groups as the arthropods, mollusks, echinoderms, and coelenterates.

Ethnological exhibits in the museum present materials from many parts of the world, Indian and Eskimo materials, including beadwork and carved ivory received in the late nineteenth century, are exhibited. The ancestry of humans through 12 million years of time is portrayed in a display featuring replicas of fossil remains from Africa, Asia, and Europe.

Several displays relate to the geology of Iowa and include typical fossil specimens.

Old Capitol

Old Capitol is the central landmark and symbol of the University. It was the capitol of the Territory of Iowa from 1842 until 1846 and the capitol of the State of Iowa from 1846 until 1847, when the government moved to Des Moines and gave the "old" capitol to the University as its first building.

Various University offices and departments have been located in Old Capitol through the years, and it housed the office of the University president continuously from 1880 to 1970, 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 returned to the 1840s and 1850s. Two were restored to the 1820s, to represent the University years. Old Capitol was reopened in 1978 as a "living museum." Guided tours are conducted daily without charge.

Overseas Study and Travel Abroad

The Office of Overseas Study and Travel Abroad helps faculty members design study abroad programs, facilitating arrangements for program publicity, transportation, orientation, and logistics. The office offers individual counseling on all aspects of travel, from planning to completion, and provides free materials designed specifically for the University community.

The office maintains an extensive reference collection which includes foreign university catalogs, information on special collections and libraries overseas, lists of faculty and graduate programs at foreign universities, and study abroad programs offered by domestic and foreign institutions of higher learning.

The office assists students in selecting study abroad programs to complement their on-campus academic programs and to ensure correct credit arrangements.

University Relations

The Office of University Relations seeks to foster understanding of, participation in, and support of University aims and activities through effective two-way communication within the University community and between the University and its key publics. The office handles management responsibilities for the Office of Public Information, the Department of Publications and Printing Services, and the University of Iowa Press. In addition, the office of University Relations seeks to maintain an effective information program through use of internal and external media, and provides a liaison between the central administration and appropriate University and governmental groups. University Relations publishes The University of Iowa Spectator, Faculty and Staff Newsletter (FYD), Campus Correspondent, Calendar of Events, and Programmes; provides campus tours and other services for University visitors and guests; provides copy and photos for some University publications; and serves as the executive office of the Parents Association.

Public Information

The Office of Public Information includes Humanities/Science News Service, Health Center Information and Communication, Men's Sports Information, Women's Sports Relations, Act Center Relations, and Broadcast News Services. These units supply news, photos, and information to print and electronic media; gather and prepare informative material for special and general interest publications; help prepare special University publications; answer requests for information; and assist writers, photographers, and broadcasters who visit the campus.

Publications and Printing Service

The department is responsible for providing services to meet official printing and publications needs of the University. Its staff provides assistance to departments and campus organizations in planning, editing, and designing publications. Printing Service is the production arm of the department, with a printing plant and bindery. Copy centers located strategically about the campus provide quick, inexpensive reproduction service. The department also oversees Campus Stores, an on-campus distribution agency which sells manuals, lab notebooks, and other special/instructional materials created by the faculty. The department is responsible for University compliance with the printing regulations of Iowa, including provision for obtaining competitive bids on printing not done in the University Printing Service.

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 board, composed of faculty members and students appointed by the vice-president for educational development and research.
Recreational Services

The Division of Recreational Services administers a program of more than 20 intramural sports and recreational activities for all interested University students; offers a wide range of recreational lesson programs in such activities as karate, tennis, golf, yoga, aikido, and gymnastics; and provides informal activities for students, faculty and staff members, and their spouses and families. Activities include basketball, badminton, volleyball, lawn tennis, swimming, handball, paddleball, racquetball, squash, canoeing, golf, archery, weight training, billiards, spaceball, tennis, fencing, and hiking. The division's Touch the Earth Outdoor Program includes such activities as rafting, parachute jumping, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles, camping equipment, toboggans, and cross-country skiing equipment are also available for a minimal renting fee.

The University of Iowa Alumni Association

The principal agency through which Iowa students continue their identity with the University after they leave the campus is the University of Iowa Alumni Association. The association was organized in 1897. Its current membership includes University graduates and former students throughout the world. Its continuing objectives are to maintain ties between alumni and the University; to implement programs of service to alumni; to strengthen public recognition of the University as an institution vital to the stability and welfare of the state and the nation; and, through organized alumni effort, to serve the University in strengthening its programs in teaching, research, and public service. The association publishes the Iowa Alumni Review, a bimonthly magazine for association members.

The University of Iowa Foundation

The University of Iowa Foundation was organized in 1926 to help the University obtain the greatest possible educational benefit from private giving. It raises funds for this objective through three major programs: annual giving, capital campaigns, and planned or deferred giving.

The foundation is a private, nonprofit corporation empowered to solicit and receive gifts and bequests, to accept them subject to the conditions imposed on them, and to hold, administer, manage, use, or distribute gifts, bequests, and gifts, all for the benefit of The University of Iowa. The foundation is constantly at work to provide money funds for student financial aid, faculty development, research, library acquisitions, and programs and projects throughout the University.

University Personnel Service

The University Personnel Service is responsible for meeting the employment needs of individuals and departments for the entire University complex. The office functions in the areas of recruitment, interviewing, screening, testing, placement, and salary and fringe benefit administration for full-time and part-time, permanent and temporary, nonteaching and nonstudent employees of the University. The University Personnel Office is responsible for the administration of the Board of Regents Merit System and the Unemployment Compensation Act. 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 contain approximately 2.1 million volumes. About two-thirds of this collection is in the Main Library.

The Art Library contains approximately 51,700 volumes; Biology-Chemistry 59,100; Business Administration, 16,800; Education-Psychology, 117,300; Engineering, 49,350; Geology, 28,000; Health Sciences, 160,800; Library Science, 10,200; Mathematics, 31,000; Music, 66,600; Physics, 31,600; and Zoology, 27,300.

The Law Library, which is administered by the College of Law, contains 321,555 volumes.

Special Resources

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

The Human Relations Area Files consist of full data 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 Ceder Rapids, Iowa, is considered one of the most complete in existence. It contains nearly 2,000 manuscripts and manuscript letters written by Hunt or to him by many of his famous literary friends, 100 association volumes, and 600 addition of Hunt's writings.

The Mark Twain Memorial Collection of approximately 3,700 volumes is particularly rich in deluxe editions, including many superb bindings especially for Mrs. Twain.

The French Revolution Collection includes more than 8,000 political pamphlets, chiefly from the years 1788-1791, supplemented by numerous French newspapers and government publications of the time.

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

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

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

The "X" Collection is a gathering of early, rare, or special works on diverse subjects, including books of the fifteenth and sixteenth centuries, early American literature, and Connecticut publications. Private press books, and select modern first editions.

The Manuscript Collection includes more than 10,000 individually catalogued letters and manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to 366 inventoried collections of papers, diaries, and correspondence files relating to midwestern economic, political, and agricultural history.
Other special collections include the Harvey Ingham Collection of books dealing with the American Indian; the Levi G. Leonard Collection of manuscripts and documents dealing with railroading in the Midwest; the History of Hydraulics Collection; the Edwin Ford Piper Collection of ballads and folksongs; the Chautauqua Collection, which contains several thousand letters and business documents descriptive of the Chautauqua movement; the Blunden Collection of poetry, biography, criticism, manuscripts, and letters relating to the contemporary English poet, Edmund Blunden; the Iowa Authors Collection, the Map Collection, containing more than 175,000 maps and indexed aerial photographs and nearly 2,000 atlases, gazetteers, and related reference items; and the University Archives.

The John Muir Rare Book Room in the Health Sciences Library houses a collection of approximately 1,500 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 Clarinda, Iowa.
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 array 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 areas 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 kind of flexibility and adaptability mentioned here are built upon an understanding of other cultures and languages, the social and political institutions in American society, communication behavior, and the physical and biological world about us. A liberal arts education includes something called a “general education” because students receive general preparation for the opportunities and problems they will encounter throughout their lives. This approach to education assumes that, because we cannot now foresee all of these opportunities and problems, students are better prepared for the future if they have learned and developed abilities, awareness, sensitivities, and knowledge which will help them generate responses to unexpected events. The College of Liberal Arts attempts to provide this versatility by its combination of major and general educational requirements.

Schools and Divisions

There are seven schools and two divisions in the College of Liberal Arts. 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 includes the departments of Computer Science, Mathematics, and Statistics. The School of Letters is a federation of the departments of Classical, Asian Languages and Literatures, English, French and Italian, German, Linguistics, Russian, Spanish and Portuguese, and Communication and Theatre Arts; the programs in Afro-American Studies, American Studies, Comparative Literature, and Modern Letters; the International Writing, Translation, and Writers workshops; and the Windhover Press. There are also schools of Journalism and Mass Communication, Library Science, Religion, and Social Work.

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 Undergraduate Academic Advising Office. Residents in preprofessional programs are assigned
special advisers from the appropriate professional areas. Students should go to the Liberal Arts Advisory Office to change academic advisers; declare or change majors; and obtain information and advice about graduation requirements, the Bachelor of General Studies and other degree programs, the College Level Examination Program (CLEP), pass-fail, satisfactory-fail, the second-grade-study option, deadlines for various administrative actions (such as dropping or adding courses, cancelling registration), probation, dismissal, re-enrollment, academic discipline, and any other academic matter.

Degrees Offered
The College of Liberal Arts offers the 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 in the following 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.
- Communication Studies—B.A.
- Computer Science—B.A., B.S.
- Dance—B.A.
- Dental Hygiene—B.S.
- Early Childhood Education—B.A., B.S.
- Economics—B.A., B.S.
- Elementary Education—B.A., B.S.
- English—B.A.
- French—B.A.
- General Science—B.A., B.S.
- Geography—B.A., B.S.
- Geology—B.A., B.S.
- German—B.A.
- Greek—B.A.
- Health Occupations Education—B.S.
- History—B.A.
- Home Economics—B.A., B.S.
- Italian—B.A.
- Journalism and Mass Communications—B.A., B.S.
- Latin—B.A.
- Letters—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.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.
- Zoology—B.A., B.S.

Interdisciplinary Programs
The programs briefly described below are fully described in the 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 pre-Civil War history of African-Americans in the United States. Because a thorough understanding of Afro-American culture cannot be achieved through a single course on a single discipline, all students in the program are required to pursue courses in both humanities and social sciences.

Global Studies
The Global Studies Program is a cross-disciplinary study of major world problems. The purpose of the program is to provide students the opportunity to examine these problems and their interrelationships, and to focus on one or more of the many problems for more in-depth analysis. The four problem areas are war, peace, and security; development; environmental concerns and global resources; and 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
of the minor will be entered on the student's permanent record.

Requirements for a minor are:
A minimum of 16 semester hours must be taken in the minor area.
At least 12 of the 16 must be taken in advanced courses at The University of Iowa.
No course accepted toward the minor may be taken pass-fail.
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.

Students may apply for minors at the same 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 an undergraduate status, completes the requirements for a minor, he or she 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 filed with the registrar needs the signature of the major adviser.

The degree-granting programs in early childhood education, elementary 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 approval is available in departmental offices.

Students who earn bachelor's degrees in interdepartmental programs, such as general science or others, cannot earn minors in areas falling within the major degree held.

The decision of what is 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 confer with their major adviser. If the 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 might 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 Advisory Office.

Minor in Business Administration

Students in the College of Liberal Arts may seek a minor in business administration. Requirements include practical as well as business courses. The course listed below satisfy all requirements. Integrated business courses should completed before the first semester of these courses by applying for admission to the business school.

Computer Programming course 3 s.h.
Course on mathematical statistics 22:167 or higher 3 s.h.
Course in statistics 225:8 or higher 3 s.h.
6E:1-2 Principles of Economics 6 s.h.
6A:1 Introduction to Financial Management 3 s.h.
6A:2 Introduction to Managerial Accounting 3 s.h.
6B:31 Introduction to Marketing 3 s.h.
8F:15 Introductory Financial Management 3 s.h.
6L:81 Administrative Management 3 s.h.
6L:47 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 the 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.

Minors in Education
Students in the College of Liberal Arts may earn minors in education. For detailed requirements, see the "College of Education" section of the Catalog.

Liberal Arts Minors for Business and Nursing Students
Undergraduate students in the College of Business Administration and College of Nursing at The University of Iowa may earn minors in their colleges by satisfying College of Liberal Arts requirements for minors.

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

Programs leading to the certificate will include at least 18 semester hours in coursework related to the chosen country or area. In addition, students must fulfill the foreign language requirement for the B.A. in a language appropriate to the chosen country or area. A student who successfully completes a Foreign Studies Certificate program designed by the appropriate departmental chair receives the Foreign Studies Certificate with the or her major of interest. Interested students should consult the chair of the appropriate department: Asian Languages and Literature (India, China, or Japan); Classics (Ancient Greece or Rome); French and Italian (France or Italy); German (Germany or Austria); Russian (Russia or Eastern Europe); Spanish and Portuguese (Spain, Portugal, or Latin America).

Academic Career Clusters
The college's Academic Career Clusters Program is designed to help students select majors and/or minors or to build individualized degree programs consistent with their career goals. All academic advisors in the college have copies of the Clusters Source Book containing sample clusters and plans of study in areas such as corporate communication, publishing, arts management, international affairs, environmental professions, personnel administration, and so on. Each cluster contains lists of courses from throughout the University, organized in terms of competencies required for career areas. Students and advisors can use the cluster designs to develop plans of study within the context of a variety of academic degree programs.

Specializations within 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 is 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, art history emphasis, and art education; music education, music therapy, composition/theory major, and applied music.

Other specializations can be developed with combinations of courses taken from several areas—for example, a specialization in public relations and advertising with courses taken in the Department of Communication and Theatre Arts, the Program in Communication Studies, and the School of Journalism and Mass Communication; or a specialization in management with courses taken in the various social science departments.

For more information on specializations within and between programs, see the program descriptions in this Catalog; the Clusters Source Book; and advisors in the appropriate departments.

Honors Program
The Honors Program is a college-wide plan for exceptionally promising students. Honors students are selected to special sections in general education courses. Those whose major departments offer honors curricula have opportunities to enhance their studies in honors seminars, independent research, and other special activities, and to earn the baccalaureate degree "with honors." Entering freshmen whose records indicate they would benefit from the Honors Program are invited to participate. However, the program is open to all interested and qualified students.

Preprofessional (Joint) Programs
Joint programs leading toward graduation from the College of Liberal Arts may be used with The University of Iowa College of Medicine, The University of Iowa College of Dentistry, any accredited medical or dental college in the United States which offers advanced degrees, and The University of Iowa College of Engineering.
To be eligible to use a joint program with the above colleges toward graduation from the University of Iowa, a student must have completed all of the following prior to going to a "incidental" college: earned at least 94 semester hours; satisfied skills, core, and foreign language requirements; met the requirements for the major; and satisfied the residence requirement of the college.

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

To use a joint program with any college except The University of Iowa, a student, during his or her last semester in residence at the University, should apply to the graduation analysis section of the Office of the Registrar for permission to use the 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 how to proceed toward applying for a University of Iowa degree.

With The University of Iowa, College of Engineering, students must maintain full status in the College of Liberal Arts requirements, plus those of a major department, and then complete degree requirements in a major in the College of Engineering. This is a five-year program (three in liberal arts and two in engineering). The student receives two degrees at the time he or she completes the engineering program.

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.

Enterling Freshmen

An applicant seeking admission as an entering freshman must have the high school from which he or she graduated provide a certificate of high school credits, including a complete statement of high school record, 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 admission 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 subject matter background, is in the upper one-half of his or her graduating class, and meets specific curricular 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 review of his or her entire record and at the discretion of the admissions 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 admitted 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 nonapproved high school must submit all data required above, and must take examinations which demonstrate his or her general competence to do successful college 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

Transfer from 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 Grades, given by Educational Institutions published by the American Association of Collegiate Registrars and Admissions Officers will be followed for schools not specifically accredited.

Each applicant must submit an official transcript bearing the original seal and signature of the official in charge of records from each college or university the student has previously attended. The applicant must also submit a high school transcript, scores on standardized tests, and any other records or letters of the College of Liberal Arts may require to support his or her application for admission.

A transfer applicant is expected to have maintained a C average in a four-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 2.25 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 on 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 suspended for an indefinite period, will not be considered until six months have passed since the last date of attendance. When eligible for consideration, the applicant will be considered on the basis of his or her performance on the entrance examinations.

A transfer applicant under disciplinary suspension will not be considered for admission until a clearance and a statement of the reason for suspension are filed from the previous college. When it becomes proper to consider an application from a student under suspension, the college must take into 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 none or all of the credit. The validation period shall not be
undergraduate study may be expected to meet the minimum admission standards than the minimum requirements outlined for in- 

stitutional transfer students. Foreign transfer 

Students foreign students who are or 

will be in the United States temporarily under visa or student. The college will notify the student if he has been refused admission. An appeal from a decision to deny admission or admission in the discretion of the admissions officer.

Foreign Students 

Residents of foreign countries must complete a special admission application for admission to the college. The college will notify the student if he has been refused admission. The admission decision is in the discretion of the admissions officer.

Nondegree Candidates 

Under special circumstances, students may be admitted to the college as nondegree candidates. Such admissions may be for a maximum of four years.

Nondegree candidates are not eligible for courses leading to a degree, and they cannot register for courses leading to a degree. Nondegree candidates may register for courses leading to a degree only by obtaining a regular admission to the college.

Requirements for Degrees 

Credit Requirements for Graduation 

The college requires a minimum of 120 semester hours of credit, of which at least 30 are met by courses in residence at the college. A maximum of 16 semester hours of credit at the college may be accepted toward the degree.

Graduation from an accredited college or university requires a minimum of 120 semester hours of credit, of which at least 30 are met by courses in residence at the college. A maximum of 18 semester hours of credit at the college may be accepted toward the degree. A student may be given credit for the equivalent of 18 semester hours of credit at the college.

The Department of Sociology offers seven EFL courses (103/1/103/10 and 101/184-168). 

Foreign students who have attended a foreign college or university in the United States are eligible for transfer. The college will notify the student if he has been refused admission. The college will notify the student if he has been refused admission. The college will notify the student if he has been refused admission.

Semester hours completed 

Nondegree candidates are not eligible for courses leading to a degree, and they cannot register for courses leading to a degree. Nondegree candidates may register for courses leading to a degree only by obtaining a regular admission to the college.
Rhetoric Skills
The College of Liberal Arts requires all entering undergraduate students to complete a rhetoric course each semester until they achieve a satisfactory level of competence in oral and written communication; proficiency in investigating, analyzing, evaluating, and responding to the ideas, beliefs, and attitudes of others; writing and speaking; and proficiency in the responsible use of various sources of information and ideas.

Students are originally assigned to rhetoric courses on the basis of American College Test scores. Most entering freshmen are assigned either to 10-1-2 Rhetoric, a two-semester, 8-semester-hour sequence, or to 10-3 Rhetoric, a one-semester, four-credit course.

Students initially assigned to and registered for 10-3 Rhetoric, 10-4 Rhetoric, or 36C:25 Principles of Speech Communication may attempt to satisfy all or part of the rhetoric requirement, and earn 2 or 4 semester hours of credit, by taking the writing and/or speech tests offered during the first week of the semester. Rhetoric classes begin with student performances which serve as placement indicators. Students in 10-1 who demonstrate above average reading speed and comprehension and above average writing skill may be advised to switch to 10-3, for example.

Students whose early work indicates a need for individualized instruction beyond their classroom may enroll for noncredit work in the reading and/or writing labs offered by the Rhetoric Program. Some students may be advised to switch to 10-8, a one-semester, two-credit course of individualized instruction in reading, and/or to 10-8, a one-semester, two-credit course of individualized instruction in writing. No more than 8 semester hours of rhetoric credit may be counted toward baccalaureate requirements.

Transfer students may, meet the rhetoric requirement with 8 semester hours of transfer credit in composition and 2 in speech. Students who partially satisfy the requirement with transfer credit may be assigned to 10-2-4, 36C:25. Students admitted to the University with 40 or more semester hours of transfer credit are excused from the rhetoric requirement.

(For rhetoric course descriptions, see "Rhetoric Program" in this section of the Catalog; for a description of 36C:25 Principles of Speech Communication, see "Communication and Theatre Arts.")

Mathematics Skills
The general requirement in mathematics can be met by at least two and one-half years of high school mathematics, or a minimum score of 23 on the mathematics section of the American College Test, or completion of the University's course 22M:1 Basic Mathematical Techniques, or a mathematics, statistics, or computer science course taken in the Division of Mathematical Sciences.

Transfer students may meet this requirement with transfer credit in mathematics, statistics, or computer science.

Physical Education Skills
This requirement may be met with four 1-semester-hour physical education skills courses, or by satisfactory performance in any of the comprehensive physical educational skills tests given at announced times each semester. The student may receive 0 to 4 semester hours of ungraded credit for successful completion of the tests.

Freshmen who take the test but fail it, must register for physical education skills for at least one semester before attempting the test again. Students who have not passed the test before the beginning of the sophomore year must register for physical education skills coursework at that time; those who wish to, may take the sophomore course for no credit. No more than 4 semester hours of credit in physical education skills may be counted toward a baccalaureate degree.

Students who have passed their twenty-third birthday prior to their first registration in the University are excused from the physical education skills requirement.

Students who present evidence of having completed a basic training program in some branch of military service may be excused from the requirement.

Transfer students may meet the requirement with 4 semester hours of transfer credit in physical education. Transfer students admitted to the University with more than 40 semester hours of transfer credit are excused from the requirement. Transfer students transferring less than 4 semester hours of physical education credit and a total of less than 40 semester hours of credit must complete the 4-semester-hour physical education requirement at The University of Iowa.

The instructional program in physical education skills provides for a wide variety of activities. The program also gives the student an opportunity to correct physical defects which respond to therapeutic exercises.

Courses with which the student can meet the requirement are:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-5 Physical Education Skills</td>
<td>1.5h</td>
</tr>
<tr>
<td>10-6 Physical Education Skills</td>
<td>0.5h</td>
</tr>
<tr>
<td>10-9 Physical Education Skills</td>
<td>1.5h</td>
</tr>
</tbody>
</table>

Core Requirements
There are four core areas: historical-cultural studies, literature, natural science, and social science. All students must satisfy the core requirements by earning a total of at least 12 semester hours of credit in each core area.

These requirements may be satisfied in part or totally by satisfactory performance in approved tests from the College-Level Examination Program (CLEP). With the approval of the student's major department, a student may be excused from the core requirement in the area of his or her major.

Except in literature, core courses may be taken as electives. No core courses or departmental courses seem to must
Transfer students may meet this core requirement with 8 semester hours of transfer credit in core-equivalent courses in astronomy, biochemistry, botany, chemistry, geology, microbiology, physics, and zoology, or with a combination of transfer and UI natural science core courses totaling 8 semester hours. 

1124 Issues of Biotech 4 s.h. 
Human evolution, reproduction, genetics, and moral implications of our biological sciences from cells to behavior; our place and problems with our environment. Lectures, discussion. Independent of 1125.

1125 Ecology and Evolution 4 s.h. 
An overview of diversity of evolution and of diversity of living things, their patterns on earth, their organization in ecological systems, and dynamics of evolutionary processes. Lectures, laboratory. Taught in the fall term, 1124 Independent of 1125.

1503 Earth History and Resources 4 s.h. 
Principles of geology, mineral resources, evolution, minerals, ore deposits, earthquakes, and meteorites. How man's environment is related to his adaptation and to the development of his culture, and the impact of science students. Lectures, laboratory. Not open to students who have had 121, 123, or 126.

1204 Nat. Res. and Physical Environment 4 s.h. 
Social and political processes that create resource environments, our energy resources and problems, environmental politics. For non-science students. Lectures, laboratory. Not open to students who have had 120 or 151.

1126 Chemistry and Physics of the Environment 4 s.h. 
Chemistry and physics of你好?@ of our planet; earth, water, and wave pollution; harmful aggressive to man chemistry and practice of humankind; resources and environment of the universe. For non-science students. Lectures, laboratory. Independent of 1125.

1318 Technology and Man 4 s.h. 
A study of the nature of science, its development and uses. For non-science students. Lectures, discussion. Same as 265.

Departmental Options Any of the courses listed below may be used in any combination (except as indicated) with any other courses on this or the above courses to satisfy the natural science core requirement. For descriptions of the departmental Courses, see the appropriate departmental section of the Catalog.

Biology

211 Introduction to Botany 4 s.h.
211 Plant Diversity 4 s.h.
211 Ecology of the Local Flora 4 s.h.

Chemistry

47 General Chemistry I 3 s.h.
413 Principles of Chemistry I 3 s.h.
48 General Chemistry II 3 s.h.

47 General Chemistry Laboratory 2 s.h.
414 Principles of Chemistry Laboratory II 3 s.h.
416 Elementary Chemistry Laboratory I 2 s.h.

General Science 

(For only students majoring in elementary, special, or early childhood education)

Students with no college science taken: 
97-106 Science Foundations 8 s.h.
22M/28 Theory of Arithmetic 3 s.h.
Students with 4 or more semester hours of college science taken: 
97-104 Science Foundations II 8 s.h.
22M/28 Theory of Arithmetic 3 s.h.
Geology 125 Introduction to Geology 4 s.h. (may not be taken in combination with 1123)

Mathematics 

22M/10 Fundamentals of College Mathematics I 4 s.h.
22M/11 Fundamentals of College Mathematics II 4 s.h.

Physics and Astronomy 

29-11 College Physics 4 s.h.
or 19-17 Introductory Physics I 4 s.h.
or 29-12 College Physics 4 s.h.
or 19-18 Introductory Physics II 4 s.h.

29-01 Basic Physics (may not be combined with any other physics core option) 
29-02 Modern Astronomy 4 s.h.
29-02-02 General Astronomy 4 s.h.
29-02-02 General Astronomy 4 s.h.

Zoology 

37-2 Principles of Animal Biology 5 s.h.

Social Science Core 

The social science core requirement may be met with 8 or more semester hours of credit earned in any combination of courses listed below. For course descriptions, including prerequisites, see the appropriate departmental section of the Catalog.

The social science core option for transfer students is 8 semester hours of transfer credit in core-equivalent courses in anthropology, economics, geography, political science, psychology, and/or sociology, or a combination of transfer and UI social science core courses totaling 8 semester hours.

Anthropology 

1133 Introduction to the Study of Culture and Society 4 s.h.

113-10 Anthropology and Contemporary World Problems 4 s.h.

Economics 

61 Principles of Economics 4 s.h.
62E Principles of Economics 4 s.h.

Geography 

41 Introduction to Human Geography 4 s.h.
42 Natural Environment and Man 4 s.h.
441 Introduction to Social Geography 4 s.h.
44-19 Natural Environmental Issues 2 s.h.
44-30 Introduction to Economic Geography 4 s.h.
44-36 World Cities 4 s.h.

Linguistics 

103-11 Language and Society 4 s.h.

Political Science 

20-1 Introduction to American Politics 4 s.h.
20-2 Introduction to Politics 4 s.h.
or 20-110 The American Political System 4 s.h.
20-30 Introduction to Political Thought and Political Action 4 s.h.
20-30B Introduction to Comparative Politics 4 s.h.

30-50 Introduction to Political Behavior 4 s.h.
30-30D Introduction to World Politics 4 s.h.

Psychology 

311 Elementary Psychology 4 s.h.
or 313 General Psychology 4 s.h.

Sociology 

34-1 Introduction to Sociology: Principles 4 s.h.
34-2 Introduction to Sociology: Problems 4 s.h.
Foreign Language Requirements

The Bachelor of Arts degree requires at least four semesters of college-level study in any one of the foreign languages taught in the University. The requirement may also be satisfied by completion in four years of high school study in one language. Completion of a combination of high school and college study in one language which would be the equivalent of four semesters of study on the college level, or satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study in one language.

The Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science degrees require at least two semesters of college-level study in any one of the foreign languages taught in the University. The requirement may also be satisfied by completion of two years of high school study in one language, 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, or satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after two semesters of college study in one foreign language.

Students taking 200 level courses may satisfy the foreign language requirement for the B.A. degree by taking a sequence of courses culminating in 220 Intermediate French or 228 Second-Year Composition and Conversation, or a combination of 227 Second-Year Composition and Conversation and 228 French Conversation Final Level. Placement in this course is at the discretion of the Department of Foreign Languages.

For elementary Chinese or Japanese courses, 6 semester hours per course, for a total of 12 semester hours, will meet the foreign language requirement for the B.A. degree. One semester (6 semester hours) of language courses will meet the foreign language requirement for the B.F.A., B.M., or B.S. degree.

No foreign language is required for the Bachelor of General Studies or the Bachelor of Liberal Studies degree. No foreign language courses may be taken to fulfill the foreign language requirement of the college.

Foreign Language Requirement for Foreign Students

Students admitted to The University of Iowa are foreign students may satisfy the foreign language requirement for graduation from the College of Liberal Arts with the B.A., B.S., B.M., and B.F.A. degrees as indicated below.

As a guiding principle, students should be bilingual. If it is clear that the student is proficient in a language (whether a native language) other than English, the student can use this language to meet the foreign language requirement. It is not clear what a student's other language is, the Admissions Office will confer with the Liberal Arts Advising Office.

At the time of admission of foreign students, the Admissions Office can indicate on the Admission Statement whether the foreign language requirement is satisfied and in which of the following ways:

By completing in secondary school, or at another college, courses in the study of English (speaking, writing, reading, etc.) under the same provision that regular students may use it to meet the foreign language requirement, or

By scoring 500 or higher on the TOEFL.

If the requirement is still to be satisfied, the Admission Office will so indicate.

When foreign students who did not meet the foreign language requirement at the time of admission are ready to graduate, the graduation analysis section of the Registrar's Office will accept any of the following as meeting the requirement:

Successful completion of at least 12 semester hours of appropriate courses in "English as a foreign language" (EFL) taught by The University of Iowa Language Department;

Successful completion of either the 110-120 Rhetoric sequence or 103 Rhetoric with grades of C or better;

Demonstrated proficiency in the use of the English language for the EFL program (on credit) will be awarded on the basis of these evaluations; or

Successful completion of at least 30 semester hours of coursework at the University with a grade-point average of 2.0 or better.

Foreign students usually have their English proficiency evaluated by the EFL program upon first arrival on campus, and need to be taken to specific EFL courses before they are eligible to enroll in rhetoric.

Bachelor of General Studies

The Bachelor of General Studies degree is designed to provide 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 (i.e. skills, cores, and foreign language), accept 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 pull together one or more clusters 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 avoid deviation from those requirements only where it seems in their best interests to do so, working out an 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. or B.S. degree instead, he or she must then meet all of the necessary skills, core, and foreign language requirements for the B.A. or B.S. degree.

Specific requirements for the B.G.S. degree are as follows:
Teaching Certification with the B.G.S. Degree

A B.G.S. student may earn teaching certification in early childhood, elementary, junior, or secondary education in the following manner:
Meet all the requirements of the major department (this usually involves meeting major course requirements in some field, such as elementary education, English, social studies education, etc.)
Meet certification requirements in the selected certification program (this may involve methods courses and practice teaching).

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 are interested in completing the college as full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and in accredited out-of-state colleges may be applied toward the degree, as may applicable courses taken from any of the three Iowa Regents universities. Types of courses available from the Regents universities include correspondence and independent study courses; radio, television, and newspaper courses; Saturday and evening courses; extension courses including those with new distance-learning formats; and regular on-campus courses. Students may also take proficiency examinations.

To be eligible for admission to the program, the student must have earned either an Associate in Arts (A.A.) or Associate in Science (A.S.) degree from an accredited institution, or 60 semester hours of collegiate work accredited for credit toward graduation. The student must satisfy the college's basic skills and core course requirements; holders of the A.A. or A.S. degree will have already met these requirements.

Of the 124 semester hours of credit required for the degree, at least 45 must be earned in four-year colleges, in courses defined as upper-level where the credits were earned (in the College of Liberal Arts, courses numbered 100 and above); 45 must be completed in courses offered by the Iowa Regents universities; and 30 must be earned after admission to the B.L.S. program in the specific Regents university which will grant the degree.

The B.L.S. candidate must meet the general education requirements of the Regents university from which the candidate expects to receive the degree, and, in addition, must earn at least 12 semester hours in 18 quarter hours of credit in each of these distribution areas:

- Humanities
- Communications and arts
- Natural sciences and mathematical disciplines
- Social sciences
- Professional fields, as approved by the degree-granting institution

Of these 36 semester hours, 24 must be in upper-level courses, and of these 24, at least 8 must be in each of the three selected distribution areas. Credits applied to the general education requirements may not be used to meet the distribution area requirements.

Graduation requires a minimum grade-point average of 2.0 in all coursework applied toward the degree, in all coursework completed after admission to the program, and in all upper-level coursework.

While the B.L.S. is awarded by the College of Liberal Arts, the program is administered by the Division of Continuing Education.

Combined Degree Programs

In combined degree programs with other colleges in The University of Iowa, such as medicine, dentistry, and engineering, the student must fulfill all specific
requirements for the bachelor's degree, including the residence requirements of the College of Liberal Arts, immediately preceding transfer to the professional college. No more than 30 semester hours earned in the professional college, after the student transfers from College of Liberal Arts, may be counted as electives toward the College of Liberal Arts degree.

Two or More Bachelor's Degrees
Students who have already received a bachelor's degree and wish to qualify for an additional bachelor's degree must meet requirements for the second degree and complete at least 36 additional hours of study in residence in the College of Liberal Arts beyond the first degree.

Double Majors
Students may meet the major requirement for more than one department, and both departments award the same degree, the student may earn a bachelor's degree with two majors; for example, B.A. in History and English; B.S. in psychology and sociology. No double majors can be earned unless both are in departments 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 and work attempted at The University of Iowa, (2) all work attempted in the major field, and (4) all work attempted in the major field at The University of Iowa.

A student who does not meet requirement (1) but who does have a cumulative grade-point average of at least 1.8 on all college work attempted and on all work attempted at The University of Iowa, and has a 2.0 average in the major, both cumulative and at The University of Iowa, may satisfy requirement (1) by earning sufficient grade points to equal or exceed a figure obtained by multiplying the number of hours required for graduation at the time of entrance.

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

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 advisor 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 Courses, may be added with necessary signatures at any time during the first one-third of the duration of the course. Similar proportional deadlines will operate during the usual eight-week summer session and for other special session courses. The dean's approval will be needed for all adds after the third week and for all drops that occur after the tenth week.

Pass-Fail and Audit
Pass-fail registrations or revokes of pass-fail registration and changes to audit or revoking audit may be made during the first three weeks of the semester (for first one and one-half weeks of the summer session) with approval of the advisor and instructor.

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

Cancellation
Students may cancel their registration at any time during the session up to 4:30 P.M. of the last day of classes.

Grading System

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

Grade of Incomplete
A grade of I may be reported only if the unfinished part of the student's work is a course other than in research, thesis, or independent study, is small, the work is unfinished for reasons acceptable in the instructor, and the student is 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. The work must be completed and submitted to the course instructor three and one-half weeks prior to the close of final exam week of the next session in which the student registers, except that students with incompletes from the spring semester are exempt from completing the course during the succeeding summer session.
Failure to remove the I by that date will result in an F being assigned for each incomplete.

No Report
The "no report" designation appearing on a student's permanent record must be changed to a valid grade according to the same rules that apply to "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 a student dropped after the third week. Undergraduate students in other colleges will receive a W for dropping any course in the College of Liberal Arts after the third week, including courses numbered with the College of Education prefixes 7 and General Science Program prefixes. Similar proportional deadlines will operate during the usual eight-week summer session and for other special session courses.

Regression
Regression occurs if a student takes a lower-level course (which is a prerequisite) after having satisfactorily completed a more advanced course in the same subject. 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.

Pass-Fail
The option of taking courses pass-fail is available to all students in the College of Liberal Arts under the following conditions:

- The consent of the adviser and the instructor must be obtained. (In cases where multiple-section courses are involved, the department should have a uniform standard policy.)
- The mark of pass (P) may be used in lieu of grades of A, B, C, and D for all courses in the College of Liberal Arts and in all other colleges of the university unless otherwise limited.

(See pass-fail description for College of Business Administration.)

Pass-fail may be used only for nonhuman, physical education skills, 22m:1 Basic Mathematical Techniques, and electives. Courses taken to satisfy the foreign language requirement are the core requirements may not be taken as a pass-fail basis. Not more than 16 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 50 semester hours may earn a maximum of 10 semester hours of P grades. Those who bring in more than 50 semester hours are limited to 8 semester hours of P grades. (See comment under "Credit Requirements for Graduation" limiting the total hours of P grades.)

Work in the major department is not available on a pass-fail basis. No courses bearing the major departmental number may be taken on a pass-fail basis. Courses required for the major in cognate or related areas may be taken on a pass-fail basis, if available, at the discretion of the major department.

A student may register for only two pass-fail courses per semester and/or summer session. If a student enrolls for two physical education skills, and electives in the same semester and wishes to take both of them pass-fail, a pass-fail form must be submitted for each course.

A student is not registered for pass-fail unless he or she turns in a properly filled out and signed pass-fail form after the beginning of classes and before the end of the third week of classes. Any change from pass-fail to grade status or grade status to pass-fail must be made by submitting a proper pass-fail form to the Registrar before the end of the third week of classes (first one and one-half weeks of summer session).

The grade of P under the pass-fail usage will be used in the computation of a student's grade-point average.

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 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 for any student. 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 honors will be awarded for satisfactory-fail courses. All students in both S and F 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 (audit) during registration with the special permission signature of the instructor and the advisor. 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 zero credit or audit to credit basis must be made within the first three weeks of a semester (one and one-half weeks during the summer session), using a change of registration form with the necessary signatures.

The mark of R will be assigned to those 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 use the R/W grade basis. Course completed with a mark of R will not meet any college requirements, and carry no credit toward
Advanced Placement

Under the Advanced Placement Program of the College Entrance Examination Board, a high school senior may take comprehensive achievement examinations in many subjects. The College of Liberal Arts grants college credit and, where appropriate, advanced placement to students who achieve satisfactory standards in these examinations. For information, write to the College Entrance Examination Board, 475 Riverside Drive, New York, N.Y. 10027.

Second-Grade-Only Option

For courses taken at The University of Iowa, a student may repeat that course at the University unless obvious repetition is involved, and have only the grade and credit of the second registration used in calculating the University of Iowa cumulative and total cumulative grade-point average. This provision may be applied to a maximum of 10 semester hours of work. 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 for one and one-half weeks 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 all school registrars in instances where a student repeats a course will be continued unless the student completes the form.

Under the provisions of this option, the Office of the Registrar will mark the permanent record to show that a particular course has been repeated. Both grades will remain on the permanent record, but only the second one will be used in calculating the grade-point average and hours earned. The use of the second-grade-only option does not guarantee the opportunity to repeat a specific course; for example, the course may not be offered within the necessary time period the student has available, the course may no longer be offered, or different actions concerning grades may be involved.

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

Classification

Freshman: less than 28 semester hours of credit earned
Sophomore: 28 through 45 semester hours earned
Junior: 46 through 69 semester hours earned
Senior: more than 88 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 session 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 session. Students do not need to be re-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 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 frequent cases cancel the student's registration for the course if absences are excessive.

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

Excused Absences

For permission to be absent from class to participate in any regularly scheduled University event, members of athletic teams, the marching band, and other recognized University groups are expected to present to each instructor prior to each absence a written statement signed by a responsible official specifying exactly the 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. Regular excuse forms for this purpose are available in each departmental office and the Liberal Arts Advisory Office. Students should not be asked to obtain excuses from the Student Health Service.

Mid-Semester Reports

Faculty members are expected to report mid-semester grade point averages whose work is below C. Mid-semester reports should be sent to the Office of the Registrar on forms provided for that purpose. The Liberal Arts Advisory Office distributes the reports to advisers and to individual students or the housing units in which they reside.

Probation and Dismissal

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

- Freshman (less than 20 semester hours): 1.60
- Sophomores (21 to 65 semester hours): 1.60
- Juniors (66 to 90 semester hour hours): 1.75
- Seniors (90 or more semester hours): 1.90

Students on probation whose cumulative (UI and overall) grade-point averages fall or exceed the grade-point averages listed in the paragraph above 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 in the paragraph 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. Petitions should be addressed to the director of the Liberal Arts Advisory Office. Students who are dropped for poor scholarship at the close of the spring semester will, at their request, 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 reenroll after an interval of one year. The petitioner must present evidence that changes have occurred in the status of the student which indicate improved chances of success in college work. A student granted permission to reenroll under the provisions of this paragraph will be reported on "strict probation" and dropped for the second time for poor scholarship, may not register for at least five years. After five years, the student may petition the Liberal Arts Advisory Office for permission to reenroll.

A record of each student's scholastic performance is kept in the Office of the Registrar and in the Liberal Arts Advisory Office. Students placed on probation, continued on probation, or dismissed from the college are notified in writing by the Liberal Arts Advisory Office.

Recognition for Academic Achievement

The college awards degrees “with highest distinction” to students in the highest 2 percent of the graduating class, “with high distinction” to students in the next highest 3 percent, and “with distinction” to students in the next highest 6 percent. Ranking is based on students' grade-point averages for all college-level study undertaken prior to their final registration.

The college also awards degrees “with honors” to students who have satisfied the requirements for an honors major, receive departmental recommendation, and are approved by the college’s Honors Council and dean.

To be eligible for either form of recognition, the student must take his or her final 60 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.

Dean's List

Liberal arts 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 "F"s" or "D-"s", still standing on the current or past semester's record, are recognized by inclusion on the Dean's List for that semester.
Aerospace Military Studies

Department head: Lt. Col. John K. Fonda
Faculty: Maj. Col. John Fonda, assistant professor Capt. James P. Ocasio, Capt. Roger A. Price

The Air Force Reserve Officers Training Corps (AFROTC) at Iowa is designated as the Department of Aerospace Military Studies in the College of Liberal Arts. Credits earned in the department may count toward any degree the University offers. A student may enroll in any academic course the department offers, whether the student is a cadet or not.

To meet the challenges of complex, high-technology developments, the U.S. Air Force must have a professional officer corps with a wide range of special abilities. Sophisticated aircraft manned by skilled pilots and navigators still comprise the most flexible weapons system in the air force. The air force also needs young officers to work with research and development, complex communications-electronics systems, high-speed computers, in specialized fields like law and medicine and in management areas. The AFROTC program is designed to educate students in these capabilities and to prepare them for active military duty.

Participation in the first two years of the program, and in summer field training, affords a non-obligatory look at the air force as a career into the last two years of the program is competitive, and entails a commitment to serve a minimum of four years as an air force officer.

The U.S. Air Force officer must be an imaginative leader and a resourceful manager. To develop these traits in future officers, the AFROTC curriculum stresses student research and involvement. Cadets are required to have satisfactorily completed a minimum of one course in rhetoric and one course in mathematical logic by the end of their third year in the AFROTC program. The College of Liberal Arts core requirements minimally satisfy the requirement. Cadets expand upon these skills in small seminars, where they engage in group discussions, debates, problem solving, and simulation activities requiring maximum individual participation and group cooperation.

Students are expected to evaluate critically what they read and what they say. This student-oriented approach encourages inquiry, logical thinking, effective communication, imagination, and sound judgment.

The program is open to graduate as well as undergraduate students. To be designated a cadet, the student must register for the AFROTC course sequence.


Throughout each year, three- and four-day orientation visits to air force bases supplement classroom instruction.

Two- and Three-Year Programs

Although the AFROTC curriculum normally spans four years, it can be completed in three years by squeezing the first two years' courses into one year. The program also can be completed in two years if the student attends six weeks of summer field training at an air force base before beginning the last two years of the regular curriculum. Students interested in the two-year program should contact the Department of Aerospace Military Studies early in the spring semester prior to attendance at air base training.

Field Training

Prior to commissioning, all cadets that attend a field training session offered at air force bases across the country.

Generally, this training takes place prior to the student's entering the third year of the program.

Field training for four-year cadets is four weeks in weight and includes courses in cadet orientation, survival training, non-rift orientation, physical training, air force organization and function, career orientation, small arms familiarization, and human relations. The six-week field training for students selecting the two-year AFROTC program includes sixty hours of classroom academics.

Two-week periods on active duty in the student's future career area is attendance at the Airborne "jump" school or voluntary options also available to selected students.

Advanced Placement

Service veterans can gain full credit toward commissioning (full graduation) for the first two years of AFROTC and are not required to attend field training prior to attending the program. They must, however, complete the training prior to commissioning.

Flight Instruction Program

During the year prior to commissioning, students selected for pilot training will receive 26 hours of flying training from the Iowa City Flying Service.

Financial Assistance

Scholarships which provide tuition, books, laboratory fees, and a $1,000 per month, tax-free subsistence allowance are available to cadets. Applications for four-year scholarships are submitted directly to the AFROTC, 1100 N. Locust Street, Des Moines, Iowa 50319. Cadets interested in the two-year program should contact the Department of Aerospace Military Studies at the University.

All cadets in the last two years of AFROTC receive $100 monthly as a tax-free subsistence allowance. Students attending field training are paid while there and receive travel expenses. Uniforms and books for classes taught by military faculty are furnished, and a $300 uniform allowance is provided for commissioning cadets.

Educational Delay

Cadets may request an educational delay to postpone entry to active duty.
Special Activities

The Department of Aerospace Military Studies sponsors several activities which contribute to cadet and University life.

The Air Society is a national professional honor society which engages in University and community service activities.

The Cadet Corps sponsors social activities throughout the year, including informal parties, a formal dinner, a military ball, and an awards ceremony which honors outstanding cadets for their accomplishments.

Courses

22A/11 The Air Force Today 3 AH

Introduction to all facets of the Air Force. Emphasizes organization, policies, and growth of the Air Force. (Seminar of彷徨 and definite hours. Improvement of general knowledge. 

22B/14 The Air Force Today 3 AH

Continuation of 22A/11.

22A/21 The Development of Air Power 3 AH

Traces development of Air Power from the Civil War to Vietnam. Includes development of air power in the 20th century, influence of technology, role of air power in battles, and humanitarian operations.

22A/22 The Development of Air Power 3 AH

Continuation of 22A/21.

22C/60 Aerospace Military Studies Flight Instruction 2 AH

Prepares students to pass FAA private pilot's written exam. Includes FAA requirements, flight computer, navigation, and essential ground knowledge. Course does not include actual piloting training.

22D/05 Leadership Laboratory 3 AH

Opportunity for cadets to experiment with and develop skills, techniques, and attitudes in leadership. Emphasis is placed on self-assessment and development, where cadets meet with experienced leaders on increasing their skills and responsibility, and may be repeated for credit.

22D/07 Leadership Seminar 3 AH

Continuation of 22D/05. May be repeated for credit.

22D/12 National Security Force in Contemporary America 3 AH

Examines the role of the national security as an integral component of contemporary American society, emphasizing the military dimension and political implications. U.S. defense policy, international environment, and military justice.

22D/13 National Security Force in Contemporary America 3 AH

Continuation of 22D/12.

22D/14 Management and Leadership 3 AH

Theory and application of basic management concepts, with emphasis on Air Force management. Includes communication, human behavior, management processes. Also includes management strategy and tactics, value conflicts, managing crises in change.

23A/116 Management and Leadership 3 AH

Continuation of 22D/14.

Afro-American Studies

Program co-sponsored by American Studies, English, and Philosophy. Sponsored by the Department of Afro-American Studies.

Program objectives are to expose students to Afro-American literature, history, and culture.

The Afro-American Studies Program offers courses focusing 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 the subject, the program includes courses examining the African heritage and the present relationships of African-Americans to Americans in other lands. Because a thorough 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. While the program of study emphasizes history and literature, the Afro-American Studies steering committee recognizes the continuous effort to expand program perspectives by developing courses which will have the knowledge drawn from many disciplines in the humanities and social sciences.

The program originated in 1969 in courses intended to foster awareness of the role Afro-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 in Afro-American Studies in programs leading to a B.A., M.A., or Ph.D. in American Studies. It is also possible for students seeking Ph.D. degrees in English or history to organize courses in Afro-American literature or Afro-American history into a special field or cognate area.

Although most of the students in the Ph.D. programs are preparing to work in colleges and universities as teachers and administrators, the B.A. and M.A. programs provide valuable backgrounds for many other students seeking careers in community work, public school teaching, religion, government, and political science. In short, the Afro-American Studies Program offers training important to any individual whose career will require understanding and knowledge of Black Americans.

Undergraduate Study

The Afro-American Studies Program offers a minor to undergraduate students. The semester hours required for the minor conform to the number specified for all minors in the College of Liberal Arts. In consultation with their advisor, the student selects 16 semester hours in 100-level, designated Afro-American Studies courses. Lists of such courses are available in the office of the Department of Afro-American Studies and the offices of most departments.

Although the Afro-American Studies Program does not offer a major leading to a degree in Afro-American Studies, students interested in this field may concentrate on Afro-American studies in a program leading to the B.A. degree in American studies. Such a concentration would include 45.56. Literature of the African Diaspora 16.56. Introduction to Afro-American Culture, and elective options from courses numbered 45.10 through 45.17. Also recommended as background for more advanced courses in Afro-American Studies and History are 45.10: 117. Afro-American Literature I-II and two of the following: 45.185 Afro-American History: 1850-1830, 45.186 Afro-American History: 1830-1914, and
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 summation of Afro-American culture and experience. Such a program especially benefits individuals preparing for community college teaching, work with community service organizations, or other careers in which an understanding of Afro-Americans may be necessary or helpful.

Curriculum Requirements

The Master of Arts program in Afro-American studies comprises 34 post-baccalaureate semester hours, normally completed in three semesters. 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 required to earn 6 semester hours in literature/history by taking 45.116-117: Afro-American Literature I-II, or two of the following: 45.185 Afro-American History 1800-1865; 45.186 Afro-American History 1865-1914; and/or 45.188 Afro-American History 1914-1945 Present. Students who have earned undergraduate or graduate credit for a yearlong survey of either African American literature or Afro-American history, which satisfies the literature/history requirement by studying the area in which they have no credit. Students who have earned neither undergraduate nor 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: 45.186 Afro-American History 1865-1914, 45.188 Afro-American History 1914-1945 Present, with only 6 hours of credit allowed toward the M.A. degree. A student who has completed a yearlong, undergraduate or graduate surveys in both Afro-American literature and Afro-American history will be permitted to satisfy the literature/history requirement by selecting 8 semester hours of Afro-American studies electives approved by the student's advisor.

Because the doctorate is not offered in Afro-American studies and the Afro-American studies steering committee wishes to encourage doctoral study for those who have the ability, interest, and resources, it recommends that the other 8 semester hours required in the Master of Arts program be used to explore doctoral education in disciplines outside of Afro-American studies. Among possible fields of study are American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least one-half of the courses in their curricula from those numbered above 200.

Language/Tool Requirements

The foreign language or tool is required for the Master of Arts program in Afro-American studies, but individuals indicating the possibility of doctoral study in another field will be encouraged to attempt to complete one tool/language requirement for that field while studying at the master's level.

Comprehensive Examinations

Each student is required to pass a written comprehensive examination in Afro-American studies. The comprehensive examination will be prepared and evaluated by a committee of faculty members who teach courses in the Afro-American Studies Program. A component of the comprehensive examination will be based on a reading list in Afro-American studies prepared and approved by the Afro-American studies steering committee.

Thesis/Project Requirements

A thesis is not required for a Master of Arts degree in Afro-American studies. If a student elects to write a thesis, the thesis must explore a topic of Afro-American culture and/or experience and must utilize research from more than one discipline. The maximum credit for such a thesis is 4 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, in consultation with an advisor, a project related to Afro-American culture and/or experience. When completed, this project must be presented to and defended before an appropriate class in Afro-American studies.

Admission Requirements

In addition to the general requirements of the Graduate College, unconditional graduate admission into the Afro-American Studies Program requires that a student have an appropriate educational background in literature and the social sciences, at least 6 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 courses in Afro-American studies. A student may be asked to take, without credit toward the master's degree, courses needed to remedy any deficiencies in undergraduate preparation.

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

Afro-American Studies Concentration within an M.A. Program in American Studies

Generally a student seeking a concentration in Afro-American studies in an M.A. program in American studies is preparing for a career as a research scholar or a college/university teacher, and proposes to undertake doctoral work in American studies. Of the 30 post-baccalaureate semester hours required for the degree, 12 to 24 normally are taken in Afro-American studies. Since the Afro-American Studies Program is
Cognate Areas or 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.

Co-curricular Activities Related to Afro-American Studies

Black Kaleidoscope
Each year 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
Since 1969, The University of Iowa each summer has served as host for an Institute in Afro-American Studies for college and university teachers. The institutes, which bring renowned artists and lecturers to the campus, have 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 Institute, 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.

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 Iowa City community and a cultural meeting place for Black students. It also attempts to promote a knowledge of Black culture which will improve intercultural understanding among 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.

Significant Courses Related to Afro-American Studies

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

Business Administration
362 Employment Relations and Public Policy 3 s.h.

Economics
661:176 Problems in Urban Economics 3 s.h.

Education
704:104 Education in Wleyly Developing Countries 2-3 s.h.
704:130 Educational Sociology 2-3 s.h.
704:380 Seminar: Value Problems in the Administration of American Education 3 s.h.
704:102 Socialization of the School-Age Child 2-3 s.h.
704:133 The Culturally Different in Educational Settings 3 s.h.
American Studies Program

Program Chair: Albert E. Stone

The following are brief descriptions of selected courses offered in the American Studies program. For a complete list of current offerings, please consult the Department of English and Foreign Languages.

American Studies courses are designed to provide 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 cognate departments’ courses in American studies with the Interdisciplinary courses and seminars of the American Studies Program to explore such aspects of life in the United States as political and cultural, political, cultural, educational, 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 cultural analysis and communication, rather than specific preprofessional or vocational training, it provides preparation for a career in business, education, government, journalism, or social service; for advanced study in the humanities, the social sciences, theology, or business; or for professional studies in law or medicine.

With or her advisor’s assistance and approval, the student majoring in American studies develops an individual plan of study combining courses from cognate departments and programs with integrative American Studies Program courses which relate 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 American studies, two courses (6 semester hours) in American History; and six courses (18 semester hours) in cognate departments and/or American studies.

The courses in American and/or American studies usually include:

45:1 American Values
45:90 Turning Points in American Culture

Any two of the following:
45:2 American Issues
45:2 Women in American Culture
45:4 Family and Sex Roles in American Life
45:5 Media Studies
45:8 Regional Studies
45:9 Sex, Race, and Ethnicity
45:9 American Music
45:90 Introduction to American Society
45:81 Introduction to American Culture
45:102 Readings in American Studies
45:125 Childhood and Youth in America
45:158 Visual Arts and American Culture
45:181 American Institutions: The Business Corporation
45:183 American Communities: the Corvallis Strip
45:186 Autobiography and American Culture
45:198 Popular Culture

The major usually includes two of the following American history courses:

15:1 Colloquium for History Majors
15:1 American History
1492-1877
1877-1932

Many historical-cultural, literature, and social science core courses provide relevant preparation for the American Studies major; 11:9 American Lives is especially recommended.
Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 71 semester hours of coursework, preparing the candidate in five areas: American studies seminars in interdisciplinary approaches to American culture; a substantial coursework in a major field or topic; equivalent work in a second minor field or topic; courses in a minor field or topic; and tools, skills, or comparative culture study.

Although permitted considerable flexibility in planning a program, the American studies candidate must meet certain basic requirements. One is that all students directly engage in coursework and research, the cultural diversity of America and its past. Some coursework is expected in such areas as Afro-American studies, women's studies, native American culture, or Chicago culture; this will be specifically explained on the candidate's oral exam. A second requirement is that each program will include substantial study in one of the major areas of American historical history as defined to reflect the student's specific interests. The candidate normally takes 45:200 Theory and Practice in American Studies and 45:201 History, Literature, and American Popular Culture 3 s.h., Two other courses or seminars in American studies. Four courses in each of two fields or of American studies, either in a minor field or topic, and/or problems approached from different fields or an interdisciplinary approaches to American culture; this will be specifically explained on the candidate's oral exam. A second requirement is that each program will include substantial study in one of the major areas of American historical history as defined to reflect the student's specific interests.

The candidate normally takes 45:200 Theory and Practice in American Studies and 45:201 History, Literature, and American Popular Culture during the first year of graduate study, and should include 45:620 Social Studies 4 s.h. in the area of interdisciplinary approaches to American culture. Instead of a written examination in the area, the student prepares a position paper or interdisciplinary essay. The student normally takes six or seven courses (18-21 semester hours), including tutorials, in each of his or her two major areas. Four-hour written examinations on each of the major areas, together with the interdisciplinary position paper or essay, provide one basis for the candidate's oral final examination.

The student also takes three or four minor-area courses, organized around a specific topic or subdiscipline, 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 in the minor field, for evaluation by a member or members of 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 may comprise up to 12 semester hours of coursework, in which the candidate may include up to 6 semester hours of graduate-level coursework in foreign language, filmmaking, linguistics, computer science, statistics, etc., up to 6 semester hours in thesis research and writing; up to 6 semester hours of coursework on other cultures; up to 3 semester hours of coursework on teaching methodologies, and/or up to 3 semester hours of coursework on American studies topics outside the major and minor areas.

The candidate must demonstrate mastery of two tools or skills useful for culture studies. The candidate may satisfy this requirement with a combination of coursework, a period of research, and/or independent study. The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis in a topic with investigation involves more than one field or discipline. The candidate may present a creative thesis—such as fiction, autobiography, film—if he or she combines it with a critical analysis of the cultural experiences the thesis reflects.

Internships

Qualified graduate students in American studies can arrange internships with the cultural organizations of Iowa, the Division of Historical Preservation, The University of Iowa Museum of Art, Living History Farms, the Herbert Hoover National Historic Site, and the Putnam Museum, Davenport. A candidate conducting research during such an-the-}
Courses

Primarily for Undergraduates

45:11 American Values

Introduction to American studies via representative texts, articles, and cultural values in historical and contemporary perspectives.

45:12 American Issues

Topics and problems in American studies and women's studies.

45:13 Women in American Culture

Women and the family; home economics in American society and culture.

45:14 Media Studies

Studies in film, television, cartoons, and new journalism.

45:15 Regional Studies

The American West.

45:16 American Music

Jazz, blues, or rock 'n roll.

45:17 Movies and the Future of Man

45:18 Turning Points in American Culture

Innovative investigation of a single theme or period in American culture, employing a variety of materials and an interdisciplinary perspective; creative research includes the 1850s, the Gatsby myth and reality.

45:19 Movies Project

Independent research and writing on an interdisciplinary topic.

For Undergraduates and Graduates

45:30 Readings in American Studies

45:31 Literature and Culture of America Before 1800

Theative period in American culture, studied through its periodicals, artifacts, and the artistic specialization to presence of political, social, and cultural, and to the psychology of communication. Same as 45:11.

45:32 Childhood and Youth in America

45:33 Agile America

Social, demographic, historical, and interpretative perspectives in the older American.

45:34 World Art and American Culture

Pattern, meaning, form, and interest in cultural expression, American art, and thought.

45:35 Material Culture American Vernacular

Historical and cultural studies in the vernacular environment, past and present, chiefly of the East, Midwest, and South.

45:36 American Society

Same as 45:12.

45:37 American Institutions: The Business Corporation

45:38 American Commodities: Control, Sale, Use

Understanding of the nation's social and economic underpinnings as an academic theme via textbook. Same as 110:35.

45:106 Architectural and American Culture

The role of American culture life and the influence on American culture; the role of American culture life and the influence of American culture on the American culture.

45:104 Popular Culture

Evolution of popular culture theories and analysis of American popular culture. Same as 100:615.

45:200 Theory and Practice in American Studies

Themes, methods, and cases in American culture studies. Special attention to social science analysis of American culture, leading to a final course paper or a publishable essay.

45:205 History, Literature, and American Popular Culture

Approaches to family and cultural development and life and death in American culture and cultural experience.

45:210 Film and American Culture

45:215 Advanced study of culture theory and research in cultural studies.

Anthropology

Department chair: Sara K. Field
University of Cambridge

45:103 The Sea

Anthropology provides a framework for understanding the place of human beings in the natural world; their evolutionary background and development; the organization of social life; cultural and symbolic systems; the evolution of cultures and societies; and the interrelations among society, personality, and shared canons of thought and feeling.

Bachelor of Arts

An undergraduate major in anthropology provides a solid foundation for careers not only in anthropology but also in a variety of fields involving work with persons from cultures and subcultures different from one's own. These fields include the health care professions, law, economics, and business, political science and government, social work, international affairs, and education. The major requires at least 30 semester hours of coursework in anthropology, including:

113:3 Introduction to the Study of Culture and Society

113:1 Introduction to Anthropology and Physical Anthropology

113:14 Language and Human Behavior

In addition, each student must take one course in anthropology, one course in ethnology, and one course in a suitable institution. The remaining hours are to be selected in consultation with the advisor.

Anthropology electives offer a wide range of choices, including courses dealing with language and culture, social problems of underdeveloped areas, religious activity in folk and tribal settings, primative art, biological anthropology, and urban anthropology. Specialization is discouraged in the undergraduate program, which is designed to give the student the broadest possible cross-cultural background. Coursework is encouraged in such related areas as sociology, linguistics, geology, geography, history, psychology, zoology, and astronomy. Students are also encouraged to participate in archaeological field research.

Honors

Designated for maximum development of superior students' abilities and interests, the honors program in anthropology is open to students with minimum cumulative grade-point averages of 3.0
overall anc 3.3 in anthropology. In addition to the regular requirements for a major in anthropology, honors students must complete the department's honors seminar and honors research course.

Field Research
Opportunities are available for students to participate in archaeological field research in central Mexico or at various sites in Iowa. Under the direction of University archaeologists, participating students acquire skills in data recovery and interpretive techniques.

Master of Arts
The M.A. program is general in nature, designed to prepare the student to deal with any aspect of anthropology at an introductory level.

The department offers the M.A. degree with or without thesis. The program without thesis precludes consideration for admission to the Ph.D. program.

The number of semester hours of credit required for the M.A. with thesis varies from 30 to 36, depending upon the student's previous anthropological training. The nonthesis program requires at least 36 semester hours of graduate work. A 36-hour M.A. degree without thesis is available in conjunction with a minor concentration in museology.

The following are the distribution requirements at the M.A. level: Either
113:140 Social Anthropology
113:240 Seminar: Social Anthropology or
113:201 Seminar: Anthropological Theory

These three:
113:171 Anthropological Linguistics
113:266 Seminar: Archaeological Theory and Method
113:265 Seminar: Biological Anthropology

In addition to the above:
One course in social institutions;
One course in linguistics (including courses in the Department of Linguistics); and
One course in 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 permission to waive any part 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 the general operational procedures of small science museums form part of the student's training. Further information on this option may be obtained from the Department of Anthropology or the Museum of Natural History.

Doctor of Philosophy
Graduate training in anthropology at the Ph.D. level is designed to lead to professional competence in both scholarly research and teaching. The Ph.D. degree represents a balance between general competence in all the subfields of anthropology obtained at the M.A. level and professional specialization in one of the specialization areas in the Department of Anthropology. To complete a specialization in the Department of Anthropology, a student must complete 18 hours of credit in the Department of Anthropology and 12 hours of credit in another department.

The comprehensive examination is a written examination taken at the end of the student's first year of study.

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, geochronology, or paleoethnology);
Ethnographic or archaeological specialization in a major geographic area (for example, North America, Mexico, Central America, Oceania, Southeast Asia), approved by the student's Ph.D. advisory committee;
Specialization in a major and minor topical area;
A written comprehensive examination in the student's area of specialization;

Preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Kinds of topics that may serve either as major or minor areas in socio-cultural or linguistic anthropology include: kinship or social organization, ethnohistory, language and culture, religion, cultural ecology, and urban anthropology. Examples of possible major topical areas for students in archaeology include settlement pattern archaeology, environmental archaeology, geoarchaeology, paleoethnology, and radiocarbon dating.

The comprehensive examination ordinarily will be taken when the student's coursework is completed or nearly completed, after the 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 documents, collections, or other source materials.

All doctoral candidates are required to be adequately trained in techniques of gathering primary data in archaeological or ethnographic field research.
Graduate Minor in Anthropology
A graduate student from another department of the University may minor in anthropology. The number of credit hours and the selection of courses which constitute the minor should be determined in consultation with members of the faculty of the Department of Anthropology, and with appropriate members of the student’s major department.

Assistantships
A limited number of teaching and research assistantships are available. Application for an award should be made directly to the chair, Department of Anthropology.

Facilities
The Department of Anthropology has access to the Iowa Archaeological Collections through the Office of the State Archaeologist. Prof. Thomas H. Charlton maintains a field laboratory in Mexico. The University is a charter member of the Human Areas Relations File, an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. The HRIF and other library resources give anthropology students access to source materials on more than 400 different cultures.

Faculty
Members of the anthropology faculty have studied and lived in the Pacific islands, the Orient, the Caribbean, Mexico, Central America, Latin America, and the Subarctic. Department faculty have recently conducted field research in Mexico, Belize, Guatemala, Micronesia, Thailand, the Canadian Subarctic, Peru, St. Lucia, and Iowa. Recent research by department faculty includes precontact trade networks and the role of hydraulic cultivation systems in the emergence of civilization in the Valley of Mexico, patterns of political and economic development of emerging nations, comparative ethnographic studies of hunting and gathering groups, archaeological investigations of Indian and historical sites in Iowa, alcohol use and abuse in Oceania, agricultural and economic decision making among rural peoples in northern Thailand, and Mayan linguistics in Guatemala.

Courses
For Undergraduates Only
113 Introduction to the Study of Culture and Society 3 s.h.
114 Anthropology and Contemporary World 3 s.h.
121 Introduction to Archaeology and Physical Anthropology 3 s.h.
122 Language and Human Behavior 3 s.h.
123 Introduction to Methodology 3 s.h.
124 Selective culture sequences of Iowa through the Ice Age 3 s.h.
125 Prehistoric cultures of the Americas 3 s.h.
126 History of Anthropology 3 s.h.
127 Prehistory Research 3 s.h.
128 Indian Material Culture Review 3 s.h.
129 Indian Studies 3 s.h.
130 Introductory Geophysics 3 s.h.
131-132 Introductory Geophysical Methods 3 s.h.

Advanced Anthropology

Some of the courses are offered at the graduate level.
As far as possible, the design of academic programs is arranged to meet the individual student's needs. It permits the development of specific as well as general programs in studio art and art history. The major requirements of the undergraduate program are broad and flexible; specialization is discouraged. The art history major requires at least an introduction to studio work. The studio major requires development of a foundation in art history and in at least one area of studio art. The aim of the joint curriculum is to give students a basic understanding of art and aesthetics; it does not focus on particular short-term styles.

**Bachelor of Arts**

The B.A. candidate in art or art history must earn at least 74 semester hours of credit in non-art courses, but may apply no more than 38 non-art hours of credit toward the total of 124 hours of credit required for the degree. The candidate must meet the College of Liberal Arts' historical-cultural core requirement with 11:27 Form and Theory in the Visual Arts, and either 11:38 Art in the Western World or 11:42 Art in East and West. Cross-listed courses originating in the School of Art and Art History may not be counted toward fulfilling the general liberal arts core and hour requirements.

**Studio Emphasis**

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

- **Intermediate art history**: 12 a.h.
- 1A:2 Collage
- 1A:3 Basic Drawing
- 1A:4 Basic Design

Any two of the following courses:

- 10:80 Ceramics I
- 10:81 Introduction to Metalworking and Jewelry
- 1J80 Multimedia
- 1N:15 Undergraduate Sculpture

Any two additional studio courses from:

- Drawing
- Photography
- Printmaking
- Textiles (if cross-listed with an art number)

Electives to bring the total number of credits in art to a minimum of 38 semester hours.

No more than 50 semester hours of credit in art courses the school 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 first registration, show a portfolio to a faculty review committee, which will determine the student's placement in or exemption 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 15 semester hours of intermediate and advanced art history. Electives must raise the total of art courses to a minimum of 38 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.

Non-art credits must include two or more semesters of a second foreign language, and at least 15 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 option, satisfying the requirements described above, and, in addition to the general requirements for teacher certification (see the "College of Education" section of the Catalog), must satisfy these specific requirements:

- 1E:186 Concepts in Art Education 3 a.h.
- 1E:186 Art Education Studio 3 a.h.
- 7E:134 Methods: Art 3 a.h.
- 7E:105 Advanced Methods: Art 3 a.h.
- 7E:187 Seminar: Curriculum and Student Teaching 15 a.h.

The following courses are electives:

- 7E:197 Aesthetic Education of Children 2 a.h.
- 7E:187 Aesthetic Education of Adolescents 2 a.h.
- 7E:290 Art Education and the Museum 3 a.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 major studio area, but before completion of 20 semester hours in art. The B.F.A. requires 62 semester hours of credit in School of Art and Art History courses. In addition to the general education and major requirements listed above for the B.A. degree with studio emphasis, the B.F.A. candidate must complete three courses in major studio beyond the fundamental course, and must complete at least the second semester of coursework in each of two minor studio areas. Art education majors in the B.F.A. program must meet the same teacher certification requirements as those in the B.A. program.

**Master of Arts in Art History**

As 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 work are; and gain proficiency in techniques of research within selected areas.

Specific requirements include:
- A Ph.D. or B.F.A. degree, with at least 18 semester hours of graduate work in art history.
- A minimum of 30 semester hours of graduate-level coursework, with a grade-point average of 3.0 or higher.
- At least one semester intermediate (100-level) course completed with at least a 3.0 grade in each of five of the following areas of art history:
  - Ancient (to 300 A.D.)
  - Medieval (300-1300)
  - Renaissance and Baroque (1300-1750)
  - Nineteenth Century to Modern
  - Oriental

Principle and Pre-Columbian

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

- IN204 Seminar: Methodology of Art History and Criticism 3 s.h.
- Two other art history seminars (with different instructors) 4-6 s.h.
- Additional art history courses 12-21 s.h.
- Studio 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 requirements. A student preparing to teach in both the art history and studio areas will take 12 to 18 semester hours of studio coursework, with a minimum of 6 semester hours in each subject. In addition to the undergraduate 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 majors in art history are encouraged to take courses outside the school.

Within the first 20 semester hours of graduate work, the M.A. candidate will be expected to demonstrate the ability to read art 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 (106FLT), examination by the appropriate University of Iowa language department, satisfactory completion of the final semester of a Ph.D. language reading course, or satisfactory completion (at least a 3.0 grade-point average) of the fourth semester of a college or university language course.

Qualification for the M.A. degree requires a comprehensive written and oral 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 studio M.A. majors in painting, drawing, sculpture, prints, design, photography, ceramics, metalsworking, and jewelry. The degree requires:

- The B.A. or B.F.A. in an equivalent to that offered at The University of Iowa;
- Teaching certification in art;
- Either 12 semester hours of graduate credit in studio art and at least 6 in art history, or at least 12 in studio art and 6 in art history;
- 8 semester hours of graduate credit in art education: 12 semester hours of graduate credit in coursework to be specified after the student commences the program;
- An oral and/or written examination in art education and a related field; and
- A written thesis based on research in art education or art history, or a studio thesis, accompanied by a brief statement of the student's technical, aesthetic, and psychological approach.

Master of Fine Arts

(Studio only)

The school offers the M.F.A. degree with a major in painting, drawing, sculpture, prints, design, photography, ceramics, metalsworking, and jewelry. The M.F.A. candidate must have an M.A. degree in an equivalent to that offered at The University of Iowa, and a minimum of 60 semester hours of graduate work, including at least 15 semester hours in a major studio subject, at least 6 semester hours in a minor studio field, 9 semester hours in art history and theory of art, and at least 12 semester hours in courses outside the school. Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.
Doctor of Philosophy (art history only)

Course 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 18-28 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 15 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 M.A. in art history program.

The student must take a comprehensive examination in one major field (18 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 must be concerned with an art historical period or area remote from the major field. One major field may be related to the major; this field may be in a discipline or disciplines outside the school, for example, religion, history, or philosophy.

The student must prepare a written dissertation constituting an original scholarly contribution to the field. The school will allow up to 8 semester hours of credit toward the art history course requirements for dissertation preparation. The student must formally present the dissertation topic for faculty approval. The student is given a final oral examination on the dissertation.

Graduate Admission:

Studio

Admission procedures for graduate studio programs include a committee review of applications and of all of the applicant's supporting material. Contact the school for meeting dates.

Painting, ceramics, design, metalworking or jewelry, or multimedia majors must submit slides and/or photographs of their work in their major fields; only applicants who are in residence at the University may submit original work in these areas. Drawing majors must submit original drawings (include figure drawings). Printmaking majors must submit from 6 to 20 original prints and drawings. Photography majors must submit a selection of original photographs. Sculpture majors should send 10 black-and-white photos—slides, it is important—of their work. Studio applicants must also submit examples of their work in other areas, and must submit three letters of recommendation.

Graduate Admission:

Art History and Art Education

Applicants to the graduate program in art history must submit a term paper or other example of ability to write in the field.

Applicants in art education must submit both a term paper or other example of ability to write in the field, and a selection of slides or photographs of their creative work in two studio areas.

All applicants must submit three letters of recommendation.

Deadline for receipt of completed applications is June 15 for the fall semester, or November 15 for the spring semester, or April 15 for summer registration.

Assistantships and Scholarships

Assistantships paying approximately $4,000 per academic year for 20 hours of departmental duties weekly are awarded to graduates of a competitive basis. Half-scale assistantships are also available. The award of an assistantship entitles the recipient to the in-state tuition rate. Scholarships paying partial or full tuition and entailing 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 52,000 volumes; a visual materials library containing 190,000 slides and 80,000 photographs; an intaglio printshop; latices and equipment for large-scale iron and bronze casting processes, as well as facilities for welding and fabrication of steel sculpture; a well-equipped darkroom; extensive art facilities, including provision for construction of various types of temporary and specialized tents for woodworking, metalworking, and industrial design; electroforming equipment; and video equipment.

While not a School of Art and Art History facility, the University's Center for New Performing Arts involves the school's faculty members and students in most of its activities. The Rockefeller Foundation established the center to encourage collaboration among such areas as art, dance, writing, film, music, and theater.

Courses

Art History

Primarily for Undergraduates

101 Introduction to African, Oceanic, and Pre-Columbian Art 3 s.h.
Traditional arts of the tribal cultures of Black Africa and the Pacific, and the Americas before the European conquest.
Studio Courses numbered through 99 are primarily for undergraduates and may not be repeated for credit unless where indicated. Studio courses numbered 100 through 199 may be repeated for credit except where specified.

**11:217 Contemporary Art**

**11:175 Cuban Sculpture**

**11:186 Middeltone Century Photography**

**11:190 Studying in Art History**

**11:194 Theory and Criticism in Russian Art**

**11:198 Theory and Criticism in Modern Art**

**11:199 Theory and Criticism in Ancient Art**

**11:201 Theory and Criticism in Western Art**

**11:100 Theory and Criticism in Painting and Sculpture in Europe**

**Courses Primary for Graduates**

**11:202 Seminar: Problems in African Art**

**11:210 Seminar: Problems in Egyptian and Nubian Art**

**11:216 Seminar: Problems in Oriental Art**

**11:226 Seminar: Problems in Ancient Art**

**11:244 Seminar: Problems in Northern Renaissance Art**

**11:255 Seminar: Problems in Italian Renaissance Art**

**11:259 Studio in Painting**

**11:263 Seminar: Problems in Eighteenth-Century Art**

**11:266 Seminar: Problems in Nineteenth-Century Art**

**11:262 Seminar: Problems in Modern Art**

**11:268 Seminar: Problems in American Art**

**11:272 Art History Workshop**

**11:284 Seminar: Methodology of Art History and Criticism**

**11:300 Special Studies**

**11:303 Ph.D. Thesis**
Asian Languages and Literature

Department chair: Joseph Fung
Faculty: prominent in the field
Instructor: Brian, Brenda, Blumen, Pollock, Maureen, Robertson, Andrew, Anil

Supporting faculty: David Anh, David, Robert, Lai, Paul, Darin, Anthony, Alphonso, Amanda, Wei, Yang, Robert, Robert, Robert, Robert, Robert

Undergraduate Programs

The department offers two programs leading to the Bachelor of Arts degree, one primarily for those interested in studying the culture and civilization of traditional and modern Asia, and the other intended for those who wish to concentrate on developing competence in one of the Asian languages offered.

Graduates of either program may find careers in government, banking, and commerce in America and Asia. The programs also provide an excellent background for advanced study in literature, history, art, religion, political science, geography, anthropology, or sociology. The department urges its undergraduate majors to study in Asia as early as possible, and every effort is made to facilitate transfer of credit with universities in Asia.

Undergraduate majors are exempted from the literature core requirement and the historical-cultural core requirement of the College of Liberal Arts; the foreign language requirement is met by an Asian language study.

The Program in Asian Studies

This multidisciplinary program is designed to introduce students to East and South Asian culture, both modern and traditional, and to contemporary political and social problems in Asia. Asian historians join language and literature faculty in teaching the courses. Each student selects a single area (for example, China, Japan, or South Asia) upon which to concentrate for the course of study.

Courses for the major:

Asian Civilizations of Asia 6 h.
Asian Humanities 6 h.
For students of Chinese studies: 8 h.
First-Year Chinese 12 h.
Second-Year Chinese 12 h.
For students of Japanese studies: 8 h.
First-Year Japanese 12 h.
Second-Year Japanese 12 h.
For students of South Asian studies: 8 h.
First-Year Sanskrit 8 h.
Second-Year Sanskrit 8 h.
For students of Asian Arts: 8 h.
First-Year Arts 12 h.
Second-Year Arts 12 h.

Major in Asian Languages and Literature

Courses in history and literature provide an understanding of the cultural background for language study. Course requirements for the major:

Asian Civilizations of Asia 8 h.
Asian Humanities 8 h.
For students of Chinese: 9 h.
First-Year Chinese 12 h.
Second-Year Chinese 12 h.
Third-Year Chinese 12 h.
For students of Japanese: 9 h.
First-Year Japanese 12 h.
Second-Year Japanese 12 h.
Third-Year Japanese 12 h.
For students of Sanskrit: 8 h.
First-Year Sanskrit 8 h.
Second-Year Sanskrit 8 h.
Two seminars or
3 h.
188 Readings in Sanskrit
3 h.
Texts

Students with previous knowledge of Chinese, Japanese, or Sanskrit will be tested before registration, and will be placed in the appropriate course at an advanced level.
Honors

Students with junior status who maintain a 3.25 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 among Asian specialists in any department, the student will register for 39:191 Honors Tutorial and 39:195 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 Arts in Asian Civilization

Graduate study in Asian civilization is designed to prepare students for careers in high school teaching, government service, or commerce, where knowledge of an Asian language and a culture would be helpful. It also provides 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 may 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 contemporary, modern and first-year classical language; for students of premodern South Asia, at the level of the completion of third-year Sanskrit; for students of modern South Asia, at the level 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 history, literature, art, or religion; Chinese linguistics, or philosophy; Japanese folklore, 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 20 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 3.75 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, written 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 15 for the fall semester or December 15 for the spring semester. The candidate is advised to take the Graduate Record Examination at an early date, since an admission decision cannot be made until scores are received.

Library Facilities

Since 1980 the University library has been purchasing all books on Asia issued by major publishers in Western languages. The library's reference collection in the Chinese and Japanese languages is more than adequate for basic research; it includes approximately 38,000 books, periodicals, and microfilms. It is particularly strong in literature, history, art, and philosophy, and it is constantly being augmented by purchases of books and periodicals necessary for research on contemporary society. The library regularly acquires publications from India in Sanskrit and English.

Courses

Undergraduate Language

281 Chinese for the Bible
4 sh.
Introduction to spoken Mandarin, with some translation to written Chinese, through Bible stories.

281 Japanese for Newcomers
4 sh.
Introduction to spoken modern Japanese language for undergraduates, with emphasis on auditory stimuli for hearing and training in Japanese culture and conversation.

281 Chinese for the Bible
4 sh.
Further work in spoken Mandarin with more examples from the written language. Continuation of 281, which is prerequisite.

281 Japanese for Newcomers
4 sh.
Continued emphasis on spoken practice and spoken Japanese, with an oral introduction to the writing system. Continuation of 281; 1, which is prerequisite.

281 First-Year Chinese
4 sh.
The course teaches the sound system of Mandarin Chinese, basic pronunciation patterns, reading, and writing Chinese characters; includes the B.S. foreign language requirement. Offered fall semester.

281 First-Year Japanese
4 sh.
Introduction to modern Japanese. Satisfies the B.S. foreign language requirement. Offered fall semester.

281 First-Year Chinese
4 sh.
Continues with 281, mastering the B.S. foreign language requirement. Offered spring semester. Continuation of 281. 1, which is prerequisite.

281 First-Year Japanese
4 sh.
Continues with 281, mastering the B.S. foreign language requirement. Offered spring semester. Continuation of 281. 1, which is prerequisite.

282 Second-Year Chinese
4 sh.
Continues the audio-visual approach of first-year course. Emphasis is on the vocabulary and sentence structure of modern Chinese through newspaper extracts, reading comprehension, and prose paraphrases. Offered fall semester. Continuation of 281, which is prerequisite.

282 Second-Year Japanese
4 sh.
Continues the audio-visual approach of first-year course. Emphasis is on the vocabulary and sentence structure of modern Japanese through newspaper extracts, reading comprehension, and prose paraphrases. Offered fall semester. Continuation of 281, which is prerequisite.

282 Second-Year Chinese
4 sh.
Continues with 282, mastering the B.S. foreign language requirement. Offered spring semester. Continuation of 282 1, which is prerequisite.

282 Second-Year Japanese
4 sh.
Continues with 282, mastering the B.S. foreign language requirement. Offered spring semester. Continuation of 282, 1, which is prerequisite.

283 Second-Year Chinese
4 sh.
Continues study of written language. Continuation of 282, which is prerequisite.

283 Second-Year Japanese
4 sh.
Continues study of written language. Continuation of 282, which is prerequisite.

284 Second-Year Chinese
4 sh.
Continues study of writing and modern literature. Continuation of 283, which is prerequisite.

284 Second-Year Japanese
4 sh.
Continues study of writing and modern literature. Continuation of 283, which is prerequisite.

285 Second-Year Chinese
4 sh.
Continues the study of writing and modern literature. Continuation of 283, which is prerequisite.

285 Second-Year Japanese
4 sh.
Continues the study of writing and modern literature. Continuation of 283, which is prerequisite.

286 Third-Year Chinese
4 sh.
Continues the study of modern Chinese literature. Continuation of 284, which is prerequisite.

286 Third-Year Japanese
4 sh.
Continues the study of modern Japanese literature. Continuation of 284, which is prerequisite.

287 Fourth-Year Chinese
4 sh.
Continues the study of modern Chinese literature. Continuation of 286, which is prerequisite.

287 Fourth-Year Japanese
4 sh.
Continues the study of modern Japanese literature. Continuation of 286, which is prerequisite.

288 Fifth-Year Chinese
4 sh.
Continues the study of modern Chinese literature. Continuation of 287, which is prerequisite.

288 Fifth-Year Japanese
4 sh.
Continues the study of modern Japanese literature. Continuation of 287, which is prerequisite.

289 Sixth-Year Chinese
4 sh.
Continues the study of modern Chinese literature. Continuation of 288, which is prerequisite.

289 Sixth-Year Japanese
4 sh.
Continues the study of modern Japanese literature. Continuation of 288, which is prerequisite.

290 Seventh-Year Chinese
4 sh.
Continues the study of modern Chinese literature. Continuation of 289, which is prerequisite.

290 Seventh-Year Japanese
4 sh.
Continues the study of modern Japanese literature. Continuation of 289, which is prerequisite.
Bachelor of Science

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

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

- **22M:15-26 Calculus I-II** 8 s.h.
- **22M:35-36 Engineering Calculus I-II** 8 s.h.
- **28:17-18 Introductory Physics I-II** 8 s.h.
- **37:3 Principles of Animal Biology** 5 s.h.
- **61:157 General Microbiology** 4 s.h.
- **61:17 Survey of Immunology** 3 s.h.
- **61:147 Survey of Immunology** 3 s.h.

Other biological area:
- **4:12-12 Organic Chemistry I-II** 8 s.h.
- **4:13 Physical Chemistry I** 3 s.h.
- **4:132 Physical Chemistry II** 3 s.h.
- **4:130 Physical Biochemistry** 4 s.h.
- **4:144 Intermediate Chemistry Laboratory I** 2 s.h.

**99:100 Seminar:**
- **99:120 The Chemistry of Biological Materials** 0-1 s.h.
- **99:15 Biochemistry** 3 s.h.
- **99:140 Experimental Biochemistry** 4 s.h.
- **99:150 Biochemistry of Informational Macromolecules** 3 s.h.
- **99:155 Research: Independent Study** at least 6 s.h.

(may be taken for honors)

Advanced science electives at least 15 s.h.

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** 4 s.h.
- **22M:16 Calculus for the Biological Sciences** 3 s.h.
- **29:11-12 College Physics** 8 s.h.
- **37:3 Principles of Animal Biology** 5 s.h.
- **21:1 Introduction to Botany** 4 s.h.
- **61:157 General Microbiology** 4 s.h.

Other biological area:
- **4:13 Principles of Chemistry I** 3 s.h.
- **4:14 Principles of Chemistry II** 3 s.h.
- **4:16 Elementary Chemistry Laboratory I** 2 s.h.
- **4:121-122 Organic Chemistry I-II** 8 s.h.
- **4:130 Physical Chemistry for the Life Sciences** 3 s.h.

**99:100 Seminar:**
- **99:120 The Chemistry of Biological Materials** 0-1 s.h.
- **99:15 Biochemistry** 3 s.h.
- **99:140 Experimental Biochemistry** 4 s.h.
- **99:150 Biochemistry of Informational Macromolecules** 3 s.h.

Advanced science electives 9 s.h.

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.

Hons Program

Qualified students may earn an honors degree by doing special work in 99:140 Experimental Biochemistry and 99:155 Bioresearch: Independent Study. The student presents the results of his or her research in a report written in the form of a journal article and in an oral report in 99:100 Seminar: Undergraduate.

Teacher Certification

Biochemistry students planning to qualify for teacher certification should include 79:100 Introduction to Secondary School Teaching, 79:151 Science
Methods: Individual Instruction in Science, and 75:152 Science Methods III: Resources and Teaching Strategies, among the College of Education courses taken to meet certification requirements.

Other Combined Programs
It is possible, especially in the B.A. program, to include courses from other disciplines, such as pre-law, psychology, or journalism, permitting individualization of the curriculum as preparation for 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 health sciences during the first year of dental or medical school.

Graduate Programs, Facilities, Faculty, Courses
See "Biochemistry" in the College of Medicine section of the Catalog for descriptions of the department's graduate programs and facilities, and for lab faculty roster and course offerings.

Biology

Coordinator: Joseph Patrick
Degree Offered: B.A., B.S.

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

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

Completion of an undergraduate minor 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, ecology, environmental science, 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.

The Undergraduate Program

The science requirements are identical for the Bachelor of Arts and Bachelor of Science degrees with a major in biology. They total 24 semester hours, as follows:

- 2:1 Introduction to Botany
- 37:12 Principles of Animal Biology
- 2:128 Fundamental Genetics or 37:128 Fundamental Genetics
- 1:129 Fundamental Genetics Laboratory
- 2:129 Fundamental Genetics Laboratory
- 2:131 Evolution or 37:131 Evolution
- 37:105 Cell Physiology
- Electives in botany, microbiology, ecology, or geology (paleontology)

The twelve elective hours must be in courses numbered 100 or above, excluding 2:100 Plants and Human Affairs, 37:125 A Planet in Crisis, and similar courses directed primarily at nontechnical students; and including no more than three semester hours in botany and zoology honors courses, and 2:153 Special Topics and 37:190 Introduction to Research.

Requirements for the major in biology also include these courses in other disciplines:

- 4:11-14 Principles of Chemistry
- 4:16 Elementary Chemistry Laboratory I
- 4:121 Organic Chemistry I
- 99:120 The Chemistry of Biological Materials
- 29:11-12 College Physics
- 29:17-18 Introductory Physics I & II
- 22M:25 Calculus I
- 22M:16 Calculus for the Biological Sciences
- 22M:35 Engineering Calculus I
- 8W:10 Expository Writing

Biology students planning to apply for admission to The University of Iowa College of Medicine must also take 4:14 Intermediate Chemistry Laboratory I or 99:140 Experimental Biochemistry. Those applying to other medical schools may also be required to take 4:122 Organic Chemistry II.

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, ecology, and/or geology (paleontology). Courses taken at The University of Iowa and including at least 12 semester hours in 100-level courses, excluding those designed primarily for nontechnical 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

Students in the College of Liberal Arts Honors Program may earn an honors degree in biology by completing at least 6 semester hours of honors coursework in the departments of Botany and/or Zoology, including at least 2 semester hours in 2:198 Honors Laboratory Research or 37:198 Honors Laboratory Research.
One course from each of these five groups (20 semester hours total):

Genetics 2:104 CYTOGENETICS 3 s.h.
2:106 FUNDAMENTAL GENETICS 3.5 s.h.
2:160 Genetics and Biotechnology of Cell Organelles arr.

Physiology and Cell Biology
2:109 Plant Physiology 4 s.h.
2:110 Plant Physics 4 s.h.
2:114 Structure and Physiology of Plant Cells 4 s.h.

Botany of Vascular Plants
2:11 Plant Diversity 4 s.h.
2:13 Biology of the Local Flora 4 s.h.
2:13 Plant Anatomy 4 s.h.
2:120 Paleobotany 4 s.h.
2:121 QUANTITATIVE PALYNOLOGY 2 s.h.

Biology of Non-Vascular Plants
2:170 Physiology 4 s.h.
2:108 Bryology 4 s.h.
2:107 Mycology 4 s.h.

Taxonomy, Ecology, and Evolution
2:101 Plant Taxonomy 4 s.h.
2:111 Plant Ecology 4 s.h.
2:119 Plant Animal Interactions 3 s.h.
2:131 Evolution 4 s.h.

Two 100-hour courses in botany or cognate fields (zoology, biochemistry, microbiology) 5 s.h.

Chemistry (Inorganic, Organic/ Biochemistry) 16 s.h.
22M:15 Mathematics for the Biological Sciences 4 s.h.
22M:20 Elementary Functions or Equivalent 3 s.h.

Recommended electives:
22M:25 Calculus I 4 s.h.
29:1:12 College Physics 8 s.h.
2:13 Principles of Physical Geology 3 s.h.
1:24 Principles of Historical Geology 2 s.h.
61:157 General Microbiology 4 s.h.
69:120 The Chemistry of Biological Materials 3 s.h.

Entry majors are advised to obtain a strong background in courses in zoology.

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

Graduate Programs

The department offers the degree with emphasis in anatomy, morphology, mycology, paleontology, physiology, or taxonomy. The degree requires at least 30 semester hours of graduate study, including 6 semester hours in 2:205.

The Honors Program

An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by professional staff members. Prerequisites for admission to the program are senior standing and cumulative grade-point averages of 3.0 overall and 3.5 in botany. 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 now have this alternative available to them. See "biology" in this section of the catalog.

Graduate Students

As advanced degree enhances career opportunities in botany, the department offers advanced degree work in many disciplines. Graduate training frequently involves interdisciplinary study in fields such as genetics and ecology. It requires some coursework in cognate departments. Each graduate student is therefore assigned a faculty advisors committee to help him or her set training goals and plan the course requirements necessary to meet them. Candidates for advanced degrees are required to perform some service as teaching or research assistants.

Master of Science in Botany

Requests the degree with emphasis in anatomy, morphology, mycology, paleontology, physiology, or taxonomy. The degree requires at least 30 semester hours of graduate study, including 6 semester hours in 2:205.
Master of Science in Biology

A student who has been regularly admitted to a graduate program in either 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 earn 6-8 semester hours of credit in research. Students can earn research credit by taking 2220 Research Botany, 37:100 Introduction to Research, or 37:303 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 30 semester hours of graduate courses in each of the two departments, exclusive of research, and may include 6-10 semester hours taken in supportive areas including biochemistry, microbiology, geology, and mathematics.

The student must achieve a 3.0 grade-point average in all courses other than research attempted at the time of the final examination, and pass a written comprehensive final examination given by the graduate program. For thesis candidates, there is also an oral examination, based mainly on the work reported in the thesis.

Doctor of Philosophy

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

Submit a program of study toward the degree for approval by the guidance committee.

Take a qualifying comprehensive examination, at a time agreed to with the guidance 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.

Take the final examination, consisting of an oral defense of thesis, results, interpretations, and conclusions presented in the thesis.

Graduate Admission

All prospective graduate students should be thoroughly familiar with the requirements of the Graduate College. Applicants should submit Graduate Record Examination (GRE) Aptitude Test scores with their applications, if possible.

If the entering 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. In addition, mathematics at the level of analytic geometry and a year of organic chemistry are usually required of entering students. Courses prescribed by the student's guidance committee should be made up during the first year of residence; 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 submit:

Scores on the GRE verbal and quantitative tests adding up to at least 1100.

An transcript showing a grade-point average of 3.0 or better and Letters of recommendation from at least three of their professors. Students entering with an M.S. degree should submit:

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 academic achievement 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 cultivation of plants have access to greenhouses and special culture rooms with controlled environments. A plant physiology laboratory is available, with associated greenhouses. A number of research laboratories are equipped with standard and more sophisticated apparatus for research in gross morphology, photosynthesis, palaeobotany, molecular genetics, cytogenetics, ecology, physiology, pollination biology, monographs, and cell biology. There are two televisionized electron microscopes in a special laboratory. Students and staff may use the Scanning Electron Microscope Laboratory in the Zoology Building. An herbarium for research and general study houses more than two hundred thousand specimens. These standard specimen include extensive collections of seed plants and ferns from local and the Midwest, special research
Chemistry

Department Chair: Donald Davis

Chair: Associate Professor Norma C. Baugher, Robert E. Buske, Donald J. Baran, Robert D. Colman, David Koons, Donald D. Dukov, Donald J. P. Davis, Dale W. Fraze, Donald J. Baran, Donald J. Baran, Robert D. Colman, David Koons, David Koons, Donald D. Dukov, Donald J. P. Davis, Dale W. Fraze, and William G. Bennett. BS degree with students interested in teaching or research.

Bachelor of Science

Present and projected demand for chemists with the B.S. degree is excellent in research and for control and process-development work. The BS program provides all the prerequisites for graduate study in science or technology. These are the major requirements for the B.S. degree:

1. 15-16 Principles of Chemistry I-II
2. 17 Elementary Chemistry Laboratory I-II
3. 40 Chemistry Orientation
4. 121-122 Organic Chemistry I-II
5. 121-122 Analytical Chemistry I-II
6. 141-142 Physical Chemistry I-II
7. 141 Intermediate Chemistry Laboratory I-II
8. 141 Advanced Organic Chemistry
9. 161 Introduction to Research
10. 162 Undergraduate Research

Advanced degrees in chemistry, biology, mathematics, physics, or related areas are recommended.

Teaching Certification

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

Master of Science

The department offers the M.S. degree, with or without thesis, in analytical, inorganic, organic, and physical chemistry, and in chemical physics.
Doctor of Philosophy

A program of study for the Ph.D. degree in the areas listed for the M.S. degree includes the courses required for the M.S. degree, and courses in the major field of interest. The student must present a thesis covering the research.

Students who have demonstrated the required competence in four areas of chemistry and who have maintained a minimum grade-point average of 3.0 are advised 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 Ph.D. thesis and a manuscript of the publishable portion of the thesis before an examination committee.

Interdisciplinary Programs

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

Language Requirement for Graduate Students

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

Teaching Requirement for Graduate Students

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

Graduate Admission

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

Facilities

The department is housed in a five-story building containing two auditoria, 6 lecture rooms, 21 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Modern scientific equipment is available for research.

The department's excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemical and chemical engineering journals, and subscribes to over 500 current scientific journals.

Courses

Primary for Undergraduates

Students planning to take more than one year of chemistry should take 4:13, 4:14, and 4:16. Students requiring only one year of chemistry may take 4:14, 4:16, and 4:19. Students requiring eight semester hours of organic chemistry should take 4:121, 4:122, and 4:141.

4:17 General Chemistry

Introduction to the basic principles of chemistry for students who do not plan to take more advanced courses in chemistry. Prerequisites: 4:7 or high school chemistry.

4:17 General Chemistry Laboratory

Introduction to laboratory techniques for students taking 4:17. Prerequisite or corequisite: 4:17.

4:18 Principles of Chemistry

Introduction to general principles of chemical bonding and chemical reactions. Prerequisites: 4:120 or high school equivalent.

4:19 Principles of Chemistry Laboratory

Introduction to laboratory techniques for students taking 4:18. Prerequisites: 4:120 or 4:17.

4:18 Thermodynamics

Introduction to thermodynamics techniques for students taking 4:18. Prerequisite: 4:120.

4:19 Thermodynamics Laboratory

Continuation of 4:18 for chemistry majors; emphasis on quantitative techniques and measurements. Prerequisite: 4:18.

4:20 Chemistry Laboratory

Chemistry concepts, methods of study, chemical properties, fields of chemical specialties, present and future developments. Required of all major in chemistry each semester. One meeting per month is arranged for prerequisites.

4:20 General Inorganic Chemistry

First principles of qualitative analysis. Two lectures and two laboratory meetings weekly. Prerequisites: 4:14 and 4:18.

4:31 Physical Chemistry

Principles of modern analytical chemistry with emphasis on instrumental methods of analysis. Prerequisite or corequisite: 4:120.

4:32 Physical Chemistry Laboratory

Continuation of 4:31, which is prerequisite.

4:60 Special Topics in Chemistry

General principles illustrated by preparation and study of selected representatives of ionic and covalent groups. Prerequisites: 4:120 or 4:18.

4:70 Special Topics in Chemistry

Continuation of 4:60, which is prerequisite.

4:71 Introduction to Nuclear Chemistry

Mechanisms and behavior of isotopomers, nuclear reactions, nuclear properties, and preparatory methods. Prerequisites: 4:120 and 4:180.

4:72 Physical Chemistry for the Life Sciences

Principles and applications of measurement of transport phenomena, optical phenomena, spectroscopy and the microspectroscopy, membrane phenomena; characteristics of simple molecules; elements of thermodynamics. Prerequisites: 4:120 and one semester of calculus.
Major in Greek

A student majoring in Greek must:

- know only how to read the Greek language, but also knowing some of the major works of Greek literature, and something of the history of ancient Greece and the Near East of the seventh through the fifth centuries B.C., when most of the modern western notions of political, ethical, and social life began.

For a B.A. degree with a major in Greek, the candidate must earn a minimum of 20 semester hours of major credit, of which 24 semester hours must be in Greek language courses. These courses, or their equivalents, are required:

14:1-2 Elementary Greek 8 s.h.
14:11-12 Second-Year Greek 6 s.h.
14:121-122 Homer and Hesiod 6 s.h.
14:161 Greece and Persia 6 s.h.
14:162 Fifth-Century Athens 6 s.h.
14:171 Elementary Greek Composition 3 s.h.

Major in Latin

A student majoring in Latin must:

- know how to read Latin as well as understanding some aspects of the Roman republic and army when Rome established its hegemony over the Mediterranean basin, the foundation of law for the western world, and transmission of the culture of Greece to the west.

The candidate for a B.A. degree with a major in Latin must earn a minimum of 24 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 8 s.h.
or
20:15 Latin Review 4 s.h.
20:16-17 Intermediate Latin I-II 6 s.h.
20:81 Age of Cicero 3 s.h.
20:82 Age of Augustus 3 s.h.
20:171 Elementary Latin Composition 3 s.h.
Two Latin language courses, 100-level or above 6 s.h.

Major in Classics (Greek and Latin)

The B.A. degree with a major in classics requires a minimum of 26 semester hours of major credit, of which 30 semester hours must be in Greek and Latin language courses. These courses, or their equivalents, are required:

14:1-2 Elementary Greek 8 s.h.
14:11-12 Second-Year Greek 6 s.h.
20:1-2 Elementary Latin 6 s.h.
20:16-17 Intermediate Latin I-II-III 6 s.h.
14:121-122 Homer and Hesiod 6 s.h.
or
20:81 Age of Cicero 3 s.h.
and
20:82 Age of Augustus 3 s.h.

14:171 Elementary Greek Composition 3 s.h.
or
20:171 Elementary Latin Composition 3 s.h.

Core Requirements

Undergraduates who major in Greek, Latin, classics, or ancient civilization are exempt for 4 semester hours of the College's liberal arts literature core requirement, but must complete 11:1 The Interpretation of Literature. For students majoring in ancient civilization, core requirements in the historical-cultural sequence are limited to 4 semester hours.

Honors

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

Language for Nonmajors

Students wishing to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 14:1-2 Elementary Greek and 14:11-12 Second-Year Greek. Students who wish to meet the requirement by studying Latin may elect 20:1-2 Elementary Latin or 20:16 Latin Review, and 20:16-17 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 8 semester hours of courses numbered 101-199.
Master of Arts

The department offers the M.A. degree in Latin, Greek, or classics. The candidate must complete 30 semester hours of major credit in courses numbered 101 and above, including 14:201, 204-205 Rapid Readings in 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 writes comprehensive examinations on ancient history, Greek and Latin 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 9 s.h.
- 14:172 Advanced Greek Composition 3 s.h.
- 20:172 Advanced Latin Composition 3 s.h.
- Ancient art above 300 level 3 s.h.
- 14:201:202 Seminar: Introduction to Advanced Study 3 s.h.
- 20:266 Seminar I 3 s.h.
- 14:500 Indo-European Philology 3 s.h.
- 14:206-207 Greek Composition 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 department has a varied collection of slides on classical subjects, and a small library.

Associated with the department, the classical museum contains a valuable collection of coins, vases, and wall-paintings from Myconian, Poseidian, and Heraclean.

The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vagrigian Society, thereby making their facilities available to this faculty and graduate students.

The University is also a contributing member of an international group that is sponsoring the uncovering and publication of information about the ancient mosaics of Turkey. Annually a fellow from the University goes to Turkey to work on this project.

Courses

Greek

For Undergraduates Only

14:151 Elementary Greek 4 s.h.
14:201 Fundamentals of Attic Greek and basic concepts of Greek composition.
14:202 Elementary Greek 4 s.h.
14:329 Greek from Greek authors. Continuation of 14:21, which is prerequisite.
14:324 New Testament Greek 3 s.h.
14:327 New Testament Greek. Best time to report a reading knowledge of New Testament Greek. Passage of Greek is not expected, nor is knowledge of any other language necessary. Consent of instructor required.
14:396 New Testament Greek 3 s.h.
14:111 Second-Year Greek 3 s.h.
Reading of selected texts of Greek prose and poetry. Prerequisite: 14:324 or equivalent.
14:114 Second-Year Greek 3 s.h.
Continuation of 14:111, which is prerequisite.

For Undergraduates and Graduates

14:131 Homer and Hesiod 7 s.h.
14:131 Homer and Hesiod 7 s.h.
14:132 Homer and Hesiod 3 s.h.
14:132 Homer and Hesiod 3 s.h.
14:133 Homer and Hesiod 3 s.h.
14:133 Homer and Hesiod 3 s.h.
14:134 Homer and Hesiod 3 s.h.
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14:135 Homer and Hesiod 3 s.h.
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Communication and Theatre Arts

Communication and Theatre Arts

Department chair: Samuel L. Bacher
Faculty: professores J. Dudley Andrew, Samuel L. Bacher, John W. Bowens, Dennis Cacchione, Hugh V. Corder, Lowell Holtz, Bruce E. Sundberg, Roy L. Hems, Richard D. McCune, Deborah J. Ogle, David Schiff, David Thayer
professores emeriti: Daniel O. Brazil, Junior Orantes, H. Gay Harshbarger, Onifere Hunt-Lee, Hugh F. Beasley
associate professors: Nancy L. Harpel, Michael Caven, William, Judith Hewitt, Franck Miller, Robert Payer, Douglas Tharp, John Winkle
assistant professors: Art Chancellor, Robert Lamp, Bruce Lee, John Lee, Howard Motte, Terry McCracken
Instructor: Thomas Finkle, George Kingler, Jennifer Martin, James Weisbroder

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.

Communication and Theatre Arts has six major divisions, whose emphases and distinctive courses are described below 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 one course in the theatre arts division, at least one course in the broadcasting and film division, and at least one course in the communication division;

A minimum of eight semester hours of production/performance courses; and

A minimum of eight semester hours of nonproduction/nonperformance 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. The M.A. degree with an emphasis in corporate communication is an interdisciplinary degree.

Departmental requirements for the Master of Arts degree are:

A minimum of 30 semester hours, including 300 Introduction to Research or its equivalent; A research thesis or, for the nonthesis degree, a graduate seminar involving significant original research; and

Successful completion of a six-hour written examination, the scope of which is determined by the candidate’s graduate and dissertation 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 2.75.

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 360 Introduction to Research, a course in the teaching of communication; an approved seminar; and at least 16 semester hours completed in the College of Education’s graduate program in higher education;

Successful completion of a research report; A semester’s internship in an assigned teaching position; and 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

Departmental requirements for the Doctor of Philosophy degree are:

A minimum of 72 hours of graduate credit, exclusive of research tools and dissertation.
A minimum of 10 hours of dissertation credit;
36:390 Introduction to Research or its equivalent, at least two courses in
theoV taken within the department, 
and only as determined by the student's advisor and graduate 
committee in consultation with the
student;
Successful completion of a qualifying examination and demonstration 
competence in the student's major research 
areas;
A substantial scholarly dissertation; and
A 3.0 minimum 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 admittance. Admission decisions are 
based upon a composite consideration of the applicant's undergraduate 
achievement, letters of reference, and other evidence of potential for 
academic or professional growth. Graduate Record Examination (GRE) Aptitude Test results
and samples of one's scholarly work are desirable for the latter purpose.

Interdivisional Courses
26.69 Workshop in Communication and Theatre Arts
1.5 h.
Methods of writing, literary research, communication theory; art related to film areas, principle in
literary: production, paradygmmatic procedure, and
theatre: interpretation by view and study of public
works. Emphasis on the oral, the dramatic, and the essay format. 

26.93 Film Improvement for Speakers and Actors
2.0 h.
Intensive study of dramatic and film techniques and
practice, directions and public presentation.

26.97 Oral Interpretation of Literature
1.5 h.
Emphasis on impression and technique of reading
literary prose and poetry to listeners. Written
selections evaluated and graded; additional work
for students in elementary education and English.

30.96 News in Communication and Theatre Arts
2.0 h.

30.97 Problems in Communication and Theatre Arts
3.0 h.

30.14 Media in Communication and Theatre Arts
3.0 h.

30.15 Radio/Theatre
An approach to group story-telling including
performance of radio stories, short plays,
children's literature, and poetry.

30.16 1st Performance of Biblical Literature
3.0 h.
Performance-oriented approach to the various
themes in the literary experience; gives
attention to the development of dramatic, vocal, and
movement techniques, and in the development of
affective and expressive message and concept from the text.

Communication Education
Professor in charge: Douglas Dye
36.85 The communication teaching major requires a minimum of 33 semester
hours of coursework in the Department of Communication and Theatre Arts. 
Students should include the following in their program:
36.93 Voice improvement for Speakers and Actors.
36.97 Oral Interpretation of Literature.

2 courses selected from each of the four
departmental undergraduarte divisions, with
approval of a communication education adviser.

In addition to the secondary education
T.E.P. Qualifications, courses, students
seeking teacher certification in
communication and theatre arts must
also register for:
75:180 Methods: Communication
3.0 h.

26.160 Methods: Communication
3.0 h.
12.0 h. Seminar: Curriculum and Student 

Communication education majors and minors are advised to complete the
College of Liberal Arts historical-cultural core requirement with 11.51-52 Drama
in Western Culture, and the social science core requirement with 102:11 Language 
and Society and 30.1 Introduction to American Politics.

To strengthen both their major and their employment opportunities, students are 
strongly advised to complete a minor certification in English, reading, or 
other competitive fields, and to accumulate a record of achievement in University 
forensics, broadcasting and film, readers' theatre, and theatre activities.

Minor Certification in Communication and Theatre Arts
Completion of 20 semester hours of coursework in communication and 
theatre arts is required. These hours must include communication methods and a 
distribution of at least four courses in any two of the following three areas:

Communication (communication theory, interpersonal communication, 
argumentation, discussion, and public speaking courses);

Theatre (acting, directing, stagecraft, technical theatre);

Broadcasting and film.

Courses
26.160 methods: Communication
1.5 h.

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Communication and Theatre Arts/LIBERAL ARTS

36:173 Workshops in Teaching Communication, Forensics, and Theatre
36:185 Institute, materials, preparation and evaluation of educational programs; opportunities for observation; demonstration, and analysis of an entire teaching, discussion and defense, and inclusive speech, drama, and critical events. Same as 78:159.

36:179 Workshops in American Rhetoric and Folkslore
36:179必修课程 essentials for teachers in American Rhetoric and Folkslore. Instructive, informative, and practical elements for the development of critical thinking skills in the classroom, and the practice of meaningful and effective listening during your everyday duties. Same as 78:179.

36:180 Workshops in Teaching Mass Communication and Media in the Secondary Schools
36:180 Study of popular media, with emphasis as the critical production of radio and film programs. Same as 78:180.

36:181 Workshops in Interpersonal Communication
36:181 Designed especially for the public school teacher interested in incorporating new concepts of interpersonal communication, marketing, and the use of media in the classroom. May not be included in the classroom syllabus. Same as 78:181.

36:182 Workshops in Creative Drama
36:182 Vase café: understanding the drama of the classroom quality of life; the use of drama in the development of children's literature. Same as 78:182.

36:183 Workshops in Teaching the Basic Course in Public Communication
36:183 The course in speech and rhetoric appropriate for the first course in communication and development of programs for the examination and teaching of the courses. Same as 78:183.

36:190 Colloquium Reading, Analysis, and Applications in Secondary Communication Education
36:190 A study of the preparation of student learning activities, teacher control over learning strategies, and various classroom and teaching approaches: academic achievement and professional growth. Same as 78:190.

36:201 Contemporary Communication Education
36:201 Designed to increase teachers' awareness of the needs of students with learning disabilities and in special populations; to strengthen the teaching of reading and writing skills for the teacher and student evaluation; emphasis on the "field-study" a communication student pursues a pedagogical research topic of their choice.

36:202 Principles of Speech Communication
36:202 Speech communication portion of webinar. Use of delivery and analysis of communication and the development of programs for the examination and teaching of the courses. Same as 78:202.

Communication

Professor in charge: Nancy L. Harper

Degree advisor: B.A.

Communication majors become knowledgeable about the many processes of communication from both humanistic and practical perspectives. They also take in applied communication work, through informal practice, they improve their communication skills. With related work in mass communication, the social sciences, English, journalism, and business administration, this major equips its students for careers in the media, business, management, marketing, public relations, or government. The major is also excellent preparation for professional or advanced studies.

Majors must meet general departmental requirements. Of the 24 semester hours required, at least 15 must be in the Division of Communication.

The department and division sponsor an active forensics program in which communication majors and minors have opportunities to present research skills, develop important listening skills, work on methods for organizing and amputing speeches, and use all public speaking skills before audiences outside the classroom. Interested students may choose to work in debate or in a variety of individual events. Scholarships are available.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>36:201</td>
<td>Contemporary Communication Education</td>
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<tr>
<td>36:202</td>
<td>Principles of Speech Communication</td>
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<td>36:203</td>
<td>Colloquium Reading, Analysis, and Applications in Secondary Communication Education</td>
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<tr>
<td>36:204</td>
<td>Communication in Public</td>
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<td>36:205</td>
<td>Contemporary Communication Education</td>
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<tr>
<td>36:206</td>
<td>Principles and Applications of Theory and Research in Communication</td>
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<td>36:207</td>
<td>Communication in Public</td>
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<tr>
<td>36:208</td>
<td>Reading, Analysis, and Applications in Secondary Communication Education</td>
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<td>36:209</td>
<td>Communication in Public</td>
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Communication faculty: Nancy L. Harper

36:210 Principles of Speech Communication
36:210 Speech communication portion of webinar. Use of delivery and analysis of communication and the development of programs for the examination and teaching of the courses. Same as 78:210.

36:211 Communication in Public
36:211 Intermediate course in public speaking, presenting, or public relations course (10 to 10.5, 36:218, or equivalent). Other courses in similar process skills are recommended for students wishing to expand research skills, develop important listening skills, work on methods for organizing and amputing speeches, and use all public speaking skills before audiences outside the classroom. Interested students may choose to work in debate or in a variety of individual events. Scholarships are available.

36:212 General Communication
36:212 Principles and applications of group processes enhancing interpersonal relations and group participation: priorities in social decision and action.

36:213 Harvardian Communication
36:213 Harvardian Communication

36:214 Public Relations
36:214 Public Relations

36:215 Business and Professional Speaking
36:215 Business and Professional Speaking

36:216 Communication Theory in Everyday Life
36:216 Communication Theory in Everyday Life

36:217 Rhetoric and International Organizations
36:217 Rhetoric and International Organizations

36:218 Communication and Public Affairs
36:218 Communication and Public Affairs

36:219 Rhetoric and International Organizations
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36:220 Communication and Public Affairs
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36:221 Rhetoric and International Organizations
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36:222 Communication and Public Affairs
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36:223 Rhetoric and International Organizations
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36:225 Rhetoric and International Organizations
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36:226 Communication and Public Affairs
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36:227 Rhetoric and International Organizations
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36:228 Communication and Public Affairs
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36:229 Rhetoric and International Organizations
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36:237 Rhetoric and International Organizations
36:237 Rhetoric and International Organizations

36:238 Communication and Public Affairs
36:238 Communication and Public Affairs
Communication Research

Professor is change: John W. Dozeman
Degree offered: M.A., Ph.D.

The program in communication research leads to either the M.A. or the Ph.D. degree. Programs designed for individual students provide background for and experience in experimental research on interpersonal communication, group communication, and the mass media. Candidates are expected to take work in related social sciences in addition to the general requirements of the Department of Communication and Theatre Arts, and to select appropriate courses from those listed below.

In general, Ph.D. candidates in this program must complete the statistics sequence in the Department of Psychology or in the College of Education, and take 26:822/26:823 Philosophical Problems of the Social Sciences in the Department of Philosophy. Work in advanced statistics and computer science may be used to fulfill the research tool requirements of this department.

Opportunities for varied research in addition to that required for the thesis or dissertation projects are available in the department's communication research laboratory. Several original studies in preparation for dissertation and later research are required of doctoral candidates.

Courses

56:201 Communication and Psychology Theory
56:202 Communication and Psychology Research
56:203 Communication and Personality
56:204 Communication and Social Psychology
56:205 Communication and Social Problems
56:206 Communication and Social Change
56:207 Communication and Public Policy
56:208 Communication and Law
56:209 Communication and Ethics
56:210 Communication and Media Studies
56:211 Communication and Advertising
56:212 Communication and Advertising Research
56:213 Communication and Advertising Techniques
56:214 Communication and Advertising Campaigns
56:215 Communication and Advertising Measurement
56:216 Communication and Advertising Effectiveness
56:217 Communication and Advertising Ethics
56:218 Communication and Advertising Law
56:219 Communication and Advertising Policy
56:220 Communication and Advertising Regulation
56:221 Communication and Advertising Standards
56:222 Communication and Advertising Ethics
56:223 Communication and Advertising Law
56:224 Communication and Advertising Policy
56:225 Communication and Advertising Regulation
56:226 Communication and Advertising Standards
56:227 Communication and Advertising Ethics
56:228 Communication and Advertising Law
56:229 Communication and Advertising Policy
56:230 Communication and Advertising Regulation
56:231 Communication and Advertising Standards
56:232 Communication and Advertising Ethics
56:233 Communication and Advertising Law
56:234 Communication and Advertising Policy
56:235 Communication and Advertising Regulation
56:236 Communication and Advertising Standards
56:237 Communication and Advertising Ethics
56:238 Communication and Advertising Law
56:239 Communication and Advertising Policy
56:240 Communication and Advertising Regulation
56:241 Communication and Advertising Standards
56:242 Communication and Advertising Ethics
56:243 Communication and Advertising Law
56:244 Communication and Advertising Policy
56:245 Communication and Advertising Regulation
56:246 Communication and Advertising Standards
56:247 Communication and Advertising Ethics
56:248 Communication and Advertising Law
56:249 Communication and Advertising Policy
56:250 Communication and Advertising Regulation
56:251 Communication and Advertising Standards

Rhetorical Studies

Professor in charge: Bruce E. Grenfell
Degree offered: M.A., Ph.D.

The program in rhetorical studies leads either to the M.A. or the Ph.D. degree. It is built upon foundational courses in the history of rhetorical practices, the criticism of rhetorical discourse, and theoretical relationships between rhetorical activism and other dimensions of society. This foundation course in history and criticism are offered on the 100-level, and are listed under "Communication" (see above). More specialized courses (300-level) and seminars (600-level) allow students to develop particular expertise in various approaches to rhetoric and communication.

The Master of Arts Program

The areas of the M.A. program in rhetorical studies is upon basic knowledge of rhetorical history, criticism, and theory. That goal normally is met by work both within the division and in other parts of the department and University. The degree is intended to build a strong foundation for teaching in high schools and junior colleges or for proceeding to the doctorate. Efforts are made to tailor individual programs of study to students' needs and career goals. Minimal requirements for the M.A. in rhetorical studies include:

36:200 Introduction to Rhetoric
At least 15 hours of courses in rhetorical studies, including a seminar:
At least 6 hours of courses in other divisions of this or related departments:
A comprehensive examination across three areas of study determined by students and their committees.
The Doctor of Philosophy Program

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 this 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 theoretical studies’ course offerings.

For basic requirements, see the departmental sections of this description.

Courses

361.051 Classical Rhetoric

361.052 Modern and Contemporary Rhetoric

361.053 Theory of Communication

361.054 Communication and Critical Theory

361.055 Communication and Technology

361.056 Communication and Media

361.057 Communication and Society

361.058 Communication and Culture

361.059 Communication and Law

361.060 Communication and Politics

Graduate Programs

The Master of Arts degree emphasizes research in critical, theoretical, historical, and policy issues relating to broadcasting and film. M.A. candidates in film can emphasize production in a plan of study balancing the artistic and scholarly aspects of the field. The Ph.D. programs in both broadcasting and film are individually tailored by each candidate and an advisory committee to develop competence in research and criticism.

Facilities

The broadcasting and film division is housed in the University’s Television Center. The center, known on campus as Old Armory, houses fine broadcasting and film production facilities devoted exclusively to instruction. A large television studio/sound stage is equipped with modern television equipment, including color cameras. Students have the opportunity to use a variety of types of video and audio recording equipment in both studio and film production settings, along with video as well as audio editing facilities.

The University’s two radio stations, WJSS (AM) and KSUJ (FM), offer facilities for radio production classes and independent study. A large recording equipment is also available for students in broadcasting and film courses. Students can gain experience with a variety of cameras, sound and lighting equipment, editing equipment (including fiber-optic editing machines), and film course except for the introductory one are taught with 16 mm equipment. The University maintains both a complete film processing laboratory and a sound mixing studio.

The University Library contains an outstanding collection of film and broadcasting materials.

Requirements for a major in the division include 369:55 Introduction to Broadcasting and Film Production, a minimum of 6 hours of advanced production, a minimum of 6 hours of non-credit courses (of which at least 4 must be 100-level courses or above), and one course each from the divisions.
of Theatre Arts and Communication. A total of 24 hours is required.

Courses

238:031/4 Mass Media and Mass Society 3 s.h.
Introduction to the history and theory of the mass media with a focus on radio, television, and the motion picture. Same as 248:021.

238:033 Introduction to Broadcasting and Film Production 2 s.h.
For the student with an excursion requirement; the course is project-oriented, with a short video production, short audio film, and audio production project required. Emphasis on interactive principles and effectiveness of communication. Same as 248:033.

238:040 Information to Film Analysis 4 s.h.
Methods of analyzing various kinds of film, with emphasis on "mise-en-scene." Mise-en-scene work for the communication majors is included. The student is required to submit short films; independent research on narrative, non-linear, non-linear narrative, special effects, and genre. Same as 248:040.

238:043 American Broadcasting 3 s.h.
Introduction to the motion picture industry, motion picture history, theory, and criticism, including study of membership in film or other arts film association included. Same as 248:043.

238:045 Film and Society 3 s.h.
The role of the motion picture industry in contemporary society, consideration of issues of copyright and treatment of social issues.

238:069 Directing 3 s.h.
Introduction to methods of establishing various kinds of films, including fiction, documentary, and experimental; practical frequent short writing assignments, student learn to direct film scripts, and field situations. Same as 248:069.

238:205 Broadcasting and Sports 3 s.h.
Relationship of sports and broadcasting, sports programming and production, audience, coverage, regulatory agencies, and social and economic factors. Same as 248:205.

238:100 Mass Media and Mass Society 3 s.h.
Focus on the relationship between the mass media and the society in which they operate. Emphasis on mass media content and its impact on society.

238:101/2 Sports Broadcasting 3 s.h.
Introduction to the world of sports broadcasting, with emphasis on digital news gathering and news gathering techniques, production, and production planning and production. Same as 248:101/2, 248:101, and 248:102.

238:112 Producing Drama for the Screen 3 s.h.
For advanced production students, actors, and directors. Emphasis on the creative and technical aspects of producing television and motion picture drama. Emphasis on script analysis and production. Same as 248:112.

238:116 Television Production I 3 s.h.
Theoretical and technical aspects of television production as it is practiced in the motion picture industry. Emphasis on script writing and production. Same as 248:116.

238:117 Television Production II 3 s.h.
Preparation and development of television programs emphasis on dramatic form and techniques. Emphasis on script writing and production. Same as 248:117.

238:141 Film Production I 4 s.h.
Intermedia film production courses devoted to film structure and techniques, camera, editing equipment, and the creative and technical aspects. Same as 248:141 and 248:141.

238:145 Film Production II 4 s.h.
Advanced production practices, screenwriting, and directing. Emphasis on script writing and production. Same as 248:145.

238:156 TV Workshop 3 s.h.
Independent research work for students who have shown outstanding talent in 248:116. Production credit for instructor.

238:177 Electronic Field Production 3 s.h.
Introduction to electronic field production, with emphasis on electronic news gathering and news gathering techniques, production, and production planning and production. Same as 248:177.

238:180 Display Drama for the Screen 3 s.h.
For advanced production students, actors, and directors. Emphasis on the creative and technical aspects of producing television and motion picture drama. Emphasis on script analysis and production. Same as 248:180.

238:181 Television in Society 3 s.h.
Television in society as a force for social change, a force for cultural and political values. Television as a source of information and communication. Same as 248:181.

238:182 Television Programming 3 s.h.
Exercises in television programming, with emphasis on the creative and technical aspects of producing television and motion picture drama. Emphasis on script writing and production. Same as 248:182.

238:185 The Critic as Broadcaster 3 s.h.
Study of broadcast media from the perspective of the critic, including current issues and the role of the critic in society. Same as 248:185.

238:186 Social and Economic Foundations of Broadcasting 3 s.h.
Historical development of the structures, economics, and technological development of the broadcasting media in the United States.

238:187 Sociology of Broadcasting 3 s.h.
Study of media and society. Emphasis on media as social institution and the impact of media on society. Same as 248:187.

238:188 International and Global Communications 3 s.h.
International broadcasting in the United States and abroad, and its impact on society. Focus on the role of the mass media in international communication. Emphasis on social and political context.

238:189 The Media and Public Issues 3 s.h.
Explores the relationship between the mass media and society, and the role of the mass media in shaping public opinion. Focus on the role of the media in society, and the role of the media in shaping public opinion.

238:190 Broadcasting Practice 3 s.h.
Study of program production, production management, and production techniques. Focus on the role of the media in society, and the role of the media in shaping public opinion.

238:191 Broadcast Writing 3 s.h.
Study of broadcast writing, production, and production techniques. Focus on the role of the media in society, and the role of the media in shaping public opinion.

238:192 Broadcast Management 3 s.h.
Study of broadcast management, production, and production techniques. Focus on the role of the media in society, and the role of the media in shaping public opinion.

238:193 Broadcast Law 3 s.h.
Study of broadcast law, production, and production techniques. Focus on the role of the media in society, and the role of the media in shaping public opinion.

238:194 Broadcast Finance 3 s.h.
Study of broadcast finance, production, and production techniques. Focus on the role of the media in society, and the role of the media in shaping public opinion.

238:195 Broadcast Technology 3 s.h.
Study of broadcast technology, production, and production techniques. Focus on the role of the media in society, and the role of the media in shaping public opinion.

238:196 Broadcast Law 3 s.h.
Study of broadcast law, production, and production techniques. Focus on the role of the media in society, and the role of the media in shaping public opinion.

238:197 Broadcast Management 3 s.h.
Study of broadcast management, production, and production techniques. Focus on the role of the media in society, and the role of the media in shaping public opinion.
which offers seating for almost 600 patrons.

The division also stages productions in Hancher Auditorium. Seating 2,680, this facility is used by the numerous professional touring shows which perform in Iowa City, and boasts 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 lightning and sound, students are exposed to "a range of equipment from the "retail" resistance lighting control and the two-channel sound systems of the Old Army Theater to the fully computerized lighting controls and the live-channel sound system used in Hancher Auditorium.

Courses

For Undergraduates

301.1 Acting I 3 cr.
301.2 Acting II 3 cr.
301.3 Acting III 3 cr.
301.4 Acting IV 3 cr.
301.5 Acting V 3 cr.
301.6 Acting VI 3 cr.
301.7 Acting VII 3 cr.
301.8 Acting VIII 3 cr.
301.9 Acting IX 3 cr.
301.10 Acting X 3 cr.
301.11 Acting XI 3 cr.
301.12 Acting XII 3 cr.
301.13 Acting XIII 3 cr.
301.14 Acting XIV 3 cr.
301.15 Acting XV 3 cr.
301.16 Acting XVI 3 cr.
301.17 Acting XVII 3 cr.
301.18 Acting XVIII 3 cr.
301.19 Acting XIX 3 cr.
301.20 Acting XX 3 cr.
301.21 Acting XXI 3 cr.
301.22 Acting XXII 3 cr.
301.23 Acting XXIII 3 cr.
301.24 Acting XXIV 3 cr.
301.25 Acting XXV 3 cr.
301.26 Acting XXVI 3 cr.
301.27 Acting XXVII 3 cr.
301.28 Acting XXVIII 3 cr.
301.29 Acting XXIX 3 cr.
301.30 Acting XXX 3 cr.
301.31 Acting XXXI 3 cr.
301.32 Acting XXXII 3 cr.
301.33 Acting XXXIII 3 cr.
301.34 Acting XXXIV 3 cr.
301.35 Acting XXXV 3 cr.
301.36 Acting XXXVI 3 cr.
301.37 Acting XXXVII 3 cr.
301.38 Acting XXXVIII 3 cr.
301.39 Acting XXXIX 3 cr.
301.40 Acting XL 3 cr.
301.41 Acting XLI 3 cr.
301.42 Acting XLII 3 cr.
301.43 Acting XLIII 3 cr.
301.44 Acting XLIV 3 cr.
301.45 Acting XLV 3 cr.
301.46 Acting XLVI 3 cr.
301.47 Acting XLVII 3 cr.
301.48 Acting XLVIII 3 cr.
301.49 Acting XLIX 3 cr.
301.50 Acting L 3 cr.
301.51 Acting LI 3 cr.
301.52 Acting LII 3 cr.
301.53 Acting LIII 3 cr.
301.54 Acting LIV 3 cr.
301.55 Acting LV 3 cr.
301.56 Acting LV I 3 cr.
301.57 Acting LV II 3 cr.
301.58 Acting LV III 3 cr.
301.59 Acting LV IV 3 cr.
301.60 Acting LV V 3 cr.
301.61 Acting LV VI 3 cr.
301.62 Acting LV VII 3 cr.
301.63 Acting LV VIII 3 cr.
301.64 Acting LV IX 3 cr.
301.65 Acting LV X 3 cr.
301.66 Acting LV XI 3 cr.
301.67 Acting LV XII 3 cr.
301.68 Acting LV XIII 3 cr.
301.69 Acting LV XIV 3 cr.
301.70 Acting LV XV 3 cr.
301.71 Acting LV XVI 3 cr.
301.72 Acting LV XVII 3 cr.
301.73 Acting LV XVIII 3 cr.
301.74 Acting LV XIX 3 cr.
301.75 Acting LV XX 3 cr.
301.76 Acting LV XI 3 cr.
301.77 Acting LV XII 3 cr.
301.78 Acting LV XIII 3 cr.
301.79 Acting LV XIV 3 cr.
301.80 Acting LV XV 3 cr.
301.81 Acting LV XVI 3 cr.
301.82 Acting LV XVII 3 cr.
301.83 Acting LV XVIII 3 cr.
301.84 Acting LV XIX 3 cr.
301.85 Acting LV XX 3 cr.
301.86 Acting LV XI 3 cr.
301.87 Acting LV XII 3 cr.
301.88 Acting LV XIII 3 cr.
301.89 Acting LV XIV 3 cr.
301.90 Acting LV XV 3 cr.
301.91 Acting LV XVI 3 cr.
301.92 Acting LV XVII 3 cr.
301.93 Acting LV XVIII 3 cr.
301.94 Acting LV XIX 3 cr.
301.95 Acting LV XX 3 cr.
301.96 Acting LV XI 3 cr.
301.97 Acting LV XII 3 cr.
301.98 Acting LV XIII 3 cr.
301.99 Acting LV XIV 3 cr.
301.100 Acting LV XV 3 cr.
301.101 Acting LV XVI 3 cr.
301.102 Acting LV XVII 3 cr.
301.103 Acting LV XVIII 3 cr.
301.104 Acting LV XIX 3 cr.
301.105 Acting LV XX 3 cr.
301.106 Acting LV XI 3 cr.
301.107 Acting LV XII 3 cr.
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301.109 Acting LV XIV 3 cr.
301.110 Acting LV XV 3 cr.
301.111 Acting LV XVI 3 cr.
301.112 Acting LV XVII 3 cr.
301.113 Acting LV XVIII 3 cr.
301.114 Acting LV XIX 3 cr.
301.115 Acting LV XX 3 cr.
301.116 Acting LV XI 3 cr.
301.117 Acting LV XII 3 cr.
301.118 Acting LV XIII 3 cr.
301.119 Acting LV XIV 3 cr.
301.120 Acting LV XV 3 cr.
301.121 Acting LV XVI 3 cr.
301.122 Acting LV XVII 3 cr.
301.123 Acting LV XVIII 3 cr.
301.124 Acting LV XIX 3 cr.
301.125 Acting LV XX 3 cr.
301.126 Acting LV XI 3 cr.
credit to be planned in consultation with an
adviser in order to emphasize multidisciplinary
approaches to communication. Four courses are
required for all majors.

122:101 Introduction to Linguistics
3 s.h.

122:80 Communication and Contemporary Culture
3 s.h.
or
122:81 Mass Media and Mass Society
3 s.h.
or
122:82 Communication Theory in Everyday Life
3 s.h.

122:100 Cultural and Historical Foundations of Communication
3 s.h.
or
122:103 Social Scientific Foundations of Communication
3 s.h.

122:99 Senior Seminar
1-3 s.h.

Courses

122:80 Communication and Contemporary Culture
Same as 36C:90 - 109:90. (3 s.h.)

122:81 Mass Media and Mass Society
Same as 36C:80. (3 s.h.)

122:82 Communication Theory in Everyday Life
Same as 36C:80. (3 s.h.)

122:99 Senior Seminar
1-3 s.h.

122:101 Social Scientific Foundations of Communication
Same as 103:100, 111:110. (3 s.h.)

122:103 Cultural and Historical Foundations of Communication
Same as 101:100. (3 s.h.)

122:103 Social Scientific Foundations of Communication
Same as 101:100. (3 s.h.)

Comparative Literature

Program chair: Rudolf E. Rusdall
Faculty: professors J. Charles Andrew, Donald
Delargy, Paul Hattarli, Donald Marshall, Anne F.
Rusdall
associate professors Charles F. Altmann, R. E.
Russell, Maureen Robertson, Oliver Ungar, Delmar
Vesey
assistant professors Thomas E. Lewis, Donald
Wayne
Faculty teaching in the program: in addition to its
own faculty, the Program in Comparative Literature
calls upon the services of faculty members in various
other areas, including classics, Asian languages and
literatures, communication and theatre arts, English,
French, German, Italian, Japanese, Russian, Spanish,
and Portuguese. (Varies)

Degrees offered: M.A., Ph.D.

The purpose of the Program in Comparative Literature is to present
literature as an interdisciplinary and international study and to provide
a basis for intensive work in literature, literary theory, and literary method.
Undergraduates interested in comparative studies are encouraged to
investigate the major in letters, which is closely coordinated with comparative
literature.

Master of Arts

The degree of Master of Arts in comparative literature requires 26
semester hours of study in literature 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

Alleged and 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
after be awarded after 45 semester

hours of graduate study with a grade-
point average of 3.50, and successful
completion of the comprehensive examination for the Ph.D.

Doctor of Philosophy

Students seeking the doctorate in comparative literature study at least
three literatures: one is studied in historical depth, and two others in
limited areas of specialization. An interdisciplinary area of concentration is
encouraged. All candidates devote a portion of their programs to comparative
study that brings the several areas into focus. Specific areas and interrelations
of these areas are assigned by the student in consultation with appropriate
faculty members.

Some typical critical and comparative areas are:

European Renaissance
Romanic
Structuralism and post-Structuralism
Neo-Marxist theory
Symbolic/psycho and modernist
literature
Post-Kantian philosophy and literature
Saussure, Saussurian, and the theory of
social interaction
Literature, history, and criticism

The Ph.D. dissertation should
demonstrate the candidate's ability to write a substantial piece of scholarly
work or criticism. A translation of a work of
sufficient significance and linguistic
complexity, preceded by a critical
introduction, may be acceptable as a
dissertation. The final oral examination
occurs on the dissertation and its
background.

Admission

A study of literature across linguistic
boundaries requires special training in
languages. A thorough knowledge of at
least one foreign language is required
for admission to the M.A. courses of
study; knowledge of at least two foreign
languages is a prerequisite for doctoral
study. Students are encouraged to offer
at least one classical language.

For further information, consult the
procedural guide for graduate students
in comparative literature, available by
request from the program office.
Economics

Department chair: Timothy W. McCarron

Suzie Bateman, John Palecek, James Jeffers, Walter Knox

Department: Economics

Economics is concerned primarily with the study and analysis 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, government and taxation, and the ways in which societies organize production and allocate resources.

Undergraduate Programs

The Bachelor of Arts degree in economics prepares students for a variety of positions in government and business. Graduates find employment in banking, financial institutions, real estate, and insurance. The Bachelor of Science degree in economics prepares students for careers in finance, banking, and government.

Bachelor of Arts

Requirements include:

- Calculus I
- Calculus II
- Principles of Economics
- Microeconomics
- Macroeconomics
- Statistics

Bachelor of Science

Requirements include:

- Calculus I
- Calculus II
- Principles of Economics
- Microeconomics
- Macroeconomics
- Statistics
- Additional courses in economics

Honors

Undergraduate students interested in an economics major should contact the economics department chair to obtain more information on the program.

Business Administration

The program for the B.B.A. degree is described in the "College of Business Administration" section of the Catalog.
Coursework for Nonmajors

Departmental courses 6E:1-2 Principles of Economics satisfies the College of Liberal Arts positivistic core requirement, and provides an introduction to specialized topics of upper-division courses. Students with limited exposure to economics may examine the economics behind some current policy issues in 6E:7 Contemporary Economic Problems and Policy.

Coursework in economics can be related to majors in many other fields—for example, environmental studies majors might take 6E:133 Economic Growth and Environmental Decay and 6E:103 Microeconomics: political science/political majors could elect 6E:119 Economics of the Government Sector and 6E:141 Industrial Organization.

A number of students combining major interests by pursuing double majors in economics and in fields with an intersection of computer science, philosophy, 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 departmental orientation, but can be enhanced by a set of field courses.

The M.A. degree program is designed to provide breadth in economic training without the intellectualنته של מיינון. Студенты в M.A. program usually complete it within 18 months.

Within the M.A. program, the department offers concentrations in economic development, econometrics, economic history, economic geography, 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, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study

Special Seminar

Each year the department offers a seminar program involving eminent economists from other universities and institutions, as well as presentations by faculty and student members of the department.

Courses

All courses offered in the Department of Economics are listed in the "College of Business-Administration" section of the Catalog.

Education

See "College of Education."

English

Department chair: Richard Lloyd-Jones


Studying English and American literature, a student learns to read a work of literature in relation to the culture it is born in and to interpret its

meaning and value for present circumstances.

Study of the English language helps students examine the possibilities and limitations of spoken or written English both historically and analytically.

Knowing the theory and practicing the craft of writing helps students express their ideas in the public domain precisely and forcefully.

Majoring in English means pursuing these three aspects of the subject. Students who have taken English majors at The University of Iowa are now practicing law and medicine, working for advertising firms, newspapers, and book publishers, or for offices in state or federal government. Many others hold responsible positions in business and industry. Others are teaching in colleges as well as primary and secondary schools.

Undergraduate Programs

Bachelor of Arts

A Bachelor of Arts degree with a major in English requires 30 semester hours of credit in courses offered by the Department of English, of which should come from courses dealing with the English language. A 1900 and at least 15 of which should be taken in residence at The University of Iowa.

In conference with their academic advisors, students work out programs of study designed to satisfy their current interests and to fit their future plans. Not all they begin with courses emphasizing close reading of poetry, fiction, and argument. Later they study particular literary genres 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 structure of the English language, or they may do advanced work in either imaginative writing (poetry, fiction, and drama) or functional writing (exclamation or argument in the fields of journalism, business, science, or the arts).
To buttress their understanding of literature, 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 elect courses in business, pre-law, or the sciences.

As soon as a student decides to undertake an English major, he or she should consult the director of undergraduate study in the English department office, who will assign him a faculty adviser. In the English office, too, they may obtain a pamphlet on "Designing Your English Major," and other printed material explaining departmental programs, courses, and special events.

Minor

A minor in English requires 16 semester hours of coursework in Department of English courses. Twelve of these hours should be in advanced courses (801 and above). Courses in the literature core, a graduation requirement for the College of Liberal Arts, do not contribute toward the minor program in English.

Literature Semesters

Available to all University undergraduates, the two literature semesters presently offered are 800-85 English Literature Before 1800 and 85-87 American and Contemporary Literature. The latter covers American literature from its beginnings through the present, as well as British literature since 1800.

Each literature semester carries 12 semester hours of credit and involves as much reading as would be contained in four ordinary courses. Classes meet two hours a day, five days a week. Three professors give the courses, and the instruction is divided equally among them.

Since all works are discussed and compared within and across the conventional historical divisions, the students undergo an intensive discipline in practical criticism. They write a paper a week, practice oral reading and productions of scenes from plays, and often write parodies, imitations, and other exercises as a means of increasing their sensitivity to literary styles.

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 literary works. During the junior and senior years, an honors student takes a special honors seminar and engages in independent study supervised by an honors adviser. In his or her last semester before graduation, an honor student completes an honors paper, either critical or creative, and satifies all honors examination on British and American literature. Honors study is planned in consultation with the chair of honors in English and members of the honors committee.

Creative Writing

Many undergraduates come to The University of Iowa because of the excellence of its creative writing program. With the consent of his or her adviser, any student may elect the undergraduate courses in this program. These are BW.233 Creative Writing, BW.151 Fiction Writing, and BW.152 Poetry Writing.

Admission to the undergraduate workshops in fiction and poetry BW.233 Undergraduate Writers Workshop: Fiction and BW.152 Undergraduate Writers Workshop: Poetry is only by permission of the instructors. Students who wish to take part in these workshops must submit samples of their poetry or fiction to the Writers Workshop no earlier than a week before registration, and no later than the last day of registration.

English and Education

The department offers a flexible undergraduate program for students planning to teach English in elementary and secondary schools. Students completing this program satisfy the requirements for a general major in English and for teaching certification.

Students who wish to be certified to teach English in Iowa secondary schools should select courses which fulfill the state guidelines for teachers of English in grades seven through twelve.

Literary study for students planning to teach English should emphasize a range of close reading experiences in different kinds of literature (literature of the ancient world, Shakespeare, British literature of the nineteenth and twentieth centuries, American literature, literature for adolescents, literature of American ethnic groups, literature by women, folk literature), as well as a variety of methods for exploiting a literary text. Students planning courses which will help them in their first teaching experiences should remember that they will have to work with details of expression in English.

They will need advanced training in writing—nonfiction, poetry, and fiction—are all important—because these courses will help students understand and utilize linguistic, rhetorical, and stylistic devices in various kinds of writing.

They will need to understand the nature of the English language, including syntax, phonology, and semantics, because this knowledge should help students understand language development and how language can be adapted to meet various speaking and writing situations.

Since communication also occurs visually, students should explore the relationships between written, oral, and visual media.

Finally, students should explore the processes of reading, from the first stages of learning to read through advanced stages when a reader comes increasingly to understand and respond to details of meaning and nuances of expression.

All these areas of study can be satisfied by courses within the department and the exploration of the process of reading. That area can be satisfied by courses in the College of Education. Prospective English teachers should remember that an undergraduate degree represents only minimal training, so they should plan a program which will permit graduate study at a later time.
English majors seeking teacher certification must plan with their advisors appropriate education courses to be taken concurrently with courses in English. In addition, they must devote one semester of the senior year to professional training apart from any other coursework. The department also participates in a joint major in English and elementary education. Those interested in such a program should consult their advisors in elementary education.

Students who seek certification for secondary teaching in fields other than English may seek minor certification in English. This is particularly appropriate for students majoring in speech or journalism. Such a student must complete 20 semester hours of English, excluding freshman courses in rhetoric, speech, or writing.

The English minor certification program must include a course in each of these areas: advanced composition, Shakespeare, American literature, and British literature of the nineteenth or twentieth centuries. In addition to the 20 semester hours of English, the student is required to take 75/116 Methods of English in the College of Education’s Division of Secondary Education.

While this program meets minimum requirements for certification, the department believes that anyone desiring to teach English should have considerably more training in the field.

Graduate Programs

Master of Arts

The basic requirements for the M.A. in English are:

Completion of a coherent curriculum, the plan of which is to be made in consultation with the candidate’s appointed departmental advisor;

Completion of at least 30 semester hours of graduate study, of which 24 must be earned in residence at This University;

Completion of one seminar with a letter grade of A or B, as part of the 30 hour requirement; and

Satisfactory performance on an 8-hour written final examination based on a list of literary texts, a copy of which may be obtained from the department’s graduate office.

These requirements clearly allow students a great deal of freedom in course selection. The M.A. degree in English encourages candidates to construct programs that are individually suited for their particular needs and interests. However, M.A. candidates who contemplate going on for a Ph.D. should request information pertinent to that degree so that they can efficiently prepare for meeting the Ph.D. requirements while working toward the masters degree.

Master of Arts with Emphasis in Expository Writing

This program emphasizes the theory, analysis, practice, and pedagogy of expository writing for students wishing to become teachers or critics of expository writing, or professional writers in such areas as the humanities, business and technical fields, or freelance work. Normally, the program takes from three to four semesters to complete.

To qualify for the M.A. with emphasis in expository writing, a student must complete 30 semester hours of graduate work with a grade-point average no lower than 3.0. At least 24 of these hours must be earned in residence at The University of Iowa, including 8 hours of work in advanced composition with a grade of B or A. In addition to the 30 semester hours of coursework, students will be required to complete at least 3 and no more than 6 semester hours of credit for the thesis.

In consultation with an advisor, the student will design an approved program of courses. These plans of study may be highly individual, including courses from widely different areas or departments, but must be coherently organized around the student’s interests and objectives as a writer.

Finally, the student will submit to his or her committee a proposal for a thesis, which will be an extended piece of expository writing; there will be an oral examination covering the project, and the finished thesis must receive the committee’s final approval.

Students interested in this program should consult the director of the M.A. with emphasis in expository writing, or the director of advanced writing.

Master of Arts and Specialist in Education

This program is designed specifically for the person with a strong undergraduate major in English who wishes to prepare to teach in a two-year college. Upon successful completion of the program the student will receive the Master of Arts degree in English and the Specialist in Education degree. Both are nonthesis degrees, but a research paper is required for the Ed.S.

The program of study includes 9 semester hours of electives, 12 of literature, 11 of advanced expository writing and/or linguistics, and 15 in professional courses taught by specialists in English and in education. Each student must take one semester internship in a community college.

Master of Fine Arts

The purpose of the M.F.A. program is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in writing translations, poetry, fiction, or plays. The requirements are flexible, but usually include 48 semester hours of graduate credit, earned chiefly in the Writers Workshop; a book-length collection of poems or short stories, a novel, a play, or a work of creative writing in some other appropriate genre; and satisfactory performance on an examination in modern literature in the form the student is employing.

Master of Fine Arts with Emphasis in Translation

This alternative to the M.F.A. program in creative writing emphasizes the discipline of translation, viewed as a literary literary genre. Student programs are individually structured and are designed to develop skills in source and target languages and cultures. The course also seeks to develop awareness of the tradition of translation
and the history of translation theory. The program normally requires 48 semester hours at graduate credit, including a minimum of 12 hours of Translation Workshop; a collection of translated poetry, fiction, or drama; and an examination in practical criticism involving problems of translation.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and service required of college and university faculty members. The doctoral requires 72 semester hours of graduate credit, of which at least 30 must be earned in residence at The University of Iowa.

Concentrations are possible in areas of literary history, literary criticism, writing, rhetorical theory and stylistics, folklore, bibliography, pedagogy, comparative literature, and linguistics.

Requirements for the Ph.D. Include:

- Formal admission to candidacy by a vote of the full faculty of the department;
- Demonstration of a high level of competence in two foreign languages and their literatures, or mastery of a single foreign language and its literature;
- Distributed coursework in specified historical areas, two seminars;
- A paper written, part oral comprehensive examination in three areas, two of which are usually historical periods of English and American literature;
- A dissertation, which may be either a scholarly book or a collection of imaginative writing; and
- A final examination in defense of the dissertation.

All doctoral candidates are required to gain teaching experience, preferably in the rhetoric and literature core programs of the College of Liberal Arts.

Interested students should write to the department's director of financial aid and doctoral studies for more detailed explanations.

Financial Aid

Aid is available to graduate students in the form of scholarships, fellowships, and teaching and research assistantships. It is awarded on a competitive basis. Since sources are limited, normally fewer than half the applicants for aid receive it. New students should expect to support themselves through the first year.

Financial aid applications are considered only from students who have been admitted to a degree program in the Graduate College. Applications and all necessary supporting material must be submitted by February 15 for the following academic year. Forms are available from the department and the University Office of Admissions.

Admission

All 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. applicants should submit samples of their poetry or fiction to the director of the Creative Writing Program. M.A. in Expository Writing applicants should submit a sample of expository writing and a statement of purpose to the director of that program, and Ph.D. applicants should submit a representative sample of their writing—a course paper, seminar paper, or thesis chapter—to the department's associate director of graduate study.

Writing Programs

For the past 50 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing. In 1922 it became the first institution of higher education to accept creative dissertations for advanced degree programs. Founded in 1936, the Writers Workshop was a pioneer in the field of creative writing; it numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors, and also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1966, brings numbers of prominent foreign writers to campus each year.

The University of Iowa has also been a leader in the area of expository writing and rhetorical theory; it is one of the few academic institutions in the nation which offers a full range of graduate coursework in this area. In 1979, The University of Iowa established the Institute on Writing, a project for the professional development of college and university directors of freshman writing programs. The Institute is a five-year project, jointly funded by the National Endowment for the Humanities and the University. The presence of the institute expands the resources available to students in the area of writing, and enables the department to bring distinguished instructors to campus to participate in regular course offerings in writing.

Special Facilities

The University Library is strong in all areas of English and American literature. It is especially noteworthy for its collection of American periodicals and its holdings of nineteenth- and twentieth-century works.

The department provides a wealth of opportunities for student involvement in critical, scholarly, and creative publications. The Iowa Journal of Literary Studies is a quarterly publication edited by graduate students, which features 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 Midwest Modern Language Association.

The workshop's mission is to develop writers and readers on the campus almost every week, and various conferences outside of "festivals" complement the schedule of class work.
Courses

Individual descriptions for the English courses listed below are not included because the context and emphasis of many courses varies considerably from one semester to another. Detailed course descriptions for 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 prerequisite requirement.

10 Modern Fiction 3.60
10 Modern Drama
Same as ENGL 291-292.
10 Classical and Biblical Literature 3.60
10 Shakespeare
Same as ENGL 297.9.
10 Introduction to Film Analysis
Same as ENGL 300-400.
111 The Renaissance in Current 3.60

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.

105 Critical Approaches to Literary Works 3.60
106 Modernists of English Literature 3.60
107 Major British and American Poets 3.60
108 Major British and American Poets 3.60
109 Selected Plays
Same as ENGL 297.9.
110 Selected Plays
Same as ENGL 297.9.
120 Selected Fictions
Same as ENGL 299.54.
140 Selected Essays
Same as ENGL 297.9.
149 American Literature 3.60
150 Selected Works of the Middle Ages 3.60
151 Shakespearean Contemporaries 3.60
152 Selected Works of the Eighteenth Century 3.60
154 Major Nineteenth-Century British Works 3.60
155 Selected Literary Works Before 1600 3.60
156 Selected Early Modern Works 3.60
157 Selected Works of the Twentieth Century 3.60
158 Modernism in the Renaissance 1 3.60
159 Modernism in the Renaissance 2 3.60

Major Authors

The following are limited-enrollment discussion courses. Each author is represented by several major works. Combinations of authors are changed regularly. Per permission of the instructor, a student may request registration for some course number if authors have been changed.

157 Chaucer 3.60
157 Shakespeare
Same as ENGL 297.9.
157 Selected English Authors 3.60
157 Selected American Authors 3.60
157 Selected Scottish Authors 3.60
157 Selected Authors 3.60

Literature Semesters

These are limited-enrollment, team-taught discussion courses emphasizing the reading of whole texts (see separate departmental announcements). The literature seminar comprising 300-303 satisfies the major requirement for literature before 1600. Students should have taken at least one college-level literature course before registering for either of these literature seminars. Pre-registration is required.

300 English Literature Before 1600 3.60
301 English Literature Before 1600 3.60
302 English Literature Before 1600 3.60
303 English Literature Before 1600 3.60
304 American and Contemporary Literature 3.60
305 American and Contemporary Literature 3.60
306 American and Contemporary Literature 3.60
307 American and Contemporary Literature 3.60

Seminars for Undergraduate Majors

100 Honors Seminar 3.00
Prerequisite: English major or consent of Instr.
100 Undergraduate Seminar 3.00
Prerequisite: English major or consent of instructor.

For Undergraduate and Graduate Students

Literature and Culture

Primarily for upperclass students and beginning graduate students, these lecture courses are designed to present major works and authors within the context of the social, political, intellectual, and artistic movements of their time. Students who have established backgrounds in history of 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.

152 Introduction to Criticism-Problem 3.00
153 Literature and Culture of the Middle Ages 3.00
154 Literature and the Culture of the Renaissance 3.00
155 Literature and the Culture of the Eighteenth Century 3.00
156 Literature and the Culture of the Nineteenth Century 3.00
157 Literature and Culture of the Twentieth-Century America 3.00
158 Literature and Culture of the Twentieth-Century America 3.00
159 American Literature and Culture 1600 to Present 3.00
159 American Literature and Civilization 1600 3.00
159 European Literature of the Seventeenth Century 3.00
Same as ENGL 450-1 and S383:10.
159 Selected Authors 3.00
159 American Folk and Popular 3.00
159 American Indian Writers 3.00
159 American Indian Literature 3.00
159 American Regional Literature 3.00
159 The Literature of Love 3.00
159 Abraham Lincoln 3.00
Same as ENGL 450.11.
159 American Literature 3.00
Same as ENGL 450.11.
159 American Literature 3.00
Same as ENGL 450.11.
159 American Literature 3.00
Same as ENGL 450.11.
159 American Literature 3.00
Same as ENGL 450.11.
159 American Literature 3.00
Same as ENGL 450.11.
160 Library Domes in European Literature 3.00
Same as ENGL 450.11 and S383:12.
161 Literature and Culture of America Before 1600 3.00
Same as ENGL 450.14.
158 Literature and Culture of the Seventeenth Century 3.00
159 Literature and the Culture of the Eighteenth Century 3.00
159 American Literature and American Culture 3.00
Same as ENGL 452-300.
159 Theology and the Culture of the Renaissance 3.00
Same as ENGL 450-100, 100-150.
159 Dante and Petrarch 3.00
Same as ENGL 450-100, 100-150.
159 German Literature and Culture 3.00
159 Russian Literature and Culture 3.00
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<td>B.124 American Poetry</td>
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<td>B.127 Contemporary Drama in Poetry</td>
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<td>B.128 Selected Modern Poets</td>
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<td>B.129 English and Scottish Poets</td>
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<td>B.122 Stories in the Poetry of Afro-American</td>
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<td>B.130 Twentieth-Century Afro-American Fiction</td>
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<td>B.233 The English Novel: Other to 1900</td>
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<td>B.135 American Novel since 1940</td>
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<td>B.137 American Humor and Satire</td>
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<td>B.128 The European Novel 1700-1900</td>
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<td>B.139 The European Novel 1900 to Present</td>
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<td>Same as 130, 131, 132.</td>
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<td>B.140 Contemporary Drama in Fiction</td>
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<td>B.141 Popular Literatures</td>
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<td>B.192 Studies in the Fiction of Afro-Americans</td>
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<td>B.191 Science Fiction I</td>
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<td>B.193 Science Fiction II</td>
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<td>B.194 Literature of Our Times: Press</td>
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<td>B.122 Shakespeare</td>
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<td>B.143 Selected Dramatists</td>
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<td>B.189 Drama in Stereo Sound</td>
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<td>0.140 Selected Modern Dramatizing I</td>
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<td>0.159 Modern American Drama</td>
<td>Same as 391, 177.</td>
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<td>0.160 Afro-American Drama</td>
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<td>0.160 Continental Drama 1700 to 1800</td>
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<td>B.183 Uses of Imperial Literature</td>
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<td>B.152 Literary Service and Media</td>
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<td>B.153 Drama and National Art Forms</td>
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<td>B.314 Film Script Analysis</td>
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<td>B.187 The Hand-Printed Book: Problems in Design</td>
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<td>B.188 Medieval Manuscripts and Handwriting</td>
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<td>B.211 Old English Annals</td>
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<td>B.212 Old English Literature: Excluding Annals</td>
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<td>B.215 Middle English Poetry and Prose</td>
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<td>B.216 Old Saxon</td>
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<td>B.217 Prose of the Renaissance</td>
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<td>B.218 Early Renaissance Literature</td>
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<td>B.219 Seventeenth-Century Literature</td>
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<td>B.220 History of the Book</td>
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<td>B.230 American Realism and Romance</td>
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<td>B.231 Early American Literature</td>
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<td>B.232 American Realism and Romance</td>
<td>2 a.b.</td>
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<tr>
<td>B.233 American Realism and Romance</td>
<td>2 a.b.</td>
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<tr>
<td>B.234 Early Twentieth-Century American Literature</td>
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<tr>
<td>B.235 Western Literature</td>
<td>2 a.b.</td>
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<tr>
<td>B.236 Eighteenth-Century Satires</td>
<td>2 a.b.</td>
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<tr>
<td>B.240 Augustan Studies: History and Literature</td>
<td>Same as 189, 189.</td>
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<tr>
<td>B.241 Modern Literature and Its Backgrounds</td>
<td>2 a.b.</td>
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<tr>
<td>Authors</td>
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<tr>
<td>B.251 Chaucer</td>
<td>3 a.b.</td>
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<tr>
<td>B.252 Shakespeare</td>
<td>3 a.b.</td>
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<tr>
<td>Same as 397-372.</td>
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</table>
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.

IP429 Interior Reading Comprehensive 1.5 a.
IP430 Special Reading 1.5 a.
IP440 Practical College Vocabulary 1.5 a.
IP160 Methods English 2.5 a.
Same as 7B 119.
IP180 Literature for Adolescents
Same as 21 112 and 7B 113.
IP210 Practicum: Teaching Composition 2.5 a.
IP217 Writing for Professional Education 2.5 a.
Same as 7B 217.
IP220 Practicum: Teaching Literature 2.5 a.
IP320 Colloquium: English in the Two-Year College 2.5 a.
IP329 Seminar: English in the Two-Year College 2.5 a.
IP375 Teaching in a Reading Laboratory 2.5 a.
IP375 Teaching in a Writing Laboratory 2.5 a.
IP440 A.S. Seminar English Education 2.5 a.
Same as 7B 218.
IP449 P.L. Seminar: English Education 2.5 a.
Same as 7B 219.
IP450 Colloquium: Teaching Freshman English 2.5 a.
IP456 Colloquium: Teaching of Freshman Composition 2.5 a.
IP470 Colloquium: Teaching of Literature in College 2 a.

Expository Writing

General Interest

These courses are designed to serve the general interests and needs of undergraduate graduates in all areas of the University. They offer practice in various elements of composition and various kinds of persuasive and expository writing.

EN102 Expository Writing 2.5 a.
EN113 Theory of Rhetoric 3 a.
EN113 Practical and Scientific Writing 2 a.
EN131 Technical Grammar and Usage 2.5 a.
EN192 Great and Useful Vocabulary for Vocabulary Building 2.5 a.
EN192 High School English 2.5 a.
EN160 Personal Writing 3 a.
EN168 Writing for Personal and Public Purposes 3 a.
EN168 Advanced Expository Writing 3 a.

Special Interests

These courses are designed to serve the special interests and needs of advanced undergraduate and graduate students in particular academic and professional areas of the University. They offer practice in specialized forms of writing for specialized purposes and audiences.

EN113 Writing for the Sciences 3 a.
EN113 Writing for Business and Industry 2 a.
EN113 Extended Prose: News and Journalistic Writing 3 a.
EN113 Extended Prose: News and Public Affairs 3 a.
EN113 Extended Prose: News and Current Events 3 a.
EN113 Extended Prose: News and Public Affairs 3 a.
EN113 Extended Prose: News and Public Affairs 3 a.
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EN113 Extended Prose: News and Public Affairs 3 a.
The department offers a variety of major programs in French and Italian, electives for nonmajors with prerequisite linguistic skills, and flexible majors to meet the formal language requirements of the College of Liberal Arts and to satisfy individual needs and interests.

Students majoring in French or Italian may combine their studies with courses in education (see the "College of Education" section of the Catalog) to prepare for jobs in high school teaching. They may go on to 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 communications, where the knowledge of a foreign language is essential.

**Bachelor of Arts in French**

The undergraduate major in French may be completed with an emphasis in literature, civilization, teaching, or applied French.

Courses taught in English do not count as credit toward the French major.

**Literature Track**

Designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts, the literature track requires a total of 35 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 3 s.h.
- 9:111-112 Third-Year Composition 6 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:175 Advanced French Pronunciation 2 s.h.
- 9:25 French Pronunciation 2 s.h.

A minimum of four 100-level courses in literature (at least one of which must be above the 150 level), plus a fifth 100-level course is a choice of literature, advanced language, or civilization, totaling 15 semester hours.

**Civilization Track**

Designed for students interested in French history, politics and culture, and recommended for students wishing to combine studies in French with a major in another area such as history, political science, pre-law, or journalism, the civilization track requires 34-35 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 3 s.h.
- 9:113 Third-Year Composition 3 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:136 French Conversation: Fourth Level 2 s.h.

One or more courses in the civilization track must be taken each semester in French civilization and literature (12 s.h.).

**Applied French Track**

Designed for students with an interest in areas such as international business, commerce, or law, and others in which applied French would be an asset, the applied French program requires 36 semester hours in French, including:

- 9:27-28 Second-Year Composition and Conversation 3 s.h.
- 9:111 Third-Year Composition 3 s.h.
- 9:115 Business French 3 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:136 French Conversation: Fourth Level 2 s.h.
- 9:155 Commercial and Technical Translation 3 s.h.
- 9:147 Translation Project 3 s.h.

Two courses each in French civilization and literature (12 s.h.).

Electives recommended as an adjunct are courses in French stylistics and textual analysis, another language, economics, political science, and/or business administration.

**Bachelor of Arts in Italian**

Requirements for the major in Italian include:

- 9:11-12 Intermediate Italian 6 s.h.
- 9:111-112 Advanced Composition and Conversation 6 s.h.
- 15:105-106 Introduction to Italian Literature 6 s.h.
- 18:138-139 Dante and His Times 3 s.h.
- 18:101 Literatur of the Nineteenth Century 3 s.h.
- 18:102 Literature of the Twentieth Century 3 s.h.

Total 27 s.h.

**Honors**

The department participates in the College of Liberal Arts Honors Program. For an honors degree in French, the student must complete:

- 9:109 Honors Reading 3 s.h.
- 9:109 Honors Seminar 3 s.h.

An additional course numbered above 160 in French literature, language, or civilization 3 s.h.
Summer Program in France
The department is co-sponsor of a summer program in France for students enrolled in the three Iowa Regents universities. Eligibility for the program requires a good level of knowledge of French (two years of college-level preparation is recommended), but does not require that the student be a French major.
Centered in Cahors and Paris, the program combines formal classroom work in language skills with an integrated course in the culture and civilization of France, including visits to points of cultural and historical interest. Students may earn eight or nine semester hours of credit in the program.

Summer Program in Quebec
The department participates in the CIC Summer French Program in Quebec at the Université Laval. The Committee on International Cooperation (CIC) is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Cours d'été pour non-francophones of the Université Laval, the program is designed to offer qualified students the opportunity to increase their proficiency in French in a French-speaking environment and to acquaint them with the heritage of the French-speaking tradition of a unique and vital segment of North American culture.

Language House
The French and Italian department maintains close connections with the Institute Francais of the Foreign Language House at Westexas, a University residence hall. Residents initiate cultural and educational programs with the participation of the faculty and other students, providing a unique opportunity to combine living with language learning.

Graduate Programs
Master of Arts in French without Thesis
The candidate must earn a minimum of 30 semester hours of graduate credit in a written and oral examination. The program must include 9 hours of Advanced French Pronunciation, 3 hours of Advanced Grammar and Lexicology, 6 hours of Comparative Syntax, and at least 24 hours of French literature at the graduate level.

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
The program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 38 semester hours of graduate credit. Of the total, 24 must be in education-related fields, and at least 9 must be in courses in which French is the language of instruction.

Graduate Admission
To be considered for admission to the M.A. program in French, the applicant must have completed the equivalent of the University of Iowa's undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

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 24 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 hours of Old French Grammar, and four semesters of college-level or equivalent proficiency in a foreign language other than French.

Graduate Programs
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 24 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 hours of Old French Grammar, and four semesters of college-level or equivalent proficiency in a foreign language other than French.

Graduate Programs
The candidate must also complete three graduate courses for a minimum total of 8 semester hours of credit in a related field, such as another literature, or history, philosophy, etc.; and must earn at least 6 semester hours of credit in 9 hours. Students working toward the doctorate are required to spend at least one year teaching as graduate teaching assistants in the department.

Graduate Admission
To be considered for admission to the M.A. program in French, the applicant must have completed the equivalent of the University of Iowa's undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. in French is prerequisite to admission to the Ph.D. program in French. Successful completion of the Ph.D. program, however, does not necessarily qualify a student for doctoral studies.

For students earning the M.A. at The University of Iowa, the M.A. comprehensive examination committee will make a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy with the M.A. earned at another institution are, when admitted, placed on conditional status, and this status is reviewed after one semester of residence.
French Courses

Primarily for Undergraduates

A detailed description of courses offered each semester is available in the department office. All courses are given in French unless otherwise indicated. Courses numbered 150-194 are intended primarily for advanced undergraduates; a graduate student should consult with his or her advisor before registering for these courses. Courses numbered 140-149 are given in English and do not count toward the major requirements in French, but may be taken as electives. Registration with the advisor is recommended prior to registration. Students who have had significant experience with French, through study or foreign residence are required to take placement tests given just prior to the opening of each term. A student may not repeat, for either credit or grade purposes, a course that is prerequisite to, or whose content is prerequisite to, a higher-level course the student has already completed.

81 Elementary French
For students who have no knowledge of French.
Prerequisite: None

83 Elementary French Intensive Course
First-year French is one semester.
Prerequisite: None

87 French for the Business World
Basic commercial French for the traveler. Given in Summer and Evening Class Program.
Prerequisite: None

54 French for Travelers
Conversational B.1, with emphasis on practical vocabulary. Given in Evening and Evening Class Program.
Prerequisite: None

55 French Trains de Beaux-Arts
First-year French and the Terroir to contemporary values. Given in Summer and Evening Class Program.
Prerequisite: None

50 French Literature of Correspondence
Grade is in progress. May be taken as part of core literature requirement. Forms as 1.1.10.

51 Intermediate French
For students who do not plan to continue the study of French after the second year. Not for majors. Prerequisite: B.1 or equivalent.

52 French Composition
Composition at B.1. Not for majors. Prerequisite: B.1.11 or equivalent.

510 Advanced French Composition
Advanced French at B.1. Not for majors. Prerequisite: B.1.11 or equivalent.

520 French Prose Literature
May be taken in conjunction with 2.27. Prerequisite: B.1.11 or 2.1.17.

530 Advanced French Composition I
May be taken concurrently or in conjunction with Prerequisite: B.1.11 or 2.1.17, B.27, B.28. Prerequisite: B.27 or equivalent.

830 Second-Year French Composition and Conversation
Recommended for students who wish to continue their study of French or who wish to improve their written and oral command of the language. Prerequisite: B.28 or equivalent.

830 French Conversation Second Level
Prerequisite: B.28 or equivalent.

930 Philo. French I
The prerequisites are given to other departments who well-being ability for purposes of research.
Prerequisite: B.28 or equivalent.

930 French III
Prerequisite: B.28 or equivalent.

930 Introduction to Classical and Technical Terms
Prerequisite: B.12 or B.28 or equivalent.

930 Special Work
Prerequisite: B.28 or equivalent.

For Undergraduates and Graduates

100 Reports Summer Program in France
Available for students participating in the summer programs in France.
Prerequisite: None

100 Introduction to French Literature: Seventeenth and Eighteenth Centuries
Prerequisite: French 87 or B.1.11 or equivalent.

100 Introduction to French Literature: Nineteenth Century
Prerequisite: French 87 or B.1.11 or equivalent.

107 Theory and Practice of French Language
Prerequisite: French 87 or B.1.11 or equivalent.

FRENCH & ITALIAN/LIBERAL ARTS

423
For Undergraduates and Graduates

10.1 Italian and Romanesque
10.2 Gothic Literature
10.3 Beckett in Context
10.4 Irish Literature
10.5 Iberian Studies
10.6 Latin American Literature
10.7 Comparative Literature
10.8 Russian Literature
10.9 European Literature
10.10 American Literature
10.11 Comparative Literature
10.12 The Italian Renaissance
10.13 American Literature
10.14 Special Work

Primary for Graduates

10.18 Modern and Contemporary Literature
10.19 Postcolonial Studies
10.20 Comparative Literature
10.21 Italian Literature
10.22 English Language and Literature
10.23 French Literature
10.24 Spanish and Portuguese Literature
10.25 German Literature
10.26 Russian Literature
10.27 American Literature
10.28 Comparative Literature
10.29 The Italian Renaissance
10.30 American Literature
10.31 Special Work
General Science

Coordinator: Robert E. Hayes
Degree offered: B.A. 40 semester hours of credit

The program in general science is designed for preprofessional students who need credit in several science disciplines and for students interested in a variety of science disciplines. The program provides suitable preparation for secondary school teaching, health-related professions including medicine, dentistry, medical technology, optometry, physical therapy, and similar areas and certain specialized graduate areas.

The major requirement for the Bachelor of Arts degree in general science is 44 semester hours of credit in any three College of Liberal Arts science-related areas including mathematics, sciences, geology, microbiology, physics-astronomy, zoology.

For the Bachelor of Science degree, the major requirement is 48 semester hours in any three of the science-mathematics areas.

For either degree, the major coursework must include 20 semester hours in one of the science-mathematics areas.

A student majoring in general science must earn at least 10 semester hours of grade credit in science courses taken at The University of Iowa.

No credit earned in a designated science core course or in the CLEP Natural Science General Examination may be applied toward the major requirement for a general science major.

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, nuclear medical technology, or physical therapy before completing the 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 120-hour requirement for a bachelor's degree with a major in general science, including a total of 8 semester hours of science credit toward the major requirement and, of these, 4 semester hours toward the 20-hour concentration requirement.

To be eligible to receive a Bachelor of Arts or Bachelor of Science degree from The University of Iowa, a transfer student in any of the joint programs in general science must earn at least the last 30 semester hours of credit for the bachelor's degree in The University of Iowa College of Liberal Arts.

No credit earned in a science course in another college of the University may be applied toward the major credit requirements in general science unless the department of Biochemistry, Botany, Chemistry, Geology, Physics and Astronomy, Microbiology, or Zoology certifies that the course is equivalent to one offered by that department.

A student in a general science teaching 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. Each sequence totals 60 semester hours.

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

Students majoring in general science are urged to take the calculus course in their first semester and apply basic 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 one of the following mathematics courses, or an equivalent course, or a higher-level college mathematics course:

226:B Quantitative Methods II 4 s.h.
22M:11 Fundamentals of College Mathematics 4 s.h.
22M:16 Calculus for the Biological Sciences 3 s.h.
22M:20 Elementary Functions 3 s.h.
Any 22C course except 22C:1

Students majoring in general science are expected to meet the College of Liberal Arts language requirement with German, French, or Russian, unless the student's academic advisor gives written approval of another language.

Completion of a minor in general science requires at least 20 semester hours of credit in any three of the science-mathematics areas listed for the major (above); of these, at least 10 hours must be in 100-level courses.

This preceding description pertains only to The University of Iowa College of Liberal Arts requirements for a bachelor's degree with a major in general science; no inference should be drawn from it concerning the specific requirements of any professional training program.

Genetics

Program Adviser: J. Gaines Matter
Faculty: professors Roger Chalkley (Biochemistry), Thomas Gwinn (Botany), Irving Emanuel (Microbiology), Joseph Furst (Zoology), Gary Mendelson (Zoology), Joseph Hagey (Zoology), Victor Vannucci (Pediatrics), John Weingartner (Zoology), Roger Allison (Zoology), Dennis M. Nemer (Zoology), Emil R. Mize (Microbiology), Wyatt Wang (Psychology), George Warder (Psychology), Nasr Zakhem (Psychology), Richard S. Bearden (Psychology), John Gesteland (Biochemistry), Wharton Gooch (Microbiology), James Hennessey (Pediatrics), Carla Iwamoto (Zoology), David A. Kline (Zoology), William Strong (Genetics), David Bower (Psychology), Paul Weng (Zoology)

Adjunct professors: James Reay (Psychology), Kathleen Binder (Preventive Medicine), Douglas Crumblin (Dietetics/Genetics), Fred Adels (Optical Technology), Divinder Preet (Pediatrics), William Fierst (Pediatrics), George Brucher (Microbiology), Arthur Well (Biochemistry), Chun-Tao Wu (Zoology)

Degrees offered: Ph.D.

The interdepartmental Ph.D. program in genetics is designed to promote collaborative investigations and intellectual and professional growth of students and faculty participants affiliated with different departments.

Students enrolling in the program are encouraged to obtain a broad background in genetics, ranging from molecular to population genetics. Within this context, however, course requirements are flexible enough to permit students to tailor their formal coursework to fit their individual needs.

All students enrolled in the program are required to take 40-150 Molecular Genetics, 90-178 Advanced Genetics, and 2-215 Genetics Seminar. In addition, they are required to earn at least three semester hours of credit in molecular and
Financial Aid
The most highly qualified applicants will be supported as National Institutes of Health predoctoral trainees. Traineeships include stipends of $35,040 for 12 months, complete tuition, teaching assistantships, and additional support for training 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.

Students may also be supported by half-time teaching or research assistantships, with stipends in excess of $5,000 per year. Students receiving assistantships may also apply for full or partial tuition scholarships.

Medical Scientist Training Program
Students may combine study toward an M.D. and a Ph.D. in genetics. Further information about this program can be obtained from the director of the Medical Scientist 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 this volume for further information about these programs.

Courses
The following are genetics courses available to graduate students.

50:175 Human Genetics 2 s.h.
61:170 Microbial Genetics 3 s.h.
61:172 Microbial Genetics Laboratory 1 s.h.
61:270 Topics in Mammalian Biology arr.
37:952 Population and Evolutionary Genetics 3 s.h.
37:163 Behavioral Genetics 3 s.h.
37:165 Quantitative Genetics 3 s.h.
37:171 Eukaryotic Molecular Biology 3 s.h.
37:171 Molecular Genetics 4 s.h.
37:172 Topics in Molecular Genetics 2 s.h.
37:175 Topics in Evolutionary Genetics 1-2 s.h.
37:176 Topics in Eukaryotic Molecular Biology 2 s.h.
37:178 Advanced Genetics 4 s.h.
37:280 Developmental Genetics 2 s.h.
37:283 Seminar: Behavioral Genetics 1 s.h.

Geography
Department chair: James B. Lindberg
Faculty: professors: John W. Fuller, James B. Lindberg, Michael L. McAdoo, David B. Reynolds, Gerald Meadon.
professors emeriti: Cyril A. Karplus, H. R. Homey, R. H. Royce.
associate professors: Francis D. Witter, Robert A. Lomax.
adjunct professors: John F. G. Pirt, John R. Charlton.

Modern geography is concerned mainly with the spatial aspects of human and physical geography and with the relationship of man to his environment. Following are elective courses in geography soon found that the insights and methods of inquiry they develop are applicable to the solution of many of the complex problems confronting modern societies, such as air and water pollution, transportation problems, the growth and development of large cities, distribution and consumption of natural resources, rapidly increasing populations, and conflicts between nations. Modern geography is as scientific as well as humanistic in its approach to the solution of these problems. Studies in geography provide students with concepts and methods for organizing such spatial units as urban areas, market regions, school districts, and health service areas. Thus, today's geography contributes to the decision-making processes involved in
determining how individuals or groups of individuals can improve the quality of life in their complex age.

Career opportunities for majors in geography exist in various branches of government and business. There is a demand for people capable of dealing with resource management, economic development, market area analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena in the world as a whole or in major parts of it.

Courses in geography are commonly required of students preparing in entering the teaching profession at the elementary and secondary school levels, of students who want to work in urban and regional planning, and as a background 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; for students interested in entering a career of courses in conjunction with another discipline or for the B.B.S. degree; and for students interested in acquiring a major in geography. The department also joins in significant interdepartmental programs involving global, urban, and environmental components.

Courses for the Nonmajor

Students in the College of Liberal Arts or other schools and colleges of the University may find geography courses meaningful to their areas of study. The beginning-level courses 44:1 Introduction to Human Geography, 44:2 Natural Environment and Man, 44:11 Introduction to Social Geography, 44:19 Natural-Environmental Issues, and 44:30 Introduction to Economic Geography are available for core course credit in social science, and serve as part of a liberal education.

Other courses may also be attractive as individual electives. These include 44:15 Introduction to Political Geography, 44:33 Transportation in the U.S.A., 44:12 Issues and Problems, 44:36 World Cultures, 44:115 Locational Conflict, 44:124 Introduction to the Global Environment, 44:161 The Third World, and 44:191 Energy is Contemporary Society.

Students in several related disciplines and in the Bachelor of General Studies program may take electives of courses leading perhaps to a minor in geography. 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.

Alternative 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 may choose to develop an individually tailored program within the curriculum offered by the department.

Students planning advanced training or seeking careers in geography should either the Bachelor of Science degree. Those who wish to pursue a liberal arts objective are advised to elect the Bachelor of Arts degree.

All geography majors must complete a minimum of 26 semester hours of geography coursework, at least 15 of which must be at the 400 level. Many students will find that they will need more than the minimum requirements for mastery of a specific subfield.

All majors must complete the course 225:127 Applied Statistical Methods and Computations, or its equivalent as approved by the department. 44:110 Spatial Organization, and 44:190 Undergraduate Seminar for Geography Majors.

Bachelor of Science students must complete 4 mathematics requirement consisting of: 22M:10-11 Fundamentals of College Mathematics 11 or 22M:25 Calculus I or An appropriate mathematics course approved by the advisor. They must also complete a computer science requirement consisting of: 22C:7 Introduction to Programming with FORTRAN or 22C:16 Introduction to Programming with PL/1.

Environmental Studies

The undergraduate program in environmental studies is designed for students with career expectations or personal interests in resource management or environmental protection, 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 aquatic communities. It stresses the interrelationships among those processes and gives the student knowledge necessary to discuss the impact of human activities on physical systems. Training in field observation, quantitative analysis, computer methods, and cartographic representation are included in this concentration.

Required courses are:

22M:10-11 Fundamentals of College Mathematics II or 22M:20 Calculus II

22C:127 Applied Statistical Methods and Computations

22C:7 Introduction to Computing with FORTRAN or 22C:16 Introduction to Programming with PL/1

44:110 Spatial Organization

44:190 Undergraduate Seminar for Geography Majors

Students concentrating in environmental studies are advised to select substantive courses (at least 21 semester hours) from among the following:

44:1 Introduction to Human Geography

44:2 Natural Environment and Man
44:30 Introduction to Economic Geography
44:101 Introduction to Weather and Climate
44:115 Locational Conflict
44:119 Natural Environmental Issues
44:120 Natural Hazards
44:131 Stream Processes and Water Resources
44:132 Geography of Natural Resources
44:134 Introduction to the Global Environment
44:128 Environmental Impact Studies
44:180 Field Techniques
44:181 Energy in Contemporary Society

Under the direction of an advisor, students should select courses (at least 12 semester hours) from among the following minors:

Physical Systems
12:0 Introduction to Geology
12:06 Introduction to Oceanography
12:10 Geology of Iowa
12:11 Introduction to Remote Sensing
12:17:1 Geomorphology
527:102 Technology of Environmental Pollution Control
522:150 Principles of Environmental Engineering

Environmental Science
11:22 Ecology and Evolution
11:25 Chemistry and Physics of the Environment
11:26 Technology and Man
21:05 Plant Diversity
21:00 Plants and Animal Interactions
21:01 Plant-Animal Interactions
21:16 Field Ecology
21:32 Ecology
37:133 Topics in Ecology
37:138 Quantitative Field Ecology
37:169 Quantitative Methods in Biology

Environmental Management
68:1 Principles of Economics
68:2 Principles of Economics
68:123 Macroeconomics
68:119 Economics of the Government
68:127 Natural Resources in the World Economy: Control and Conflict
68:123 Economic Growth and Environmental Decay

68:1 Administrative Management

68:161 Individual Behavior in Organizations
68:163 Design and Management of Organizations
102:101 Introduction to Planning and Policy Development
102:102 Case Studies in Urban and Regional Planning
102:111 Introduction to Urban Transportation
or
44:111 Introduction to Urban Transportation
527:102 Technology of Environmental Pollution Control
527:104 Environmental Planning and Assessment

Information Systems and Modelling
68:1 Administration Management
68:134 Marketing Research
68:183 Managerial Information Processing and Decision Behavior
68:175 Managerial Decisional Models
68:177 Simulation Methods
68:176 Management Science Topics
68:140 Management Information Systems
68:181 Management Systems Dawgh
22C:31 Digital Systems and Computers
22C:32 Introduction to Systems Software
68:141 Operations Research II

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 preparation for entry-level positions in government and private businesses. This concentration focuses on the problems and potential of towns, cities, and regions and the decision-making processes of individuals and institutions. Dealing with such problems as assessing sites for development purposes, locating public facilities, and assessing neighborhood change brings the student skills in quantitative analysis, cartography, and computer usage are developed. Opportunities for experience in working with real problems are included.

Required courses are:
68:127 Applied Statistical Methods and Computations

44:110 Spatial Organization
44:150 Undergraduate Seminar for Geography majors
22W:10-11 Fundamentals of College Mathematics I-11
or both
22M:25 Calculus I and
42C:15 Introduction to Computing with FORTRAN
or
42C:16 Introduction to Programming with PL/I

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 Natural Environment and Man
44:11 Introduction to Social Geography
44:16 Introduction to Political Geography
44:30 Introduction to Economic Geography
44:33 Transportation in the U.S.A.: Issues and Problems
44:35 World Cities
44:111 Introduction to Urban Transportation
44:115 locational Conflict
44:116 Urban Political Geography
44:125 Environmental Impact Studies
44:130 Location of Services
44:131 Medical Geography
44:120 Industrial Location
44:135 Urban Geography
44:136 The Inner City
44:137 Urban and Regional Modeling
44:139 Urban Problems

Also strongly recommended:
44:107 Maps and Mapping
44:109 Computer Methods in Geographical Analysis

Under the direction of their advisors, students should select courses in related disciplines from the following:
113:10 Urban Anthropology
16:10 American History 1914-Present
50:11 Municipal Government and Politics
34:172 Social Dynamics of Urban Life
102:101 Introduction to Planning and Policy Development
Graduate Program

The goals of the department at the graduate level are to prepare students to carry on creative and productive research in geography, including the use of theory, modeling, and formal verification methods; to prepare students for positions in research, teaching, or some area of applied geography; and to help students develop their abilities to apply knowledge of facts, theories, and methodology to specific societal problems. The achievement of these goals is demonstrated in large measure by the 420 students who have graduated, and 119 students who have completed coursework and are working on their dissertation research. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or through other interrelated teaching duties.

Master of Arts

The department offers an M.A. program that emphasizes the acquisition of problem-solving skills. Within an overall analytical framework, students develop a broad area of competence that can be tailored to meet the contemporary demands of business, government, or the teaching profession. Recent graduates have obtained positions in health planning, community planning, transportation, and market research. The M.A. degree is also frequently taken by students whose ultimate goal is the Ph.D. degree. In consultation with their advisors, students develop a broad area of competence and, in consultation with the faculty, develop a program of study emphasizing three dimensions: the subject matter of their area of specialization, the methodological approach to their work, and the solution to problems in geography. The M.A. degree requires a minimum of 30 semester hours of graduate work, of which at least 18 must be in courses at the 500 or 600 level. Courses taken toward the M.A. degree may be applied toward the Ph.D. degree without repetition.
which 18 semester hours must be 200-level courses or above. Specific requirements for the degree are:

At least 4 semester hours chosen from among the 100-level courses 44:201-202: Geographical Analysis I & II; satisfaction of the department’s B.S. degree requirements in mathematics, statistics, and computer programming or its equivalent (see above); 44:205 Quantitative Analysis I and 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 the program in one full year.

The M.A. degree is available with or without thesis. A minimum of 20 semester hours of credit may be earned for thesis work.

Students must pass a written and/or oral final examination.

Doctor of Philosophy
Students whose objective is the Ph.D. degree in geography are required to complete 24 semester hours of 44:301-302 Geographical Analysis I & II and 44:305-306 Quantitative Analysis I & II. The eight mini-courses comprising 44:301-302 should be taken within the first two years in residence, and must include mini-courses taught by at least five different faculty members. The courses 44:305-306 Quantitative Analysis I & II should be taken during the first year in residence. Students may meet these requirements with a satisfactory performance in written examinations during the first week of the first semester for which they register.

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. One semester hour of credit will be awarded each semester on a satisfactory/unsatisfactory basis for this course.

The remainder of the Ph.D. program includes appropriate graduate courses, seminars, and research in geography chosen by students to reflect their areas of interest; courses in discipline closely related to the student’s objectives and interests; and courses which satisfy the writing requirements.

No later than the fourth semester in residence, doctoral students should declare a field of specialization within their general areas of interest and secure a faculty adviser to direct their program of study.

Preferably during the second year in residence, and no later than the fifth semester, doctoral students who have been admitted to the graduate program without advanced credit must submit an original research paper to the faculty, with the approval of their adviser.

Students who have been admitted with advanced graduate credit of 24 semester hours or more, or the equivalent, must meet this requirement no later than the third semester in residence. The faculty will pass upon the merits of the research thus demonstrated. Students become Ph.D. candidates when their qualifying papers have been completed.

Research tool requirements for Ph.D. candidates are the courses 44:305 Quantitative Analysis I and another appropriate course, as approved by the faculty at the time the student declares his or her specific area of specialization.

All doctoral candidates are expected to have supervised experience as classroom instructors and research assistants before being awarded the Ph.D. degree.

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 of his or her junior and senior years; scores on the Graduate Record Examination—Analytic 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 between 3.0 and 3.2 will be admitted only for the M.A. degree and on the condition that he or she achieves a grade-point average of 2.75 or better on the first 12 semester hours of graduate work as approved by the department.

Foreign students, and those from undergraduate institutions that evaluate students on a basis other than grade-point averages, will be considered according to their specific 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 or the Graduate Record Examination—verbal and quantitative sections, and have a 3.0 undergraduate or graduate grade-point average, to be appointed to an assistantship. Applications for graduate appointments should ordinarily be received by February 15.

Special Facilities
The department possesses a unique complete graphic hardware system in the MLAC PDS-4 mini-computer that supports a GRAF PEN GP-3 sonic digitizer. The PDS-4 is a 24-KK system with a CRT for on-line editing and an accompanying software support package, DIGET BIERES, developed locally that allows for a broad range of computer graphic applications. This system is linked to one of the four HP 2000 systems in the Iowa Computing Center. Each HP 2000 supports 32 terminals, including a second terminal in the department, and is linked with the main computer—an IBM 370/168. Future interactive capabilities at The University of Iowa will center on four PIPSME 750 systems each supporting 48 terminals and all linked to the IBM 370/168. Complementing these hardware systems are an increasing number of software packages that will dramatically improve interactive computing capabilities. The Map Library contains more than 75,000 maps, a total of 2,050 atlas
has the customary subfields—mineralogy, petrology, stratigraphy, structural geology, paleontology, sedimentology, economic geology, geomorphology, environmental geology—and also includes applied geophysics, geochemistry, and paleontology.

Career opportunities are available to professional geologists in industry (especially as related to the search for petroleum and mineral resources), teaching, urban planning, state and federal geological surveys, and government, resource, and research organizations. The master's degree is required by most hiring agencies as the working degree in geology. However, an undergraduate degree is fully satisfactory in certain teaching, federal, and industrial situations.

Many of the University of Iowa's geology graduates find employment with the petroleum industry in exploration geology and geophysics. Others continue in graduate school or take jobs with government or conservation agencies. Some intend to enter law, business, or other fields such as urban planning, environmental studies, engineering, archeology, science education, or oceanography as advanced areas. Geology is suited to all these.

The program stresses the basic aspects of geology more than the engineering or agricultural phase of the discipline. The department specializes in relating scientific thought to the study of the earth. Its resources include a major paleontology laboratory (invertebrate, vertebrate, palynology), a terminal link to the University Computing Center, the Iowa Geological Survey (located in the same building as the department), and research equipment for fields such as mineralogy, petrology (igneous, sedimentary, and economic), remote sensing, and exploration geophysics.

Geology majors receive at least an academic year's work in allied scientific areas—physics, chemistry, biology, and mathematics—in addition to a course in each major area of geology.

Each year more than 1,000 students enroll in 1123 Earth History and Resources and 1124 Man and His Physical Environment, a team-taught, laboratory-lecture course designed to fulfill the College of Liberal Arts requirement for natural science core studies.

Other offerings for nonmajors include a lecture sequence for persons interested in a general survey of 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 general 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 approved courses in economics, geography, and/or anthropology.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily as preparation for graduate study and for employment in industry. Required courses in this program:

12:5 Introduction to Geology 4 s.h.
12:8 Evolution of the Earth 4 s.h.
12:24 Mineralogy 4 s.h.
12:25 Elementary Petrology 4 s.h.
12:113 Summer Field Course 6 s.h.
12:121 Principles of Paleontology 3 s.h.
12:181 Structural Geology I 4 s.h.
12:182 Structural Geology II 3 s.h.
Two elective geology courses 6 s.h.
Total 36 s.h.

(Notes: The student may substitute 1123 Earth History and Resources and/or 1124 Man and His Physical Environment for 12:5 Introduction to Geology, but 12:5 is preferred.)

The geology major requires at least 10 semester hours of college mathematics, including a minimum of one semester of 22M:25 Calculus I or 22M:35 Engineering Calculus I. Computer science or statistics courses may be counted toward the ten-hour requirement. Additional mathematics (e.g., 12M:26 Calculus II and 22M:36 Calculus III, or 22M:26-37 Engineering Calculus II-III) is strongly recommended.

Eight semester hours of physics, 8 semester hours of chemistry, and a one-semester lab course of college zoology or botany are also required.

Bachelor of Arts

The Bachelor of Arts program is designed to provide a general background in geology, with a broader choice of electives than in the B.S. program, for students who are not planning to become professional geologists. With appropriate coursework in education, the B.A. program provides a base for high school or community college teaching. A general background in geology and allied fields is also applicable in such areas as conservation and environmental biology.

Course requirements for the B.A. in geology:

12:5 Introduction to Geology 4 s.h.
(11:23 can or 11:24 may substitute for 12:5)
12:6 Evolution of the Earth 4 s.h.
12:24 Mineralogy 4 s.h.
12:25 Elementary Petrology 4 s.h.
12:121 Principles of Paleontology 3 s.h.
12:116 Field Trip (two sections) 4 s.h.
Geology electives 12 s.h.
Total 35 s.h.

(Notes: The student may substitute 1123 Earth History and Resources and/or 1124 Man and His Physical Environment for 12:5 Introduction to Geology, but 12:5 is preferred.)

The B.A. in geology requires at least 20 semester hours of upper-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 need 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.

Honors
A degree "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 12:107 Geologic Orientation.

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

Program 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 provide a student's broad, fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology, or for more advanced and specialized studies—although in certain situations and with faculty approval the student may pursue an already specialized program at the master's level.

Entering graduate students are assigned to a general graduate adviser. Before the end of the second semester, the student should have selected a research area and related thesis topic. The chair then approves a thesis adviser and two additional faculty members, who form the student's advisory committee. The student is responsible for getting the committee's approval of a suitable program of coursework, 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 of credit in graduate level coursework, including not more than 8 semester hours of thesis 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. Coursework 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 hours minimum requirement for the degree. Additionally, the grade-point average on all graduate geology courses is to be at least 3.0. Not more than 8 semester hours of thesis and research may be counted toward the 30 semester hours minimum required for the degree program.

Master of Science with Thesis
Students are encouraged to select thesis topics involving a variety of geological subdisciplines and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

Master of Science without Thesis
The department encourages few students to pursue the M.S. without thesis, which requires that the applicant have approximately three months' experience working under supervision of a professional geologist, or equivalent experience in some phase of geologic activity.

If possible, the student should receive prior faculty member approval to apply the experience toward the degree.

The student must submit a written report on the activity and on the geologic principles it involved and its value and broader applications and implications. No college credit is granted for this activity.

The M.S. degree without thesis requires at least 36 semester hours of graduate coursework, of which at least 6 hours must be earned in other departments of the University.

The faculty may also require the student to submit a formal scientific report dealing with an appropriate subject or project. Credit may be granted for the report.

The final examination covers coursework and work done in lieu of the thesis.

Master of Arts in Teaching (Earth Science)
This 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 18 hours of graduate coursework in earth science.

Doctor of Philosophy
The Ph.D. degree in geology requires at least 72 semester hours of graduate coursework, 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 or one tool and competence in a one-year sequence of appropriate
courses, proficiency by satisfactory completion of a two-semester 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.

Coursework 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. Where appropriate, additional work in one area may be approved as satisfying requirements in another.

- An appropriate graduate course in another discipline. Courses crosslisted between geology and other departments are not generally considered to meet this requirement.

At least 24 semester hours of graduate coursework, exclusive of credit for dissertation research and beyond coursework applied toward the M.S. degree.

The comprehensive examination consists of a 24-hour thesis defense and oral examination on one area chosen from the major and minor fields.

These are the major and minor fields:

**Economic Geology**
- Petroleum
- Economic Geology

**Mineral Economics**
- Mineral Deposits

**Mineralogy**
- Geologic and Metamorphic Petrology
- Igneous Petrology
- Metamorphic Petrology
- Aqueous Geochemistry and Thermodynamics
- Structural Geology
- Geoelectronics
- Structural Analysis
- Remote Sensing
- Geophysics
- Exploration Geophysics
- Solid-Earth Geophysics
- Rock Properties
- Stratigraphy
- Physical Stratigraphy
- Biostratigraphy
- Depositional Environments
- Sedimentary Petrology
- Sedimentation
- Sandstone and Carbonate Petrology

- Physical Stratigraphy
- Paleostudies
- Paleontocene Geology
- Vertebrate Paleontology
- Quaternary Paleontology
- Paleontology
- Paleobotany
- Paleopedology
- Engineering Geology
- Geomorphology
- General Geomorphology
- Glacial and Pleistocene Geology
- Remote Sensing
- Environmental Geology
- Hydrogeology
- Remote Sensing
- Engineering Geology
- Other Minor Subjects
- Botany
- Zoology
- Chemistry
- Physics
- Materials Engineering
- Geography
- Hydrogeology
- Archeology-Archaeology
- Science Education

**Ingeous and Metamorphic Petrology**

**Igneous Petrology**

**Metamorphic Petrology**

**Aqueous Geochemistry and Thermodynamics**

**Structural Geology**

**Geoelectronics**

**Structural Analysis**

**Remote Sensing**

**Geophysics**

**Exploration Geophysics**

**Solid-Earth Geophysics**

**Rock Properties**

**Stratigraphy**

**Physical Stratigraphy**

**Biostratigraphy**

**Depositional Environments**

**Sedimentary Petrology**

**Sedimentation**

**Sandstone and Carbonate Petrology**

- Physical Stratigraphy
- Paleostudies
- Paleontocene Geology
- Vertebrate Paleontology
- Quaternary Paleontology
- Paleontology
- Paleobotany
- Paleopedology
- Geoarchaeology
- Geomorphology
- General Geomorphology
- Glacial and Pleistocene Geology
- Remote Sensing
- Environmental Geology
- Hydrogeology
- Remote Sensing
- Engineering Geology
- Other Minor Subjects
- Botany
- Zoology
- Chemistry
- Physics
- Materials Engineering
- Geography
- Hydrogeology
- Archeology-Archaeology
- Science Education

**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. spectrophotometer, microscopical, sedimentology lab (thin-section lab, cathodoluminescence); paleontology facility (invertebrate, vertebrate, paleontological; including a major repository); photographic lab; geophysics (gravity meter, field and rock magnetometers, susceptibility meter, seismograph, high-pressure apparatus); Iowa Geological Survey (located in same building as the department, with subsurface core repository and remote sensing lab); network of microearthquake stations and seismographs; in-house terminal for University's computer center (IBM 370, Prime 700's, HP3000 computers); trailer-mounted soil probe; scanning electron microscope; microprobe; geology library with 50,000 volumes/journals and 65,000 maps.

**Cooperative Activities**

The department has joint professorships with the Iowa Geological Survey and the Department of Botany, and geology students sometimes work on projects for the Survey.

The departments of Geology, Geography, Anthropology, Chemistry, Botany, and Zoology cooperate in sharing services, expertise, joint instruction, and equipment.

**Field Trips**

Field trips are integral parts of several courses in geology. Weekend general-interest events are frequent. In the Iowa City region, the geology is characterized by a layer of glacial drift on a largely Paleozoic sedimentary section a few hundred meters thick, overlying a Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique geologic sites are available within a few hours' drive. All four Pleistocene glaciations are represented in Iowa and
each offers distinctive landforms and fossil assemblages. Spring recees provides time for longer trips available to all geology students. In recent years students have traveled to the Grand Canyon, the Florida Keys, the southern Appalachians, the Big Bend Region of Texas, and the Ozarks. Advanced classes visit Colorado, Ontario, Kansas, Oklahoma, and California.

Courses

Primarily for Undergraduates

12.13 Lectures in Earth, History and Resources 2.6 h
Ancient and modern environments on land and in water, earth and the processes by which these are formed and modified. Emphasis on the study of sedimentary environments. Not open to students who have had 12.14, 12.3, 12.6 or 12.8.

12.14 Lectures in Earth and Physical Environment 2.6 h
Continuation of 12.13. Not open to students who have had 12.14, 12.4, or 12.6.

12.4 Principles of Physical Geography 2.6 h
Introduction to current thinking on processes that have generated and are shaping our physical environment: composition and configuration of the earth from the sub-microscopic to the planetary level; processes related to the earth's resources important processes of weathering, erosion, mass movement, volcanism, and sedimentation; progression of life on earth; plate tectonics; the development of landscapes; and the impact of human activities on these processes. Not open to students who have had previous coursework in geology or earth science.

12.5 Introduction to Geology 2.6 h
Lectures and laboratory on some of the major topics in geology: the origin of the earth, the structure of the earth, the history of the earth, the origin of the solar system, the evolution of life, and the evolution of the earth. Recommended for science majors and interested nonscience majors. Not open to students who have had 12.15, 12.17, or 12.21.

12.6 Evolution of the Earth 2.6 h
Lectures, laboratories, discussion and field trips through the geological record. Introduction to the principles of the history of the earth in historical perspective. Topics include the origin of the earth, history and analysis of the earth's structure, dating of geologic events, nature of the earth's surface, and the structure and history of the earth's surface. For students with previous knowledge of earth sciences. Please see Professors: J. B. Rhoads, 12.63 or 12.65; and 12.21 (adjacent to 12.63). Please register in 12.63.

13.5 Geology of Iowa 2.6 h
Lectures and laboratory, field investigations of the geology and the history of the geology of Iowa. Recommended for students with a previous course in geology or earth science.

10.10 Hours Thesis in Geology 8 h
Prerequisite: consent of the department.

10.14 Field Trip 2 h
Seven to ten days during spring recess in areas of geologic interest: central Iowa of Missouri; central Missouri; and central Illinois. Field trips are open to all registered students and non-registered students who have completed an introductory course in earth science. No charge for use of equipment.

12.41 Watercourse 4 h
Introduction to streams, stream analysis, stream morphology, and stream ecosystems. Study of the earth's surface with emphasis on the physical and chemical processes of landform development. Open only to students who have had previous coursework in geology or earth science.

12.43 Elementary Geology 2.6 h
Lecture and laboratory dealing with principles of stratigraphy and physical earth systems: petrology, geomorphology, and stratigraphy. Prerequisite: 12.41.

For Undergraduates and Graduates

12.13 Physical Geology 3.2 h
Introduction to major themes in geophysics, including the earth's interior, the earth's magnetic field, Paleogene and Neogene tectonics, and the evolution of the earth's surface. Recommended for students who have completed 12.41 or 12.43. Prior knowledge of physical geology required.

12.41 Watercourse 4 h
Lecture and laboratory dealing with principles of stratigraphy and physical earth systems: petrology, geomorphology, and stratigraphy. Open only to students who have had previous coursework in geology or earth science.

12.43 Elementary Geology 2.6 h
Lecture and laboratory dealing with principles of stratigraphy and physical earth systems: petrology, geomorphology, and stratigraphy. Recommended for students who have completed 12.41. Prior knowledge of physical geology required.

12.43 The Way the Earth Works 3 h
How the "new" physical geology" has become integrated into the sequence of geology courses. Topics discussed in the context of plate tectonics (continental drift and seafloor spreading) include volcanoes, earthquakes, mountains, mineral deposits, and marine life. This course complements previous college-level science courses.

12.7 Geology Orientation 1 h
Prerequisite: consent of graduate students advisors. An orientation to graduate studies, research requirements and program; geographic orientation, a field survey of local geology, and practical skills, an introduction to the use of specialized facilities. In addition to a graduate student place of choice or instructor.

12.9 Introduction to Geoseismology 1 h
Prerequisite: consent of instructor. Students are introduced to the study of wave propagation in geological media. Topics include: earthquake location, earthquake magnitude, and the earthquake cycle. A study of the nature of earthquakes, seismic waves, and the earthquake process.

12.10 Seismology of Earth 3 h
Prerequisite: consent of instructor. Students are introduced to the study of wave propagation in geological media. Topics include: earthquake location, earthquake magnitude, and the earthquake cycle. A study of the nature of earthquakes, seismic waves, and the earthquake process.

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How the "new" physical geology" has become integrated into the sequence of geology courses. Topics discussed in the context of plate tectonics (continental drift and seafloor spreading) include volcanoes, earthquakes, mountains, mineral deposits, and marine life. This course complements previous college-level science courses.

12.7 Geology Orientation 1 h
Prerequisite: consent of graduate students advisors. An orientation to graduate studies, research requirements and program; geographic orientation, a field survey of local geology, and practical skills, an introduction to the use of specialized facilities. In addition to a graduate student place of choice or instructor.

12.9 Introduction to Geoseismology 1 h
Prerequisite: consent of instructor. Students are introduced to the study of wave propagation in geological media. Topics include: earthquake location, earthquake magnitude, and the earthquake cycle. A study of the nature of earthquakes, seismic waves, and the earthquake process.

12.10 Seismology of Earth 3 h
Prerequisite: consent of instructor. Students are introduced to the study of wave propagation in geological media. Topics include: earthquake location, earthquake magnitude, and the earthquake cycle. A study of the nature of earthquakes, seismic waves, and the earthquake process.

12.14 Field Trip 2 h
Seven to ten days during spring recess in areas of geologic interest: central Iowa of Missouri; central Missouri; and central Illinois. Field trips are open to all registered students and non-registered students who have completed an introductory course in earth science. No charge for use of equipment.

12.41 Watercourse 4 h
Introduction to streams, stream analysis, stream morphology, and stream ecosystems. Study of the earth's surface with emphasis on the physical and chemical processes of landform development. Open only to students who have had previous coursework in geology or earth science.

12.43 Elementary Geology 2.6 h
Lecture and laboratory dealing with principles of stratigraphy and physical earth systems: petrology, geomorphology, and stratigraphy. Open only to students who have had previous coursework in geology or earth science.

12.43 The Way the Earth Works 3 h
How the "new" physical geology" has become integrated into the sequence of geology courses. Topics discussed in the context of plate tectonics (continental drift and seafloor spreading) include volcanoes, earthquakes, mountains, mineral deposits, and marine life. This course complements previous college-level science courses.

12.7 Geology Orientation 1 h
Prerequisite: consent of graduate students advisors. An orientation to graduate studies, research requirements and program; geographic orientation, a field survey of local geology, and practical skills, an introduction to the use of specialized facilities. In addition to a graduate student place of choice or instructor.

12.9 Introduction to Geoseismology 1 h
Prerequisite: consent of instructor. Students are introduced to the study of wave propagation in geological media. Topics include: earthquake location, earthquake magnitude, and the earthquake cycle. A study of the nature of earthquakes, seismic waves, and the earthquake process.

12.10 Seismology of Earth 3 h
Prerequisite: consent of instructor. Students are introduced to the study of wave propagation in geological media. Topics include: earthquake location, earthquake magnitude, and the earthquake cycle. A study of the nature of earthquakes, seismic waves, and the earthquake process.

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12.43 Elementary Geology 2.6 h
Lecture and laboratory dealing with principles of stratigraphy and physical earth systems: petrology, geomorphology, and stratigraphy. Open only to students who have had previous coursework in geology or earth science.
15:12 Sedimentology 3 a.h. Lecture, laboratory, and field course treating the processes of sedimentation, transportation, deposition, weathering, and erosion. Includes classical and modern methods, and chemical sedimentary rocks. Prerequisites: Physical Geology.

15:12b Carbonate Sedimentology 3 a.h. Lecture and laboratory course focusing on the formation, preservation, and diagenesis of carbonate sediments and rocks. Includes topics such as sedimentary environments, diagenesis, and geochemical processes. Prerequisite: Geology 15.02 or instructor permission.

15:13 Structural Geology 3 a.h. Lecture, laboratory, and field course dealing with the architecture and interpretation of structural, stratigraphic, and tectonic history, and the processes of structural deformation. Includes topics such as rocks and minerals, geologic time, structural geology, and other studies related to sedimentary environments. May be repeated. Prerequisites: 15.12 or 15.15 and 15.16 or 15.17 and consent of instructor.

15:14 Structural Geology II 3 a.h. Lecture, laboratory, and field course focusing on the identification, measurement, and analysis of structures in both sedimentary and metamorphic rocks. Includes topics such as structural geology, tectonics, and the interpretation of geological processes. Prerequisite: 15.15 or consent of instructor.

15:15 Paleontology 3 a.h. Lecture and laboratory course covering the history of life through the study of fossil organisms. Includes topics such as invertebrate paleontology, plant and animal paleontology, and paleoecology. Prerequisite: 15.02 or instructor permission.

15:16 Geochronology 3 a.h. Lecture, laboratory, and field course focusing on the measurement of time in geological history, including radioactive dating methods and the age of the Earth. Prerequisite: 15.15.

15:17 Geochronology II 3 a.h. Lecture and laboratory course covering the measurement of time in geological history, including paleomagnetism, dating methods, and the age of the Earth. Prerequisite: 15.15.

15:18 Environmental Geology 3 a.h. Lecture and laboratory course focusing on the environmental implications of geological processes, including topics such as the geology of water resources, soil formation, and hazards. Prerequisite: 15.02 or instructor permission.

15:19 Environmental Geology II 3 a.h. Lecture and laboratory course focusing on the environmental implications of geological processes, including topics such as the geology of water resources, soil formation, and hazards. Prerequisite: 15.02 or instructor permission.

15:20 Marine Geology 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:21 Marine Geology II 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:22 Marine Geology III 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:23 Marine Geology IV 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:24 Marine Geology V 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:25 Marine Geology VI 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:26 Marine Geology VII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:27 Marine Geology VIII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:28 Marine Geology IX 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:29 Marine Geology X 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:30 Marine Geology XI 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:31 Marine Geology XII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:32 Marine Geology XIII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:33 Marine Geology XIV 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:34 Marine Geology XV 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:35 Marine Geology XVI 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:36 Marine Geology XVII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:37 Marine Geology XVIII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:38 Marine Geology XIX 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:39 Marine Geology XX 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:40 Marine Geology XXI 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:41 Marine Geology XXII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:42 Marine Geology XXIII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:43 Marine Geology XXIV 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:44 Marine Geology XXV 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:45 Marine Geology XXVI 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:46 Marine Geology XXVII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:47 Marine Geology XXVIII 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:48 Marine Geology XXIX 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.

15:49 Marine Geology XXX 3 a.h. Lecture and laboratory course focusing on the geology of the marine environment, including topics such as the geology of the ocean floor, marine sedimentology, and marine geophysics. Prerequisite: 15.15 or consent of instructor.
German

Department chair: James P. Badcock

Degrees offered: B.A., M.A., Ph.D.

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 enterprises.

Undergraduate Program

Students majoring in German choose one of two major tracks: the Humanities track or the applied German track.

The Humanities 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 program in a business-oriented curriculum or an appropriate career program.

Each track normally requires 24 semester courses 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

12:11 First-Semester German 
12:12 Second-Semester German 
12:21 Third-Semester German 
12:22 Fourth-Semester German 

Reading

12:23 Fourth-Semester German: Elementary Composition and Conversation

Humanities Track

Third Year

12:31 Introduction to Modern German Literature I

12:32 Introduction to Modern German Literature II

12:33 Intermediate Composition and Conversation

Fourth Year

12:101 Advanced Composition and Conversation

12:105 Survey of German Literature

12:112 Survey of German Literature

Students who intend to go on for an advanced degree are encouraged to add 12:103 German Phonology (three semester hours) to the above.

Applied German Track

Third Year

12:33 Intermediate Composition and Conversation

12:34 Intermediate Composition and Conversation

12:105 Principles and Techniques of Translation
Honors in German
This program is open to junior and senior students who are majoring in German and have grade-point averages of at least 3.0 overall and 3.5 in German. During the junior and senior years the honor student in German is expected to engage in extra readings and discussions, and to write a term paper (if feasible) 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 facilitates 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 Regenta Study 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, near Graz, Austria. Instruction in both language and culture is provided on three levels—intermediate, advanced, and very advanced. 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 optional cultural tour of Germany concludes the program.

To participate, the student must be admitted to one of the three Iowa regents universities for the summer session. Applicants should have a good basic knowledge of German—normally two years of college-level German or the equivalent. Students with less than two years may be accepted with the approval of the campus coordinator.

Graduate students are eligible to apply. All students are expected to speak only German while participating in the program. Program grants are available for qualified applicants.

For further information, write to the Department of German.

Master of Arts with Thesis
Graduate students of German who demonstrate an interest in and potential for productive scholarship and who plan to continue to the doctorate should elect the master’s degree program in 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 under-graduate program, he or she will include them along with the courses required for the Master of Arts. Under some circumstances, the candidate may qualify for graduate credit for such make-up work.

With the graduate advisor’s approval, some of the 30 semester hours required for the degree may be taken outside the department, in such related subjects 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—usually after acceptance of the M.A. thesis—the candidates must demonstrate competence in a foreign language other than German, at a level equivalent to 2 years of college study.
Master of Arts without Thesis

A graduate student preparing for secondary school teaching, government service, translation, etc., may elect the master's degree program without thesis. This program requires a minimum of 38 semester hours of coursework 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 advisor, 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 Semitic Languages 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 that are related subjects may be counted toward the degree with the approval of the graduate advisor.

A candidate concentrating in literature must demonstrate a reading knowledge of French and of another language of his choice or his advisor's choice is pertinent to the student's research interests. For doctoral candidates in Germanic linguistics, a reading knowledge of Frisian or Frisian and of a modern Scandinavian language or 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 exams.

Financial Aid

Teaching assistantships, research fellowships, and tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funkes prizes to students of distinction.

Courses

Primary for Undergraduates

131:11 First Semester Dutch 4 s.h.
Lower-division course for those students who want to learn Dutch with emphasis on conversational and functional skills. Prerequisite: 131:01 or equivalent.

131:12 Second Semester Dutch 4 s.h.
Continuation of first-semester course, with emphasis on reading, speaking, listening, and writing. Prerequisite: 131:11 or equivalent.

131:13 Third Semester Dutch 3 s.h.
Concentration on developing skills by means of a broad grammatical review and reading of advanced material in Dutch literature, culture, news media, other sources: conversation, creative composition, oral comprehension. Prerequisite: 131:12 or equivalent.

131:23 Fourth Semester Dutch 4 s.h.
Devoted to accurate and fluent reading at optimum level of sophistication, focus on introduction of literary themes, discussion of basic cultural implications, reading of contemporary works, and writing of short compositions. Prerequisite: 131:22 or equivalent.

131:24 German and German for Translators 3 s.h.

131:25 German and German for Translators 3 s.h.

131:11 First Semester German 3 s.h.
Intensive course covering all basic grammar and vocabulary. Prerequisite: 131:01 or equivalent.

131:12 Second Semester German 3 s.h.
Continuation of 131:11, with same option of either approach, German emphasis on vocabulary building, language patterns, and cultural theme. Prerequisite: 131:11 or equivalent.

131:13 Third Semester German 3 s.h.
Continuation standard third- and second/semester courses. Additional hours of language laboratory will be required. Prerequisite: 131:12 or equivalent.

131:14 German and English Literature of the Middle Ages 3 s.h.
Intensive study of the period, including Parzifal, Parzifal and Arthurian literature, and Middle English literature, whether second semester or regular seminar, German literature and history, and introduction to the literature of major and other related under-graduate, same or 111:17.

131:23 Second Semester German 3 s.h.
Course in upper-division literature; emphasis on major, secondary literature, and selected topics, composition and composition. Prerequisite: 131:12 or equivalent.

131:24 Fourth Semester German Reading 3 s.h.
Teaching of short for representatives literature works. May be taken concurrently with 131:23. Prerequisite: 131:23.

131:25 Fourth Semester German Elementary Compositions and Conversations 3 s.h.
May be taken concurrently with 131:24. Prerequisite: 131:24 or equivalent.

132:10 Intermediate Second-Year German 6 s.h.
Continuation of 131:10. Intensive study of advanced courses, emphasis on speaking and as well as reading. Additional hours of language laboratory will be required. Prerequisite: 132:01.

132:20 Intermediate German Literature 3 s.h.
Reading and appreciation of representative German authors and works influence writers today. Prerequisite: 132:10 or equivalent.

132:25 Introduction to Western German Literature 3 s.h.
Continuation of 132:20. Prerequisite: 132:20 or equivalent.

133:01 Intermediate Composition and Conversations 3 s.h.
Recommended for students who intend to improve their active command of the language in reading, speaking, and writing. 132:10 and 132:20 may be taken in either order, but not concurrently. Prerequisite: 132:10, 132:20, or equivalent.

133:10 Intermediate Composition and Conversations 3 s.h.
Recommended for students who intend to improve their active command of the language in reading, speaking, and writing. Both 132:10 and 132:20 may be taken in either order, but not concurrently. Prerequisite: 132:10 or equivalent.

133:05 German Progress in German 1 s.h.

135:05 German Progress in German 1 s.h.

135:10 German Progress in German 1 s.h.

135:25 German Progress in German 1 s.h.

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135:380 German Progress in German 1 s.h.

135:385 German Progress in German 1 s.h.

135:390 German Progress in German 1 s.h.
require very careful academic advising by the program's faculty committee. All students enrolled in the program, including B.G.S. students, are required to complete (or have the equivalent of) two years' study of a foreign language and will be encouraged to go beyond this minimal requirement. Each student completing the program will be awarded a certificate, and the concentration in global studies will be noted on his or her transcript.

The Global Studies Program requires the completion, with at least a 2.0 grade-point average, of 24 semester hours of approved courses, distributed as follows:

**Introductory Course**

The student normally takes this course, 41:1 Global Interdependence and Human Survival, in the freshman or sophomore year. It lays the foundation for all further study of global issues.

**Global Studies Courses**

These courses, regularly offered by University departments, are organized under four major headings, as set forth below. The student normally elects one course (3 semester hours) under each major heading, and two additional courses (6 semester hours) under one of the headings, for a total of six courses (18 semester hours).

**Multidisciplinary Senior Seminar**

This course, 47:180 Global Studies Seminar, is offered every spring semester and is required of all students in the program.

**War, Peace, and Security**

This component of the Global Studies Program deals with the use of armed force for pursuit or political ends on a continuum ranging from potential global war to the individual act of terrorism. The various approaches will consider causes, effects, limitation, and resolution of violence in the contemporary setting. All students must take either:

30:164 Military Affairs

or

16:149 War and Society

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

30:187 Arms Races and Arms Control

or

6E:123 Political Economy of the Military-Industrial Complex

And one from this group:

30:148 The Politics of Southern Africa

30:155 Political Violence and Revolution

30:161 The United Nations

30:186 Politics of War and Peace

30:187 Arms Races and Arms Control

30:172 Introduction to International Law

16:90 Historical Background of Contemporary Issues

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

16:178 United States in World Affairs: 1900-1975

16:198 U.S.A. in a World at War, 1931-1945

6:182 Literature of Peace and War

6E:123 Political Economy of the Military-Industrial Complex

**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 prognosis for the developing countries. All students must take either:

34:151 Sociology of the Third World (same as 113:151)

or

6E:129 Economic Development: Underdeveloped Areas

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

30:146 African Development

(same as 44:161, 45:162)

30:150 The Political Economy of the Third World

6E:125 International Economics

6E:127 Natural Resources in the World

6E:126 Economic Development: Underdeveloped Areas

6E:168 The Political Economy of Socialism

44:35 World Cities

44:183 The Third World

34:151 Sociology of the Third World (same as 113:151)

34:168 Economic and Political Development: Women's Roles

34:174 World Population Problems

7F:104 Education in Newly Developing Countries

19:261 Development Support Communication (open to advanced undergraduates, with permission of instructor)

Certain area studies courses, drawn from the same area, may also be elected, subject to the program committee's approval, to fulfill this requirement.

**Environmental Concerns and Global Resources**

This component of the Global Studies Program is concerned with the availability, use, and disposal of global resources. Of special concern are the environmental problems arising from the overexploitation of these resources by man using modern technology. All students must take either:

6E:133 Economic Growth and Environmental Decay

or

44:119 Natural Environmental Issues

Students who elect to take three courses in this area would, in addition, take any two of the following courses:

44:119 Natural Environmental Issues

44:123 Geography of Natural Resources

44:191 Energy in Contemporary Society

37:126 A Place of Crisis (same as 12:126)

6E:133 Economic Growth and Environmental Dynamics

34:174 World Population Problems
Cross-Cultural Understanding

Global issues will require for their analysis and solution persons educated to understand their perceptions, values, and beliefs vary among societies; that these differing values complicate the public and private aspects of human service, and that it is risky to accept as absolutes, without careful 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 adequately with most global issues; and to encourage students to clarify their own values and those of others in the process of analysis of global problems and proposals for their resolution.

Except as noted below, all students must take either:

32:13 World Order and Conflicting Values
or
113:3 Introduction to the Study of Culture and Society

except as noted below, students who elect to take courses in this area would, in addition, take two courses from the following list. Course in group A explore the general social contexts of the global value conflicts introduced in 32:13 World Order and Conflicting Values. Courses in group B develop some of the more fundamental cultural processes and phenomena introduced in 113:3 Introduction to the Study of Culture and Society.

Group A

32:13 World Order and Conflicting Values

42:162 Preferred World Futures
30:186 Human Rights
91:193 Human Rights in the World Community: Problems of Law and Policy

(Emphasizes enforcement; same as 42:190)

66:166 The Political Economy of Socialism
19:231 Problems in International Communication
(open to advanced undergraduates, with permission of instructor)

Group B

113:3 Introduction to the Study of Culture and Society
113:10 Anthropology and Contemporary World Problems
113:14 Language and Human Behavior
113:47 Comparing Cultures
113:50 Culture and Personality
113:185 Women’s Roles: A Cross-Cultural Perspective
113:72 Language and Culture
113:181 Race, Ethnicity, and International Relations

(same as 45:151)

32:35 Religion in Human Culture

Students electing to concentrate in the program area may, as an alternative means of satisfying program requirements, take 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 the academic program, the Global Studies Committee organizes talks and conferences of interest to the general public as well as students.

Courses

47:1 Global Interdependencies and Human Survival

13:1 Introduction to the U.S.-Latin America Area. This Global Studies Program course introduces the student to the study of Latin America, its cultural and economic diversity, and identification of current efforts to ease these tensions.

17:17 Contemporary Africa

15:15 Interactions across the cultural, economic, and political lines of the Latin American peoples who populate the Western Hemisphere. This course will be evaluated in terms of the student’s ability to communicate effectively in a language, they will be required to learn and to discuss the work of the global studies committee chair.

Undergraduate Program

Baccalaureate students in global studies go into a variety of positions in business, public service, or journalism. Many plan further training in history, law, religion, library science, or public administration.

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 requires a foreign language to be met by selecting a language which fits in with the major student’s history interests.

Greek

See "Classics."

History

Department chair: Charles A. Hare


assistant professors: Jeffrey L. Cox, Paul Cressons, Sarah M. Feddes, Alan Nagel, Herman Razo, Stephen Vlasses, Jonathan W. Hauser, David Adams, John D. Diamond, Steven

Degrees offered: B.A., M.A., Ph.D.

The purpose of the Department of History is to increase knowledge of human experience and to provide students with opportunities to gather information about and learn methods for understanding the 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, persons who require a knowledge of a period or aspect of history as a background for their own specialized interests in other fields, and participates in several interdisciplinary programs such as Asian studies, international studies, Latin American studies, and women’s studies.

See "Classics."

History

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The general major is for students with a general interest in history. The program requirements are:

A minimum of 24 semester hours in courses offered by the Department of History, of which at least 12 semester hours must be in non-U.S. history courses. This limitation is imposed to assure acquaintance with the History of at least one other society besides our own.

Three semester hours in 185:1 Colloquium for History Majors. A colloquium consists of a small number of students collectively studying problems in ways which give training and experience in group discussion, analysis, and criticism. It is best taken after the student has fulfilled 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 18 to 18 semester hours in related courses in anthropology, economics, fine arts (excluding studio courses), geography, literature (excluding workshop courses), philosophy, political science, psychology, religion, and sociology; or a second major in one of these areas. Core courses and courses taken to satisfy core requirements will not be counted toward the related-areas requirement.

It is recommended but not required that the student pursuing the general major in history meet the College of Liberal Arts historical-cultural core requirements with 112930 Problems in Human History, 113132 Western Civilization, or 115556 Civilizations of Asia.

Prospective Teachers in History

Students majoring in history who wish to qualify for a teaching certificate must satisfy the historical-cultural core requirement by taking any two of the following courses: 112930 Problems in Human History, 113132 Western Civilization, 115556 Civilizations of Asia (at least 6 semester hours); and must complete the professional courses in the College of Education which are required for teacher certification (a total of 23 semester hours). They must also take 165:1 Colloquium for History Majors.

They must choose an area of concentration in history and meet these requirements:

- American History Concentration Courses in U.S. History 20 s.h. Courses in related areas 36-44 s.h.
- European History Concentration Courses in European History 20 s.h. Courses in related areas 36-44 s.h.
- World History Concentration Courses in non-U.S. History 20 s.h. Courses in related areas 36-44 s.h.

Students must select at least three of the following six related areas: economics, geography, world history (non-U.S.), political science, psychology, sociology. They must take 12 semester hours of courses in each of the three areas they choose, except psychology, in which they must take 30 semester hours. Courses in these subjects which have been taken to satisfy the social science core requirement may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

World History Concentration Courses in non-U.S. History 20 s.h. Courses in related areas 36-44 s.h.

Students must select three of the following six related areas: economics, geography, American history, political science, psychology, sociology. They must take 12 semester hours in each of the three areas they choose, except psychology, in which they must take 30 semester hours. Courses in these subjects which have been taken to satisfy the social science core requirement 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. Up to 4 semester hours from history core courses (112930, 113132, 115556) may be counted toward the required 20 semester hours in non-U.S. History.

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

Honors

The honors major is for students of superior ability who want an extremely flexible program enabling them to pursue special interests and enjoy the experience of individual research. To undertake the honors major in history, the student must be admitted to the College of Liberal Arts Honors Program by the director of that program, and to the honors program in history by the department. Application usually must be made by the beginning of the junior year, and the completion of the honors major leads to the Bachelor of Arts degree with honors in history. Requirements are:

A minimum of 24 semester hours of work in history, with at least 9 hours in the department's offerings, which may include up to 8 semester hours of honors thesis credit. Colloquium courses may also be counted for honors credit in lieu of honors seminars.

Related courses outside the department (same as regular major requirement).

Successful completion and oral defense of an honors thesis.

Graduate Programs

The graduate programs in history prepare students to teach in high schools or colleges, and for such occupations as publishing, commercial research, and government or other public service. With additional specialized training, students of history become eligible for both the Ph.D. in historical work, historical work, or historical art of operation and display. Some students enter the program leading to degrees in both law and history (see the "College of Law" section of the Catalog).

Qualified graduate students are invited to apply for fellowships and assistantships. Inquiries should be directed to the departmental office.

Master of Arts

There are two M.A. programs in the history department. The first is for students who plan to work for the Ph.D. degree. It requires a minimum of 30 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours of credit in history. Twelve, including at least one seminar, must be in the area of the student's essay topic, and at least 6 must be in a
second division, including either a seminar or readings course.

The essay is the major division must be based on original research and should be in the vicinity of 10,000 to 15,000 words in length. Work on the essay will normally begin in the seminar in the major division and be continued with 19.960 Individual Study/Graduate, in which rewriting will be completed under the guidance of the supervisor. In exceptional cases where the essay completed in seminar is judged to be of outstanding quality, other courses may be substituted for 19.960.

Students who complete the M.A. under the alternative plan may not become candidates for the doctorate in History. The M.A. candidate must earn at least 30 semester hours of graduate credit, 24 semester hours of which must be in history. Of these, at least 12 must be taken in one division, and must include at least one reading or seminar course. The program must also include at least 6 semester hours in each of two other divisions in history, or 6 hours in one other division in history and 6 hours in a related department. These hours must include at least one reading or seminar course in history.

After completing these requirements, or in the semester in which they are to be completed, the M.A. candidate must take an oral and written comprehensive examination in the major division.

Doctor of Philosophy

Students who earn the M.A. with research essay are admitted to the Ph.D. program upon the favorable recommendation of the examining committee. Students who earn an M.A. at another institution must meet the general requirements for admission to the Graduate College (see the "Graduate College" section of the Catalog), and must submit a specimen of their writing, such as a seminar paper or an M.A. thesis.

The candidate must earn at least 72 semester hours of credit, including credit for work done toward the master's degree. The 72 semester hours must include at least 24 semester hours in 200-level courses in history, apart from thesis credit. At least 16 of the 24 hours must be completed before the student takes the comprehensive examinations, and at least 16 of these 24 hours must be completed at The University of Iowa. The candidate must also earn 2 semester hours of credit in the philosophy of history, historiography, or methods of historical research.

The department has no common language requirement for the Ph.D., but the supervisor may require the candidate to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other tools of study. The candidate may not complete the comprehensive examination until these requirements have been met.

The comprehensive written and oral examination will cover four distinct fields, at least three of them in history. The fields in history must be chosen from at least two of these divisions:

- The Ancient World
- Medieval Europe
- Europe, 1500 to 1815
- Russia and the Soviet Union
- United States History
- Latin American History
- History of China
- History of Japan
- History of India

The committee may define and detail the individual fields for examination. It may also set, separately for each field, the character of the written portion of the comprehensive examinations, which may take the form of a bibliography, a critical bibliography, a topical paper, or any other form or combination of these or other forms that the committee deems suitable. The oral portion of the comprehensive examination will focus on issues and problems arising from the examination papers.

Graduate Admission

All applicants for admission, whether for the M.A. or the Ph.D. program, must meet the general requirements for admission to the Graduate College. In addition they must submit a specimen of their writing—such as a term paper, seminar paper, or an M.A. thesis—to the history department. All applications for graduate study are due by February 15 for the succeeding year. Applications for admission are due April 15 and November 10 for the following semesters. An applicant must take the Graduate Record Examination aptitude tests in order to be considered for admission. An undergraduate history major is not required for admission to the graduate program.

Guide to Graduate Study

Further information on graduate study is contained in the department's Guide to Graduate Study, sent to all applicants for admission. The Guide is revised every spring to include the latest changes in the faculty, the courses to be offered the following year, and the research interests of the members of the faculty, as well as detailed regulations on study toward advanced degrees and other information of interest to prospective students.

Special Facilities

The University Library is strong in all aspects of U.S. history. It houses the Henry A. Wallis papers and related collections, as well as other unique materials. In European history, the special strengths are in French and English materials. The Iowa State Historical Society in Des Moines and the Herbert Hoover Presidential Library in West Branch possess additional research materials of great value.

Courses

All courses numbered below 200 are open to freshmen provided they have already satisfied the historical-cultural core requirement. Most courses numbered below 200 are offered in alternate semesters. Most courses numbered 200 and above are offered as occasion demands.

1811 Colloquium in History Seminar 3 hrs.
1990 Historians and the Historian 3 hrs.
1996 Intro to the American Society 3 hrs.
1999 Methods in Amer. History 3 hrs.
Home Economics

Department chair: Sara C. Watson
Faculty: professor Margaret H. Kamps, associate professor Marjorie G. Olson, Fray Mabel Whitehead, associate professor Elizabeth Allen, and student Meghann Peterman

The mission of the Department of Home Economics is to enhance the quality of life for individuals who are preparing to develop a working understanding of the individual and family management skills within their environment.

Through education, the department prepares professional home economists to work with individuals and families, or with businesses, agencies, and organizations providing goods, services, and programs which enhance the quality of life. It also contributes to the liberal and professional education of nonmajors.

Through research, the department creates new knowledge for and about individuals and families.

Through community service and other activities, the department directly assists individuals and families with their needs and problems.

Through study, understanding and use of design and housing, family development, food and nutrition, home economics education, and textiles and clothing, home economics contributes to the physical, psychological, social, and aesthetic development of people.

Home economics as a career offers a wide range of opportunities: teaching, dietetics, merchandising, interior and textile design, product development and quality control in textiles and home industries, consumer relations, family life education and services, food service management, and service with community or government agencies.

Undergraduate Program

The undergraduate program prepares students for immediate employment as professional home economists, and also for advanced study.

Concentration in design and housing, family development, food and nutrition, home economics education, 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 within home economics.

Joint programs may be arranged with other fields such as journalism, art, science, and education.

In meeting the general requirements for the B.A. or B.S. degree or the College of Liberal Arts, students majoring in home economics need to select courses in other departments which also are prerequisite for home economics courses.

All students majoring in home economics complete the core:

17:19 Human Development and the Family
17:17:02 Nutrition and the Family
17:50 Design for the Home
17:30 Textiles for Consumers
17:111 Management of Family Resources
17:110 Seminars: Home Economics

Bachelor of Arts Design and Housing

Students concentrating in design and housing are prepared to pursue careers in the following areas: residential and contract interior design, space planning, design consulting, merchandising, fabric design, and teaching.

The requirements for this concentration are:

17:52 Presentation Graphics
17:54 Interior Design: Principles and Practices
17:115 Survey of Historic Interiors
17:115 Textiles Design: Printing and Dyeing
17:115 Housing: Planning and Structural Aspects
Two of the following:
11:37 Form and Theory in the Visual Arts 4 s.h.
11:39 Art in the Western World 4 s.h.
11:42 Art in East and West 4 s.h.
18:1 Elements of Art 2-3 s.h.
or
18:2 Elements of Art 2-3 s.h.
or
An approved two-dimensional studio art course 2 s.h.
or
An approved three-dimensional studio art course 2 s.h.

6E:1 Principles of Economics 4 s.h.
or
6E:2 Principles of Economics 4 s.h.

Also required are two of the following, one of which must be a studio course:
17:152 Interior Design: Principles and Practices II 3 s.h.
17:154 Interior Design: Principles and Practices III 3 s.h.
17:156 Survey of Modern Interiors 3 s.h.
17:167 Historic Restoration Methodology 3 s.h.
17:168 Textile Design: Weaving and Prints 3 s.h.
17:164 Textile Design: Forms and Fabrics 3 s.h.
17:166 Housing: Social and Psychological Aspects 3 s.h.

Electives from home economics, business administration, urban and regional planning, art history, studio art, social sciences, and theater are recommended.

Family Development
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:

17:131 Food Study 2 s.h.
17:132 Food Study Laboratory 2 s.h.
17:133 Meal Management 2 s.h.
17:134 Experimental Food I 3 s.h.
17:135 Experimental Food II 3 s.h.
or
17:148 Nutrition Laboratory 2 s.h.
17:142 Nutrition 3 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:15 Elementary Chemistry Laboratory I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:141 Intermediate Chemistry Laboratory I 2 s.h.
61:157 General Microbiology 4 s.h.
72:13 Introduction to Human Physiology 4 s.h.
99:130 The Chemistry of Biological Materials 3 s.h.
99:130 Metabolism 3 s.h.

Electives should be selected from home economics and the natural sciences.

A concentration in nutrition with emphasis on dietetics requires:

17:131 Food Study 2 s.h.
17:132 Food Study Laboratory 2 s.h.
17:133 Meal Management 2 s.h.
17:134 Experimental Food I 3 s.h.
or
17:126 Food Service Systems Management 3 s.h.

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:

17:131 Food Study 2 s.h.
17:132 Food Study Laboratory 2 s.h.
17:133 Meal Management 2 s.h.
17:134 Experimental Food I 3 s.h.

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:

17:131 Food Study 2 s.h.
17:132 Food Study Laboratory 2 s.h.
17:133 Meal Management 2 s.h.
17:134 Experimental Food I 3 s.h.

Electives from home economics, education, social work, economics, psychology, and sociology are recommended.

Home Economics Education
This program leads to certification and vocational approval in some economics. Graduates are qualified to teach home economics in vocational and nonvocational secondary schools, to work in home economics extension and other agencies, and to teach in home school settings. Required courses for this concentration are:

17:31 Introductory Food Study 2 s.h.
or
17:101-132 Food Study, Food Study Laboratory 4 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:112</td>
<td>Personal Financial Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:113</td>
<td>Marriage and Family Interaction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:114</td>
<td>Parent-Child Relationships</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:121</td>
<td>Curriculum: Home Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:129</td>
<td>Evaluation: Home Economics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>17:133</td>
<td>Meal Management</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>17:168</td>
<td>Housing: Planning and Structural Aspects</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:168</td>
<td>Housing: Social and Psychological Aspects</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:170</td>
<td>Custom and Contemporary Tailoring</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:171</td>
<td>Fitting Problems and Flat Pattern Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>18:1</td>
<td>Elements of Art</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>18:2</td>
<td>Elements of Art</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>6E:1</td>
<td>Principles of Economics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>6E:2</td>
<td>Principles of Economics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>31:1</td>
<td>Elementary Psychology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>34:1</td>
<td>Introduction to Sociology: Principles</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

In addition, students must complete the coursework generally required for teacher certification. The methodology course required in home economics education is 75:125 Methods: Home Economics (3 semester hours).

In addition to the general requirements to be eligible for student teaching (see the "College of Education" section of the Catalog), the student in home economics education must have completed 28 semester hours of home economics courses with a 2.5 grade-point average in that work, and must have received no grade less than "C" in the home economics courses required for home economics endorsement and vocational approval.

For the general requirements to be eligible for student teaching and for certification, see the "College of Education" and "Secondary Education" sections of the Catalog.

Students are required to have 400 hours of paid employment in a home-economics-related occupation (for example, food service, day care center, retailing) for certification. This work experience can be through 17:000 Cooperative Education Training Assignment or through verification of work experience. Electives should be selected from education, journalism, psychology, sociology, and communication.

**Textiles and Clothing**

This program prepares students for careers in merchandising and related areas. Concentration in fashion merchandising requires:

- 17:70 Introductory Clothing Construction 3 s.h.
- 17:72 Apparel, Fashion, and Selection 3 s.h.
- 17:170 Custom and Contemporary Tailoring 3 s.h.
- 17:171 Fitting Problems and Flat Pattern Design 3 s.h.
- 17:173 Fashion Merchandising 3 s.h.
- 17:174 Merchandising Communications 2 s.h.
- 17:190 Science of Textiles 3 s.h.
- 17:191 Textile Finishing, Dyeing, and Detergency 3 s.h.
- 17:193 Textile and Apparel Economics 3 s.h.
- 4-6 General Chemistry I-II 6 s.h.
- 4-6 General Chemistry Laboratory 2 s.h.

**Bachelor of Science**

The B.S. programs are recommended for students who want greater depth or breadth in the natural sciences, and for those interested in research positions in colleges and universities or in industrial, governmental, or medical research laboratories.

**Food and Nutrition**

In addition to the requirements for the B.A. degree emphasizing food or nutrition, the B.S. degree requires the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:3-5</td>
<td>Mathematical Techniques I-III</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>22M:20</td>
<td>Elementary Functions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:25</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>29-11-12</td>
<td>College Physics</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>4:130</td>
<td>Physical Chemistry for Life Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>59:144C</td>
<td>Experimental Biochemistry</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Home Economics Education**

Graduates can enter the careers described for the B.A. degree in home economics education. The B.S. program enables students to obtain greater depth...
and breadth in the natural and social sciences. In addition to the courses and work experience listed for the B.A. degree, the B.S. requires:

4:7-8 General Chemistry I-II 6 s.h.
4:9 General Chemistry Laboratory 2 s.h.
A course in statistics 3 s.h.

Two courses from the natural sciences and/or courses numbered 100 or above in anthropology, economics, psychology, or sociology 6-8 s.h.

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

4:10:1 Elementary Quantitative Analysis 4 s.h.
4:121-122 Organic Chemistry I-II 8 s.h.
22:M25 Calculus I 4 s.h.
22:M26 Calculus II 4 s.h.
22:M29 Computation Laboratory for Calculus and Linear Algebra 4 s.h.
29:11:12 College Physics 8 s.h.

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 design and housing, home economics education, or textiles and clothing, and who meet the department's requirements, may apply to the Cooperative Education Committee for participation in this program. Students register for 17:000 Cooperative Education Training Assignment at the time of their work experience and for 17:196 Home Economics Internship during the subsequent semester.

Honors Program
To be eligible for honors, the student must have junior standing, 30 semester hours in residence at the University, an overall cumulative grade-point average of 3.0 or above, a grade-point average of 3.2 in all home economics courses, and at least 12 semester hours completed in home economics. Honors work consists of 17:161 Honors Seminar: Home Economics and 17:162 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 Program
The demand for well-qualified professional home economists far exceeds the number of graduates with advanced degrees. The master's degree graduate may qualify for positions in colleges, secondary schools, business, industry, and government.

The graduate program enables students to obtain depth through specialization in one of five subject areas: design and housing, family development, food and nutrition, home economics education, 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 coursework in research procedures or the opportunity for extensive creative work. The thesis may be undertaken in the department, in cooperation with related departments or colleges.

To be unconditionally admitted, 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 2.8 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 work, which may be 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 coursework is offered 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., depends on the area of major work.

All students in the M.A. and M.S. programs are required to complete 17:290 Seminar: Home Economics Research. Those in the thesis option also complete 17:291 Thesis.

Design and Housing
Graduate study in design and 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 present a portfolio prior to admission. A variety of career opportunities exist for the M.A. graduate in design and housing. These include college teaching, interior design, textile design, historic preservation and restoration, and positions in interior and industry.

Courses in design and housing will be determined on a semester basis. The following courses are required in all programs:

17:156 Survey of Modern Interiors 2 s.h.
17:290 Seminar: Design and Housing 2 s.h.
17:290 Research: Problems in Design and Housing 2-4 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
One course in art history 3 s.h.
One course in studio area 3 s.h.
Courses for interior design specialization:
17:153 Interior Design: Principles and Practices II 3 s.h.
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. Graduate work with agencies concerned with the family or prepare for college and university teaching.

Required courses for the family development concentration are:

17:196 Individual and Family Development: Life Span 3 s.h.
17:212 Seminar: Family Dynamics anr.
17:213 Theory in Family Development 3 s.h.
17:290 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 Aging

Food and Nutrition

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

Courses required for the M.S. degree with specialization in food are:
17:134-135 Experimental Food Intro 6 s.h.
17:236 Seminar: Food 3 s.h.
17:238 Research: Problems in Food and Nutrition 2-4 s.h.
17:241 Seminar: Nutrition 3 s.h.
17:290 Seminar: Home Economics Research 2 s.h.

Food and Nutrition

17:134 Introduction to Statistical Methods 3 s.h.
17:130 The Chemistry of Biological Materials 3 s.h.
11:157 General Microbiology 4 s.h.
225:101 Biostatistics 3 s.h.
17:143 Introduction to Statistical Methods 3 s.h.

Required courses for the M.S. degree with specialization in nutrition are:
17:134 Experimental Food I 3 s.h.
17:145 Advanced Nutrition 3 s.h.
17:146 Nutrition Laboratory 2 s.h.
17:238 Seminar: Food 2 s.h.
17:238 Research: Problems in Food and Nutrition 2-4 s.h.
17:241 Seminar: Nutrition 2 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
17:130 The Chemistry of Biological Materials 3 s.h.
17:150 Metabolism 3 s.h.
225:101 Biostatistics 3 s.h.
17:143 Introduction to Statistical Methods 3 s.h.

Courses required for the M.A. degree with specialization in nutrition education are:
17:124 Nutrition Work with Children 3 s.h.
or
17:145 Advanced Nutrition 3 s.h.
17:146 Nutrition Laboratory 2 s.h.
17:238 Research: Problems in Food and Nutrition 2-4 s.h.
17:241 Seminar: Nutrition 2 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
11:151 Educational Psychology 3 s.h.

Textiles and Clothing

This program prepares students for careers in merchandising, textile research, teaching, extension service, and communication. Applicants need background courses in textiles, clothing, and chemistry. Courses required for the textiles and clothing concentration are:
17:276 Research: Problems in Clothing anr.
or
17:290 Seminar: Home Economics Research 2 s.h.
A course in statistics 3 s.h.

Additional courses in textiles and clothing are required, based upon the student's educational background and professional needs.
Financial Awards

Several annual departmental awards are given to undergraduate students for their outstanding qualities and performance. The Dorothy Work Writing Award is given to a student who demonstrates excellent work and completion of an honor's thesis for the major. The Margaret Forsyth Award is given to a student in the senior year, and the Myrna Lee Swenson 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

Primary for Undergraduates

17-109 Comparative Education: Teaching Judgement 4 a.h.
17-109 Home Economics 3 a.h.
17-126 Evaluation: Human 2 a.h.
17-131 Educational Psychology 3 a.h.
17-156 Methods of Home 3 a.h.
17-191 Observation and Laboratory Practice in the Secondary School 2 a.h.
17-191 Course in the philosophy of 2 a.h.
191 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 requirements of institutions and professional goals. See the "College of Education" section of the Catalog.

17-772 Apache Fashion, and Selection 4 a.h.
17-782 Apache Fashion, and Selection 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
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17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
17-802 Apache Fashion, 4 a.h.
Primarily for Graduates

12/13 Seminar: Family Dynamics 2 cr.
Reading and discussion of current literature in family interaction.

17/19 Research: Family Development 3 cr.
Research in family development research and theory to family therapists on various topics within the discipline. Prerequisite: 32/33 or equivalent.

17/21 Prejudice/Aggression Toward Others 2 cr.
Introduction to socioeconomic and sociopolitical issues of prejudice and aggression, and an examination of related educational and developmental programs designed to diminish prejudice and aggression. Prerequisite: 32/33 or equivalent.

12/13 Research: Problems of Family Studies 3 cr.
Individual research problems in family studies. Prerequisite or consent of instructor.

15/21 Seminar: Human Economic Activity and Society 4 cr.
History and philosophy of human economics, with special attention to philosophies of human economic activity as they develop and have been expressed in social organization. Prerequisites: consent of instructor.

15/29 Workshop in Human Economic Activities 4 cr.
Foster development of human economic education with the assistance of the faculty and research in which they are involved. Open to semester session.

17/23 Seminar: Readings in Human Economics Education 4 cr.
Critical review of current literature in human economics education. Prerequisite: consent of instructor.

17/29 Research: Problems in Human Economics 3 cr.
Research in human economics problems of advanced study. Prerequisite or consent of instructor.

17/30 Seminar: Social Studies 3 cr.
Readings and discussion of current issues and trends in social studies. Prerequisite: 17/33.

12/26 Research: Problems in Social Studies 3 cr.
Research in social studies problems of advanced study. Prerequisite or consent of university.

12/31 Seminar: Education 2 cr.
Critical review of current educational literature in education. Prerequisite: 17/26 and 17/30.

17/30 Seminar: Design and Rendering 2 cr.
History and theory of architectural design, materials, and construction. Prerequisite: 17/26 and 17/30.

17/29 Studio Workshop in Design 4 cr.
Practice in the specific medium of composition. Emphasis on design and problem-solving with an awareness of the creative processes of thinking. Prerequisites: 17/26 and 17/30.

17/35 Research: Problems in Design and Rendering 3 cr.
Research in design rendering problems for advanced students. Prerequisite or consent of instructor.

12/37 Satellite Communications 4 cr.
Transmission, timing, and discussion of current literature in satellite communications.

17/28 Research: Problems in Satellite Communications 4 cr.
Individual research problems for advanced students. Prerequisite or consent of instructor.

17/24 Studies in Physics 4 cr.
Individual research problems for advanced students. Prerequisite or consent of instructor.

17/20 Seminar: Human Economics Research 3 cr.
Human economics research problems for advanced students. Prerequisite or consent of instructor.

17/31 Research: Problems in Theory 3 cr.
Individual research problems for advanced students. Prerequisite or consent of instructor.

17/25 Seminar: Human Economics Research 3 cr.
Research in human economics research problems for advanced students. Prerequisite or consent of instructor.

17/29 Seminar: Math Concepts 3 cr.
Research in human economics research problems for advanced students. Prerequisite or consent of instructor.

17/31 Research: Problems in Theory 3 cr.
Human economics research problems for advanced students. Prerequisite or consent of instructor.

Hospital and Health Administration

See "College of Engineering."

Italian

See "French and Italian."

Journalism and Mass Communication

Briati (Chair): Kenneth Stark
Faculty: professors Hearn Yaftel, Donald Spivey, Kenneth Stark, C. Lynn Rayland
professor emeritus: L. G. Stocker
Associate professor: Joseph Zinn, John Cottineau
Professor, Nancy Hooper, William Jones
Adjunct professors: Kay Powerful, Larry Danner, John Bashe, James Bux, Denny Cargan, Candace Doer, Ruma Conhe, John Brash, N. L. Laupa
Instructor, Richard Lentz

12/26 Research: Problems in Journalism 3 cr.
Research in journalism problems of advanced study. Prerequisite: 17/26 and 17/33.

17/33 Seminar: Journalism 3 cr.
Reading and discussion of current literature in journalism. Prerequisite: consent of instructor.

17/24 Studies in Journalism 4 cr.
Studies in the specific medium of journalism in the broad field of mass communication. Scholarly positions vary widely but include newspaper reporting and editing, magazine writing and editing, public relations, broadcast journalism, and photography. While our program emphasizes the basics of reporting, writing, and editing, professional preparation requires a balance of theory and practice. We offer a wide variety of skills and theory courses to supplement these basics.

We believe students should have a strong liberal arts background in addition to their professional preparation. Thus, we require students to take three-credit hour courses outside the school. We also require a second major or minor, which the student develops in conjunction with his or her advisor. For this outside concentration, students must either complete the prescribed program of another department, or create their own mixture of emphasis with related courses in relevant departments, totaling 24 to 30 semester hours of credit beyond the core level.

The school offers the B.A. and B.S. degrees. Major requirements are the same for both; accept students seeking the B.S. degree must also take 36-48 26-103

Introduction to Political Science, and may meet the second major requirement with either 2 full major in a natural or social science. 8-6, senior-level concentration. Approved in advance, in the natural or social sciences, beyond core requirements: 2-12 semester hours of coursework, approved in advance, emphasizing natural or social science methods, and two semesters of a foreign language or their equivalent.

17/29 Theology

Master's degree candidates.

Undergraduate Programs

The main objective of the undergraduate program in the School of Journalism and Mass Communication is to prepare students for professional positions in journalism and for careers in the broad field of mass communications. Such positions vary widely but include newspaper reporting and editing, magazine writing and editing, public relations, broadcast journalism, and photography. While our program emphasizes the basics of reporting, writing, and editing, professional preparation requires a balance of theory and practice. We offer a wide variety of skills and theory courses to supplement these basics.

We believe students should have a strong liberal arts background in addition to their professional preparation. Thus, we require students to take three-credit hour courses outside the school. We also require a second major or minor, which the student develops in conjunction with his or her advisor. For this outside concentration, students must either complete the prescribed program of another department, or create their own mixture of emphasis with related courses in relevant departments, totaling 24 to 30 semester hours of credit beyond the core level.

The school offers the B.A. and B.S. degrees. Major requirements are the same for both; accept students seeking the B.S. degree must also take 36-48 26-103

Introduction to Political Science, and may meet the second major requirement with either 2 full major in a natural or social science. 8-6, senior-level concentration. Approved in advance, in the natural or social sciences, beyond core requirements: 2-12 semester hours of coursework, approved in advance, emphasizing natural or social science methods, and two semesters of a foreign language or their equivalent.

17/29 Theology

Master's degree candidates.
Students in both sequences must fulfill these foundation requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:101</td>
<td>Cultural and Historical Foundations of Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:103</td>
<td>Scientific Foundations of Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:110</td>
<td>Introduction to Journalism</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>130</td>
<td>Legal and Ethical Issues in Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>12 s.h.</td>
</tr>
</tbody>
</table>

After completing the foundation courses listed above, the student selects one of the two sequences outlined below to fulfill the 36-semester-hour degree requirement.

**News-Editorial Sequence**

This sequence is concerned with the gathering, organizing, and effective writing of news and other information from printed, human, and environmental sources, and with the processing, packaging, and display of news stories, articles, and illustrations, for printed and broadcast media. It also provides for the development of the various technical skills required for work in the student’s choice of media. The sequence is accredited by the American Council on Education for Journalism and Mass Communication (ACEJMC).

The following journalism courses are required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:110</td>
<td>News Reporting and Writing</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>19:114</td>
<td>News Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:116</td>
<td>Advanced Reporting</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Journalism electives</td>
<td>9 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>30 s.h.</td>
</tr>
</tbody>
</table>

Maximum journalism credits allowed toward graduation: 36 semester hours

**Mass Communication Sequence**

The mass communication sequence offers several approaches to the journalism major.

The laboratory-oriented approach stresses applied theory and practice to help students develop and refine their skills in such areas as writing, graphic design and typography, still and motion picture photography, and audio and video production. Career possibilities include broadcasting, video, public relations, and organizational communication.

Another approach to this sequence is primarily theoretical. It emphasizes the acquisition of knowledge about communication as a social institution.

The following courses are required for the two tracks of this sequence:

**Laboratory Track**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:112</td>
<td>News Reporting and Writing</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>19:135</td>
<td>Broadcaster</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>19:147</td>
<td>Free-Lance Workshop</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Two skills/production courses, 6 semester hours, selected from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19:114</td>
<td>News Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:138</td>
<td>Broadcast Journalism Workshop</td>
<td>am.</td>
</tr>
<tr>
<td>19:148</td>
<td>Current Magazine Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:150</td>
<td>Photography</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>19:169</td>
<td>Graphic Design and Production</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:161</td>
<td>Mass Communication Lab</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Journalism electives</td>
<td>9 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>30 s.h.</td>
</tr>
</tbody>
</table>

Maximum journalism credits allowed toward graduation: 36 semester hours

**Theoretical Track**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:102</td>
<td>Special Topic in Communication</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>(per year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other journalism courses, including 9 semester hours in advanced conceptual courses</td>
<td>18 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>30 s.h.</td>
</tr>
</tbody>
</table>

Maximum journalism credits allowed toward graduation: 36 semester hours

**Hons Program**

Students with superior ability may participate in the Honors Program. Freshmen with outstanding academic records are eligible to participate. Upperclassmen who succeed in the honors courses to graduate with honors, a student must complete specific requirements, including 6 semester hours of journalism honors courses. For other requirements, see the school’s Honors Program advisor.

**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 coursework, the completion of a master’s project or thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.

**Professional Journalism Emphasis**

This emphasis is intended for students seeking to improve their technical and analytical skills and broaden their understanding of the role and function of mass communication in contemporary society, but who do not plan to engage in Ph.D. work.

Program requirements for students with an academic or professional experience in journalism and communication:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:200</td>
<td>Master’s Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:112</td>
<td>News Reporting and Writing</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>(does not count toward M.A. degree)</td>
<td>19:240</td>
<td>News Commentary</td>
</tr>
<tr>
<td>19:245</td>
<td>Specialized Reporting</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>19:102</td>
<td>Special Topic in Communication</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>(per year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other journalism courses, including 9 semester hours in advanced conceptual courses</td>
<td>18 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>30 s.h.</td>
</tr>
</tbody>
</table>

Maximum journalism credits allowed toward graduation: 36 semester hours

**Communication Emphasis**

This emphasis is intended for students seeking to improve their technical and analytical skills and broaden their understanding of the role and function of mass communication in contemporary society, but who do not plan to engage in Ph.D. work.

Program requirements for students with an academic or professional experience in journalism and communication:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:200</td>
<td>Master’s Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:112</td>
<td>News Reporting and Writing</td>
<td>4 s.h.</td>
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<tr>
<td>19:102</td>
<td>Special Topic in Communication</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>(per year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other journalism courses, including 9 semester hours in advanced conceptual courses</td>
<td>18 s.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>30 s.h.</td>
</tr>
</tbody>
</table>
Editorial

19:181 Mass Communication Lab 4 s.h.
19:181 (181 option intended for students with special interest in public relations or organizational communications)

Electives
16-17 s.h.
19:251 Master's Research 3 s.h.
Final examination, last period of enrollment

Program requirements for students with professional experience in journalism or communication:
19:200 Master's Seminar 3 s.h.
Electives In the school (minimum) 9 s.h.
Electives in other departments up to 15 s.h.
19:251 Master's Research 3 s.h.
Final examination, last period of enrollment

The student must complete a master's professional project (19:251) under advisement 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 the advisor.

Communication and Mass Communication Emphasis
This emphasis offers a specialization in the study of communication phenomena with special emphasis upon theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work.

Program requirements:
19:200 Master's Seminar (two semesters) 2 s.h.
19:201 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
18:200 Communication Research: Historical Approaches 3 s.h.
or
18:201 Communication Research: Behavioral Approaches 3 s.h.
Electives in communication and mass communication and in other departments 10 s.h.
19:251 Master's Research 3 s.h.
Final examination, last period of enrollment

All students are expected to take coursework outside the School of Journalism and Mass Communication; the nature and extent of the outside work is to be determined by the student and faculty advisor.

Doctor of Philosophy
The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Such perspectives imply that an understanding of these phenomena cannot arise solely out of narrowly focused anishes of pressurized conditions. Rather, the approaches emphasize philosophical, evaluative, and critical inquiry into relationships between media and society across time and culture. The program's substantive nature is defined by the scholarly interests of the faculty, who turn most frequently to investigations of historical, legal, social and cross-cultural aspects of communication, both verbal and visual, and is organized in a series of courses and seminars.

The Ph.D program is highly individualized. Drawn 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 faculty research 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-oriented and seeks to explore different approaches to communication theory and research.

Other Special Facilities
The School of Journalism and Mass Communication is housed in the three-story Communications Center. The center has specialized laboratories for photography, typewriting, videocassette, typewriting, typewriting, videocassette, and print production, including a simulation electronic equipment. Many students use the newsroom and other facilities of the award-winning University student newspaper, The Daily Iowan, housed in the Communications Center. The center also has its own Resource Center/reading room and gallery for student and faculty photography and/or project displays.

Financial Aid
In addition to research and teaching assistantships for graduate students, more than $20,000 in scholarship and financial aid is available to both undergraduates and graduate students. To determine eligibility, write for more information.

Interests/ Professional Experience
The University of Iowa program has a strong commitment to providing students with media internship experiences. During the academic year, the school maintains a number of public relations internships through The University of Iowa Office of Public Information. University faculty members also help students arrange summer internships in Iowa and outside the state. The internships are designed and monitored to aid the student's professional growth. In addition to internships, student-operated and locally-owned media provide opportunities for professional experience.

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Semester in London

Each academic year, 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 some offered in conjunction with The City University of London. Courses at both a preprofessional and professional level are offered with classes in specialty reporting and the history of the British media available from The City University. In addition, internships with London news media are arranged or students. A journalism faculty member accompanies the group.

Courses

15:13 Introduction to Broadcasting and Film Production
- 2 a.h. Students are introduced to a wide range of radio and television production and writing. Emphasis is placed on creative production and the development of ideas and concepts for both radio and television. Prerequisite: 15:13 Introductory Audiovisual Production.
- 4 a.h. Introduces the fundamental concepts of film and television production, with an emphasis on the creative process. Prerequisite: 15:13 Introductory Audiovisual Production.

15:14 Mass Communication
- 4 a.h. A study of the principles and techniques of mass communication, with an emphasis on the role of the media in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:15 Introduction to Public Relations
- 4 a.h. An introduction to the principles and practices of public relations, with an emphasis on the role of the public relations professional in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:16 Journalism
- 4 a.h. A study of the principles and practices of journalism, with an emphasis on the role of the journalist in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:17 Public Relations Writing
- 4 a.h. A study of the principles and practices of public relations writing, with an emphasis on the role of the public relations writer in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:18 Broadcast News Writing
- 4 a.h. A study of the principles and practices of broadcast news writing, with an emphasis on the role of the broadcast news writer in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:19 Broadcast Production
- 4 a.h. A study of the principles and practices of broadcast production, with an emphasis on the role of the broadcast producer in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:20 Broadcast Directing
- 4 a.h. A study of the principles and practices of broadcast directing, with an emphasis on the role of the broadcast director in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:21 Broadcast Editing
- 4 a.h. A study of the principles and practices of broadcast editing, with an emphasis on the role of the broadcast editor in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:22 Broadcast Reporting
- 4 a.h. A study of the principles and practices of broadcast reporting, with an emphasis on the role of the broadcast reporter in society. Prerequisite: 15:13 Introductory Audiovisual Production.

15:23 Broadcast Production
- 4 a.h. A study of the principles and practices of broadcast production, with an emphasis on the role of the broadcast producer in society. Prerequisite: 15:13 Introductory Audiovisual Production.
Teaching and research facilities beside seven laboratories and a lecture hall.
Living accommodations include
• collages, dormitories, and large mess hall.

Financial Aid
The University of Iowa has established several
• Trivana H. Macbride
Scholarships in Natural Science for graduate and undergraduate students
attending the laboratory.

Registration
Current or former students of The
University of Iowa, the University of
Northern Iowa, and Iowa State University
should ask their registrars for information

Courses
Permit of the instructor is required for all courses. Enrollee is invited to
• six students in all courses. Classes meet
all day, every day. Courses vary
from year to year (see out¬
side Iowa Lakeside Laboratory bulletin), the
following are representative.

L29 Field Biology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L29 Aquatic Ecology
Lakes, rivers, and streams as habitats. Analysis of
• aquatic macrophytes, aquatic macrophytes,
• food chains, energy flow, plankton, and
• trophic relationships. For students
• least one course in biology and interest in

L28 Aquatic Ecology
Lakes, rivers, and streams as habitats. Analysis of
• aquatic macrophytes, aquatic macrophytes,
• food chains, energy flow, plankton, and
• trophic relationships. For students
• least one course in biology and interest in

L28 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L27 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L26 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L25 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L24 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L23 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L22 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L21 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L20 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L19 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L18 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L17 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L16 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.

L15 Field Ecology
Introduction to life and natural history, including
• field studies in brushy meadows, laboratory
• techniques, discussions of plant and animal
• interactions and behavior. Field and laboratory
• various reading and discussion. (4 credits.
Latin American Studies Program

Coordinating: Nora Engard

Faculty: professors David Bernard (Economist), Oscar Mairana (Spanish and Portuguese), Charles Hale (History), Hone Knapp (Economist), Michael McDade (Geographer), James Merino (Political Science), Peter Emeneau (Political Science), associate professor Thomas Claffin (Anthropologist), Enrico Embid-Rivera (Spanish and Portuguese), Robin Frank (Spanish and Portuguese), Oscar Tame (Spanish and Portuguese), Dorothy Dupont (Anthropologist), Mario Santizo (Spanish and Portuguese) assistant professor Susan Alexander (Economist), Michael Glidden (Anthropologist), Nora Engard (Anthropologist), Thomas Lauer (Spanish and Portuguese), John Miftah (Spanish and Portuguese), Ray Rostow (Economist), Christopher Roy (Art and Art History), Prospero Shroeder (Anthropologist), John T. With (Geographer and Portuguese). Marie Wather (Spanish and Portuguese) instructor Alicia Fernández (Anthropology)

Latin American Studies is an interdisciplinary undergraduate program which focuses on the history, politics, social organization, economy, art, and literature of Latin America. Students enrolled in the program may earn the Certificate in Latin American Studies or they may declare a minor in Latin American Studies. All students plan their programs in close cooperation with a Latin American Studies advisor.

Certificate Requirements

Primary Courses

To gain a basic knowledge about Latin America and breadth in a variety of disciplines that deal with the area, students seeking the Certificate in Latin American Studies must earn at least 18 semester hours of credit in courses selected from the primary courses listed below, including at least 6 semester hours in each of at least three of the four inter-disciplinary cooperating departments: Anthropology, History, Political Science, and Spanish and Portuguese. Primary courses are courses dealing specifically with Latin American topics.

Electives

Students choose 6 semester hours of electives from the primary course offerings.

Related Courses

The student chooses an additional 12 semester hours in related courses. These are courses whose content includes some material directly concerned with Latin America or that treat issues relevant to the area. Courses in this group may be selected from additional offerings of the primary departments, from approved courses offered by the related departments, and/or from other University courses approved by the student's Latin American Studies advisor.

Senior Seminar

Seminars in the program enroll in 115:132 Latin American Studies Seminar, a 4-semester-hour interdisciplinary course built around problems of specific interest to Latin American and taught by two faculty members from the primary departments.

Overlapping Credits

While the certificate program requires 49 hours of coursework, 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 3 semester hours from courses in their major department toward the minor.

Primary Courses

For a full listing of courses and major, see the listings in the appropriate departmental sections of the Catalog.

Anthropology

115:116 Ethnology of South America 3 s.h.
115:117 Ethnology of Mesoamerica 3 s.h.
115:118 Social Anthropology of the Caribbean 3 s.h.
115:131 Latin American Economy and Society 3 s.h.
115:132 Latin American Studies Seminar 3-4 s.h.
115:148 Comparing Cultures 3 s.h.
115:163 High Civilizations of Mesoamerica 3 s.h.

History

18:85 Culture and Politics of Latin America 3 s.h.
19:192 The Maxies Revolution 3 s.h.

Political Science

30:144 Latin American Government 3 s.h.
30:145 Major States of Latin America 3 s.h.
30:163 Latin American Relations 2-3 s.h.

Portuguese

38:210 Portuguese History II (Same as 35:210) 4 s.h.
38:214 Portuguese History II (Same as 25:214) 4 s.h.
38:103 Modern Brazilian Fiction I: Short Story 2 s.h.
38:104 Modern Brazilian Fiction II: Novel 2 s.h.
38:205 Brazilian Literature I 3 s.h.
38:106 Brazilian Literature II 3 s.h.
38:103 Tenth-Century Novel 3 s.h.
38:115 Brazil: People and Culture (Taught in English) 3 s.h.
Spanish
56:4 Hispanic World I 4 s.h.
(Same as 36:4. Taught in English.)
36:5 Contemporary Latin American Narrative 4 s.h.
(Same as 11:11. Taught in English.)
35:7 Hispanic World II 4 s.h.
(Same as 36:7. Taught in English.)
35:100 Readings in Hispanic Literature 3 s.h.
36:103 Contemporary Spanish American Fiction 3 s.h.
36:104 Spanish American Poetry 3 s.h.
35:105 Spanish American Drama 3 s.h.
35:107 Spanish American Literature of Fantasy 3 s.h.
36:112 Contemporary Latin American Novel and Short Story 3 s.h.
35:118 Spanish American Civilization 3 s.h.

Latin American Studies Related Courses

Political Science
30:60 Introduction to World Politics 4 s.h.

Portuguese
38:106 Black Literature of Portuguese Expression 3 s.h.
(Same as 40:106 and 109:103.)
38:116 Modern Portugal 3 s.h.
(Taught in Spanish.)

Sociology
30:105 Economic and Political Development: Women’s Roles 3 s.h.

Spanish
36:114 Spanish Civilization 3 s.h.
36:125 Introduction to Bilingualism 3 s.h.
(Same as 103:125.)
36:127 Chicano Literature 3 s.h.
(Taught in English.)
35:145 Chicano Language and Culture for Teachers 3 s.h.
(Taught in English and Spanish.)
36:150 Twentieth-Century Spanish Women Writers 3 s.h.

Letters

5 Committees chair: Alan H. Negr

Art and Art History
91:102 Introduction to African, Oceanic, and Pre-Columbian Art 3 s.h.
1H:106 Art of Pre-Columbian America 3 s.h.

Economics
6E:125 International Economics 3 s.h.

6E:126 International Economics 3 s.h.

6E:127 Natural Resources in the World Economy: Control and Conflict 3 s.h.
6E:129 Economic Development: Underdeveloped Areas 3 s.h.

Geography
44:145 World Cities 3 s.h.
44:162 The Third World 3 s.h.

(a) of what it is for man to tell stories, poetic verses, or write what will be read by others from the printed page. It is equally possible for students of literature to raise questions about the nature and theory of literature, or to investigate the relation of literary production and artifacts to other kinds of thought and action in culture, society, politics, and economics.

For many students, the major in Letters provides a grasp of course of study in the humanities while allowing considerable freedom in the choice of concentration. Students looking toward teaching world literature in translation or general literary subjects and those intending to pursue graduate study in comparative or national literature may choose the B.A. in Letters. Future professionals in such fields as medicine and law may find the major in Letters a satisfying criterion toward the B.A. The B.A. program in Letters encourages the student to work chiefly with one or more advisors in developing an individual course of study. One student might study classical and modern theatre, and literature and fiction from several countries; another might include work in film or practice printing on a hand press. The program requires that a student do work in three different national literatures or literary traditions, with some experience of historical diversity. Students doing well in English must complete at least 30 semester hours of coursework in literary subjects; students who complete at least 6 semester hours of study in a foreign language in the original language are required to take a total of at least 30 semester hours in literature for the B.A. Appropriate courses in linguistics, creative writing, translation, and interdisciplinary studies concentrating on literary materials may be included toward completion of the major.

Courses

International or Comparative Themes and Problems

108:1 Spanish and Portuguese in the Americas 3 s.h.

Introduction to the varieties of style, letters, and languages of the world, and exploration of major problems of understanding and value, much emphasis on reading and writing, and in practicing different uses of language. Students in the major in Letters are expected to read and write in different languages and cultures.
To help students develop a philosophy of librarianship, which includes a commitment to the cause of intellectual freedom and to the ideal of 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.

To provide students with a foundation in the techniques and procedures of effective information service that is, the selection, acquisition, organization, storage, retrieval, and dissemination of information).

To familiarize students with bibliographic techniques and sources of information in a broad range of subject fields and media formats.

To introduce students to management theory as it applies to library administration and to prepare the student to assume professional responsibilities of identifying needs, setting goals, analyzing problems, formulating programs and evaluating results.

To provide students with opportunities for clinical library experience under supervised direction and the pursuit of related courses of study to meet special career needs.

To increase awareness of the contributions of other disciplines to librarianship, a critical understanding of the role of a library in the advancement of the profession, and the importance of continuous professional growth.

Public Service Objectives

To offer library personal and library trustee opportunities for continuing education to advance and update their awareness of current developments in library operations and services.

To provide consulting services to individuals, libraries, and organizations in order to promote better library service for the citizens at large and surrounding areas.

To participate in professional organizations at local, state, regional, and national levels in the pursuit of common goals within the profession.

Research Objectives

To engage in research on library problems and areas related to library service 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 in which they have special relevance to library service in the state of Iowa.

Undergraduate Study

Although there is no undergraduate major in library science, junior and seniors may enroll in the introductory library science and children's literature courses (100-level).

Master of Arts

Professional preparation for careers in all types of libraries is provided by the school's Master of Arts program, accredited by the American Library Association.

The school also offers a nondegree graduate program for certification in school librarianship.

The Master of Arts degree in library science requires 33 semester hours of graduate credit with a minimum grade-point average of 2.5. In addition, the student must pass a comprehensive examination.

Public Library Work

A major concern of public librarians is to design innovative service programs to reach those segments of the population now absent, as well as to provide a full range of services to all members of the community.

Basic Plan of Study

Core courses (Required of all M.A. candidates) 12 s.h.

21:151 Reference 1 3 s.h.

21:152 Cataloging and Classification 2 3 s.h.

21:153 Selection of Library Materials 2 3 s.h.

21:301 Management of Libraries and Information Centers 2 3 s.h.

Type of library course (one required) 3 s.h.

21:231 The Public Library 2 3 s.h.

21:232 The College and University Library 2 3 s.h.

21:233 School Media Center Administration 2 3 s.h.

Bibliography course (one required) 3 s.h.

21:241 Bibliography of the Humanities 2 3 s.h.

21:242 Bibliography of the Social Sciences 2 3 s.h.

21:243 Bibliography of the Sciences 2 3 s.h.

Electives 6 s.h.

Students are expected to take their elective hours in library science courses. However, when a student has had extensive undergraduate coursework in library science, when career objectives indicate, and with the advisor's consent, the student may take elective hours in other University departments, especially in closely related areas such as computer science, educational media, urban and regional planning, municipal government, etc.

With the director's approval, a student with a strong background in library science may elect to write a thesis for which 6 semester hours of credit may be earned. However, most students are advised to undertake the nonthesis program.

The program normally requires two semesters and one summer of resident study, or, in the case of students attending summers only, a minimum of four summer sessions.
the community. Management skills are often needed in these positions.

**Required Courses**

- Core courses
- Bibliography course
- 21:331 The Public Library

**Suggested Electives**

- 21:213 Library Services to Adults
- 21:222 Multi-Media Concepts in Libraries
- 21:249 Introduction to Information Science
- 21:249 Research Methods
- 21:251 Advanced Reference
- 21:252 Advanced Cataloging
- 21:252 Practical in Libraries
- 21:252 Library Services to Children and Young Adults
- 21:253 Library Services to Children and Young Adults
- 21:254 Library Services to Children and Young Adults

**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 teaching 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.

**Required Courses**

- Core courses
- Bibliography course
- 21:222 Multi-Media Concepts in Libraries
- 21:213 School Media Center Administration

**Suggested Electives**

- 21:123 Children’s Literature
- 21:124 History of Children’s Books
- 21:125 Literature and Storytelling for Children
- 21:193 Literature for Adolescents
- 21:222 Multi-Media Concepts in Libraries
- 21:234 Library Services to Children and Young Adults
- 21:249 Research Methods
- 21:251 Advanced Reference
- 21:262 School Media Center Problems
- 75:281 Junior High School and Middle School Curriculum
- 75:281 Secondary School Curriculum
- Additional courses in educational media

**College and University Library Work**

The academic library, whether in a community college or a university, provides services to students, faculty, and staff relating to their information, education, and research needs. Management or supervisory responsibility is often required. Special competencies may be necessary, such as a subject or language specialty or an activity specialty (classification and indexing, information systems, etc.).

**Required Courses**

- Core courses
- Bibliography course
- 21:222 The College and University Library

**Suggested Electives**

- 21:249 Introduction to Information Science
- 21:249 Research Methods
- 21:251 Advanced Reference
- 21:252 Advanced Cataloging
- 21:255 Government Publications
- 21:255 Medical Librarianship and Bibliography
- 21:255 Law Librarianship, Bibliography, and Research Techniques
- 21:252 Practical in Libraries
- Additional bibliography courses

**Work in Special Libraries**

Special libraries function in such settings as government agencies, industrial firms, hospitals, museums, and publishing companies. In addition to management skills, the special librarian often needs a subject specialty.

**Required Courses**

- Core courses
- Bibliography course
- Type-of-library course
- 21:330 Special Libraries

**Suggested Electives**

- 21:249 Introduction to Information Science
- 21:249 Research Methods
- 21:251 Advanced Reference
- 21:252 Advanced Cataloging
- 21:255 Government Publications
- 21:255 Medical Librarianship and Bibliography
- 21:255 Law Librarianship, Bibliography, and Research Techniques
- 21:252 Practical in Libraries

**Certification in School Librarianship**

Students who desire to become school librarians may fulfill certification requirements within the M.A. program, or they may pursue a nondegree certification program. The certification program, a 30-semester-hour sequence, accepts both undergraduate and graduate coursework, and does not require a foreign language for admission. The required courses and suggested electives are the same as those listed above under “School Library Work,” except that a bibliography course is not required.

The student must hold an approved teaching certificate, either at the elementary or the secondary school level. Completion of the certification program provides authorization to serve as a librarian for kindergarten through grade 12.
Joint Program in Business Administration and Library Science

Today's professional librarian faces ever-increasing demands for knowledge and expertise in the functional areas of administration and management. In addition to understanding the principles of library science, the librarian, whether in an academic or public setting, is discovering the importance of understanding and applying the principles for effective management of complex organizations. In order to offer students an opportunity to gain a solid understanding of the problem-solving techniques of each area, the College of Business Administration and the School of Library Science have developed a joint program which leads to two degrees—the Master of Business Administration (M.B.A.) and the Master of Arts (M.A.) in Library Science.

To enroll in the joint program the student must apply to and be accepted by both Graduate Studies in Business and the School of Library Science. The joint program enables the student to apply 6 semester hours of business electives toward the M.B.A. in Library Science and 9 hours of library science electives toward the M.A.B.

The student must complete a minimum of 80 hours in order to receive the two degrees. Students not having previous coursework in business administration must be required to complete up to 72 semester hours of coursework in the joint program.

Facilities and Resources

The School of Library Science in the south wing of the University's Main Library provides well-planned facilities for the varied instructional and research activities of the school. A media lab provides equipment and space for slide-tape production, videotape programming, super-8 film making, filmstrip production, dry mounting, 16mm film previewing, and simple film editing.

Computer facilities include an on-line lab with two CRT terminals and one printing terminal, providing access to the University's CYBER system, national bibliographic data basee, and OCLC (a national on-line library network).

A variety links the school with a state network of academic and public libraries, by which students provide back-up reference service to libraries throughout the state.

A departmental library contains approximately ten thousand volumes and two hundred periodical titles.

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than two million volumes in the Main Library and 12 departmental branches.

In addition, students have access to a variety of libraries for clinical and laboratory purposes: the State Histrical Society Library in Iowa City; the Iowa City and Cedar Rapids public and school libraries; the CoE, Cornell, and Grinnell college libraries; and, by arrangement, the Herbert Hoover Presidential Library in West Branch, Iowa.

Placement

Prospective students are advised that since the job market for entry-level librarians has diminished, graduates with strong personal and academic qualifications, flexibility, and geographic mobility will be most successful in finding positions. The school provides placement assistance to its graduates seeking employment.

Admission Requirements and Procedures

Scholastic requirements for admission to the M.A. program include:

A baccalaureate degree from an accredited college or university, with a minimum grade-point average of 2.5 on a 4.0 scale, and at least 30 semester hours of study in liberal arts and sciences;

One year of college credit in a foreign language with a grade of C or better, or an equivalent level of achievement;

A combined verbal/quantitative score of 950 Graduate Record Examination (GRE) Aptitude Test. Personal qualifications and aptitude for library work are assessed by means of letter of recommendation by a personal interview with the director of the school or the director's assistant, and another member of the faculty. In the case of extreme distance, an alternate interview may be provided near the applicant's home. The school does not accept every applicant who meets the minimum admission requirements; an admissions committee selects each class on a competitive basis. The applicant's professional promise is an important consideration.

Applicants are requested to write to the School of Library Science for a preliminary information form. The information provided on the form indicates that the applicant satisfies the basic admission requirements, the school will schedule a personal interview.

Prospective students are urged to begin application procedures early enough to complete all requirements by the deadlines given below. The applicant needs to allow more time if he or she has not already taken the GRE aptitude test.

Completed applications should be received by the school not later than March 1 for fall semester consideration; October 1 for the spring semester, or February 1 for the summer session. Decisions of the admissions committee are announced two to three weeks after each deadline. Late applications will be considered if places are still available.

Financial Assistance

The School of Library Science awards partial-fellowship scholarships, as well as quarter-time graduate assistantships. To be considered for a grant, an applicant must have at least a 3.0 undergraduate grade-point average (4.0) and combined verbal-quantitative scores of 1100 on the Graduate Record Examination (GRE) Aptitude Test. Those who do not meet these requirements when entering the program may apply for financial aid after completing 12 semester hours of graduate work with a
with other languages which may or may not be historically related. Linguists do 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 linguist's laboratory may be in her mind and a vehicle and paper. Another may work with acoustical equipment. Others read computers. Some go into sound-visited places to study, describe, and analyze little-known languages which may be in danger of extinction. Some go into their own communities to study the relationship between language variation and socioeconomic structure, or race, or sex. Still others, interested in language change, sound 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 which are relevant for Chicano, black, and native American. They may help intelligence-test and achievement-test makers avoid discrimination against those who are not middle-class while Americans, or help librarians use computers to manage massive amounts of information. They may work with speech clinicians to retain people with linguistic disabilities.

Undergraduate Program

Because language is a medium of informational, emotional, and aesthetic communication, yet can also be analyzed scientifically, a major in linguistics embodies all the virtues of the liberal arts education.

High scores on verbal 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 linguists should consider either pursuing their studies toward 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, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and elementary, secondary, and special education.

The Bachelor of Arts degree in linguistics prepares the student to do basic language analysis in syntax-semantics (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of sub-specialties enable each student to tailor a program to his or her own interests.

The major in linguistics requires 24 semester hours of work in the department. It includes a general introduction and courses in syntax, phonetics, phonology, methods of analysis, and language history.

Graduate Programs

Emphasis in all graduate programs is on theory and research. Students interested in interdisciplinary careers may also take advantage of a number of courses in applied linguistics or in other fields, either in connection with doctoral work or as a standard option of the M.A. program.

Master of Arts

All students take a required set of core courses followed by comprehensive examinations in phonology and syntax-semantics. Students choosing to write a thesis take at least 9 semester hours of electives courses, exclusive of thesis hours, and may receive up to 6 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 (consisting of 12 hours of coursework) and take at least 3 semester hours of elective courses. The major purpose of the focus area is to qualify the student for future career opportunities. The focus may either be designed in advance by the student (subject to departmental approval), or be one of a set of predetermined options (for example, teaching English as a foreign language).

All electives must be chosen from an approved list furnished by the department. Students should expect either to take at least 30 hours of coursework and write a thesis, or to take at least 36 hours of coursework. All students must have a minimum of 30 hours of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The aims of the Ph.D. program are to develop graduates highly competent in theoretical linguistics, and to provide graduates with the theoretical skills necessary for understanding and exploring the close relationship between linguistics and related disciplines.

The core requirement for the program includes two upper-level syntax courses (for example, Syntactic Theory and either Advanced Syntactic Theory or Advanced Syntactic Analysis) and two upper-level phonology courses (for example, Phonological Theory and Advanced Phonological Theory), and at least two seminars, for a total of 18 semester hours. An approved 18-hour specialty area is also required, and students must achieve proficiency in at least two foreign languages (as specified by departmental regulations).

Comprehensive examinations cover phonological theory, syntactic theory, theory of language change (historical linguistics and sociolinguistics), and the specialty area. An oral defense of the dissertation and three years of residence are also required. In addition, all candidates are required to gain supervised experience in teaching and research.

Special Facilities

The Department of Linguistics has an acoustic lab consisting of a sound spectrograph, a studio-type tape recorder, and an acoustic chamber. There is also a remote terminal connected to the University computing center.

The departmental reading room functions to allow a close relationship between faculty and students, and a considerable influence of students upon departmental affairs, and a high degree of individual instruction. A large part of the student's
education in linguistics is conducted informally through daily conversations among students and faculty members. Students and faculty members meet in informal colloquia to discuss research in which students and staff are engaged.

The department also has a practicum laboratory (103-107) to provide experience in teaching English as a foreign language.

Financial Aids

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.

Courses

Special English courses for foreign students: 103-10 and 108-184-189.

Primarily for Undergraduates

103-10 English for Foreign Students 3 a.h

Teaching in spoken and written English for native speakers of English. Prerequisite: permission of department.

103-11 Language and Society 4 a.h

Comparative aspects of social and linguistic behavior: methods for discovering and describing socially significant language behavior; educational and political implications of language. Social science experience recommended.

103-20 Special Project 4 a.h

Independent research as a linguistic topic, directed by member of staff.

For Undergraduates and Graduates

103-100 Introduction to Linguistics 3 a.h

Variety of topics in general linguistics. Same as 401-10 and 102-101.

103-103 Language, Society, and Education 3 a.h

Basic concepts and terms in language use and development of prescriptives, linguistic indices of socioeconomic status, concepts of a "standard" language and dialect of a language. Same as 103-100.

103-108 Teaching English as a Foreign Language 3 a.h

Delineation of processes in language development and planning teaching, testing. Prerequisites: 103-100, 103-110, and 103-141.

103-107 Practice in Teaching English as a Foreign Language 3 a.h

Practicum experience in teaching English as a second language preparation of materials for classroom instruction. Prerequisites: 103-108 and consent of instructor.

103-110 Introduzione e Azienda Fisiologica 2 a.h

Introduction to general phonetics: articulatory and acoustic phonetics; historical and phonological phonetics; descriptive phonetics. Prerequisites: 103-100.

103-110 Phonological Analysis 2 a.h

Analysis of problems in phonological analysis in the framework of generative theory. Prerequisites: 103-110.

103-112 Lexical Field Methods 3 a.h

Use of dictionaries and method of historical etymology: principles of etymological dictionary; electronic etymological dictionaries. Prerequisites: 103-110.

103-114 Language Data Processing 3 a.h

Introduction to computer techniques for processing large sets of linguistic data. Prerequisites: 103-100, 103-110, and one course in computer science or mathematics. Prerequisites: 103-110.

103-116 Historical and Comparative Linguistics 3 a.h

Principles of Historical and Comparative Methodology and general classifications of languages, historical reconstruction and language typology. Prerequisites: 103-112.

103-118 Theoretical Syntax 3 a.h

Deductive examination of the nature of linguistic arguments, critical and creative research. Prerequisites: 103-111.

103-120 Theoretical Pragmatics 3 a.h

Basic issues in generative pragmatics. Prerequisite: 103-118.

103-121 Introduction to Semiotics 3 a.h

Prerequisites: 103-112.

103-122 Introduction to Semiotics 3 a.h

Prerequisites: 103-112.

103-123 History of the English Language 3 a.h

Prerequisites: 103-112.

103-124 History of the English Language 3 a.h

Prerequisites: 103-112.

103-125 Structure of English 3 a.h

Prerequisites: 103-112.

103-126 Structure of English 3 a.h

Prerequisites: 103-112.

103-127 History of the Chinese Language 3 a.h

Same as 103-126.

103-128 History of the Chinese Language 3 a.h

Same as 103-126.

103-129 Syntax 3 a.h

Prerequisites: 103-112.

103-130 Syntax 3 a.h

Prerequisites: 103-112.

103-131 Syntax 3 a.h

Prerequisites: 103-112.

103-132 Syntax 3 a.h

Prerequisites: 103-112.

103-133 Syntax 3 a.h

Prerequisites: 103-112.

103-134 Syntax 3 a.h

Prerequisites: 103-112.

103-135 Syntax 3 a.h

Prerequisites: 103-112.

103-136 Syntax 3 a.h

Prerequisites: 103-112.

103-137 Syntax 3 a.h

Prerequisites: 103-112.

103-138 Syntax 3 a.h

Prerequisites: 103-112.

103-139 Syntax 3 a.h

Prerequisites: 103-112.

103-140 Syntax 3 a.h

Prerequisites: 103-112.

103-141 Syntax 3 a.h

Prerequisites: 103-112.

103-142 Syntax 3 a.h

Prerequisites: 103-112.

103-143 Syntax 3 a.h

Prerequisites: 103-112.

103-144 Syntax 3 a.h

Prerequisites: 103-112.

103-145 Syntax 3 a.h

Prerequisites: 103-112.

103-146 Syntax 3 a.h

Prerequisites: 103-112.

103-147 Syntax 3 a.h

Prerequisites: 103-112.

103-148 Syntax 3 a.h

Prerequisites: 103-112.

103-149 Syntax 3 a.h

Prerequisites: 103-112.

103-150 Syntax 3 a.h

Prerequisites: 103-112.

103-151 Syntax 3 a.h

Prerequisites: 103-112.

103-152 Syntax 3 a.h

Prerequisites: 103-112.

103-153 Syntax 3 a.h

Prerequisites: 103-112.

103-154 Syntax 3 a.h

Prerequisites: 103-112.

103-155 Syntax 3 a.h

Prerequisites: 103-112.

103-156 Syntax 3 a.h

Prerequisites: 103-112.

103-157 Syntax 3 a.h

Prerequisites: 103-112.

103-158 Syntax 3 a.h

Prerequisites: 103-112.

103-159 Syntax 3 a.h

Prerequisites: 103-112.
Natural, social sciences 12 s.h.
Philosophy, religion, history 12 s.h.
Literature beyond core requirements 12 s.h.
Fine arts (excluding studio courses) 3 s.h.
Foreign language: one semester beyond second year; foreign language courses in the original language may also be used to satisfy the requirement in literature 3 s.h.
Students considering an LSA major should consult with the chair before 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.

Courses
2331 The Pursuit of Happiness 3 s.h.
2361 Love in the Western World 3 s.h.
2511 Myth and Reason 3 s.h.
2513 The Good Society 3 s.h.
2515 Vision in the Contemporary World 3 s.h.
2516 Humor in Society 3 s.h.
2517 Biblical Interpretations in Oratory and Speech 3 s.h.
2518 Special Projects 3 s.h.
2519 Independent Study for Freshmen 4 s.h.
2519 Independent Study for Seniors 4 s.h.
2519 Independent Study for Freshmen 4 s.h.
2519 Independent Study for Seniors 4 s.h.
2521 History and Philosophy of Science 3 s.h.
2522 Grammatical Analysis of English as a Second Language 3 s.h.
2523 Historical, Ethnological, and Anthropological Studies of the Problems of Women 3 s.h.

Division of Mathematical Sciences

Bachelor of Arts

In addition to at least one year of calculus (either 22M:25-26 Calculus I and II or 22M:35-36 Engineering Calculus I and II), the student must take at least seven additional approved courses, each carrying at least 3 semester hours of credit. Except for students electing the applied mathematical sciences option, these seven courses must be from the division, and (except for students seeking a secondary teaching certification) must include either two of the courses in the first group below, or one of the combinations in the second group.

Either two from this group:
22C:116 Operating System Principles 3 s.h.
22C:125 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.
22C:145 Artificial Intelligence I 3 s.h.
22M:100 Introduction to Ordinary Differential Equations 3 s.h.
22M:101 Introduction to Partial Differential Equations 3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.

22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
22M:110-111 Elementary Topology I-II 6 s.h.
22M:115 Introduction to Analysis 3 s.h.
22M:120-121 Abstract Algebra I-II 6 s.h.
22M:130-131 Theoretical Mechanics I-II 8 s.h.
22S:163 Introduction to Probability 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:164 Introduction to Mathematical Statistics 3 s.h.
22S:180-181 Actuarial Theory I-II 7 s.h.

Students should consult the division office concerning courses which may not be applied toward the seven-course requirement. Students who complete the requirements for a secondary teaching certificate may take any two 100-level courses among their seven required courses in mathematics.

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 adviser will work out a program reflecting the student’s interests. The requirements are flexible enough to accommodate changes in students’ interests.

Suggested Programs

General Program

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 Computer OR 22M:7 Introduction to Computer, preferably along with calculus during the freshman year. The
Elements of Group Theory, 22M:56
Fundamental Properties of Spaces and Functions, or 22M:103
Foundations of Mathematics II, and it should include at least a semester's work in statistics and probability.

The student should take additional work, in particular the required 100-level courses, in whatever area of
teaching in probability and/or upon completion of the B.A. degree should consider
22C:17 Programming with PL/I and courses in numerical analysis, applied
statistic, and operations research.

Applied Mathematics
All students interested in applied mathematics should take the sequence
Algebra or the sequence 22M:35-37 Engineering Calculus I-II and 22M:38 Differential Equations and Linear
Algebra.
Algebra, are recommended.


Students in applied mathematics should be familiar with computer programming (C/C++ introduction to Computing with FORTRAN can be taken early with
calculus) and with the basic ideas of probability and statistics (the courses
22M:153 Introduction to Probability and 22M:164 Introduction to Mathematical
Statistics I or 22M:120 Probability and Statistics are appropriate).

To acquire an understanding of how mathematics is used in other areas, it is
recommended that the student take a set of courses, involving mathematics in a
significant way, outside the Division of Mathematical Sciences. Students who
plan to do graduate work in applied mathematics should take 22M:115 Introduction to Analysis I.

Mathematics Education
Mathematics courses required for students in mathematics education are

Elements of Group Theory, 22M:56
Fundamental Properties of Spaces and Functions, or 22M:103
Foundations of Mathematics II, and it should include at least a semester's work in statistics and probability.

The student should take additional work, in particular the required 100-level courses, in whatever area of
teaching in probability and/or upon completion of the B.A. degree should consider
22C:17 Programming with PL/I and courses in numerical analysis, applied
statistic, and operations research.

Actuarial Science
The student who plans to enter the actuarial profession should be guided in
courses selected by the program of
equation and examinations carried on by the principal actuarial organizations.

A student is recommended to take
22M:27 Introduction to Linear Algebra or the sequence 22M:35-37 Engineering Calculus I-II and 22M:38 Differential Equations and Linear
Algebra, the student should take

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 and
Funding.

Students are encouraged to take
at least one course in computer science and a substantial program of courses from the College of Business
Administration. If a student is unable to
complete such a program as an undergraduate, he or she may be advised to take a year of graduate
work.

Probability and Statistics
The basis for this program in the
calculus sequence 22M:25-28 Calculus I-II and 22M:27 Introduction to Linear
Algebra, or 22M:35-37 Engineering
Calculus I-II, together with one of these three sequences:
22M:153 Introduction to Probability and 22M:164 Introduction to Mathematical
Statistics I or 22M:120 Probability and Statistics, or 22S:185 Introduction to Stochastic Processes; or
22S:120 Probability and Statistics and 22S:186 Analysis and Design of

A program in mathematics education might include any of the 100-level courses, and should include at least one in
Methods of Statistical Inference, and/or 22S:184 Introduction to Mathematical
Statistics I. Students in mathematics education also must have proficiency in
one computer programming language.

Pure Mathematics
Students interested in this area of mathematics should take two of these sequences:
Elementary Topology I-II; and at least two of these courses a 100-level outside
this area, for example, 22S:7 Introduction to Computing with
FORTRAN, 22S:153 Introduction to Probability with PL/I, 22S:100 Introduction to Ordinary
Differential Equations, 22S:118-119 Complex Variables, 22S:123 Introduction to Probability, or 22S:154 Introduction to
Mathematical Statistics I.

22S:185 Actuarial Mathematics I, Probability, 22S:184 Introduction to Mathematical

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 and Funding.

Students are encouraged to take at least one course in computer science and a substantial program of courses
from the College of Business Administration. If a student is unable to complete such a program as an undergraduate, he or she may be advised to take a year of graduate work.

Probability and Statistics
The basis for this program in the calculus sequence 22M:25-28 Calculus I-II and 22M:27 Introduction to Linear Algebra, or 22M:35-37 Engineering Calculus I-II, together with one of these three sequences:
Experiments or 22S:182 Regression Analysis.

Students should also select one or two courses in computer science from 22C:7 Introduction to Computing with
Fortran, 22C:17 Programming with PL/1, or 22C:18 Assembly Language Programming; and one or two courses in
teaching methods from 22M:55 Fundamental Properties of Spaces and Functions, or 210 Analysis for Applications, and
22M:115 Introduction to Analysis I. Substantial work in one of the
technical, 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
Operations Research II, and 586:149
Digital Systems Simulation I.

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 numbered 100 or above taken before the first year of calculus:

Either 22M:27 Introduction to Linear Algebra or 22M:36 Differential Equations and Linear Algebra;
At least three of the Division of
Mathematical Sciences courses numbered 22M:50 or above (excluding 22M:80-81 and including at least one courses 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 adviser’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 specially-designated program
advisers.

Transfer Students

Undergraduate transfer students in
mathematics must earn at least 9 semester hours of credit in Division of
Mathematical Sciences courses beyond the first year of calculus or 22C:18
Introduction to Programming with PL/1.

Minor

Courses designated as upper-level for
the purpose of satisfying minor field
requirements in mathematical sciences are 22C:21 Data Structures and above
(excluding courses not open to computer
science majors for degree credit); 22M:26 Calculus III, 22M:50 Elements of
Group Theory and above (excluding
22M:80 Theory of Arithmetic and 22M:81 Geometry for Elementary Teachers); and
22S:103 Introduction to the Design of
Sample 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 adviser
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

Financial, physical, or medical, and the methodology
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, and the necessary background knowledge in the area of
science in which the student will do his or her thesis research. A comprehensive examination over this coursework will be given after approximately two or three years in the program. Fulfilling all the requirements, 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 by June 1st for the fall semester. For application forms and further information about the academic program, write to the Chairman, Program in Applied Mathematical Sciences, Graduate College, The University of Iowa, Iowa City, Iowa 52242.

Courses

22C:171 Senior in Applied Mathematical Science 4 h.
Prerequisite: consent of instructor.
22C:188 Reading and Research 5 h.
Prerequisite: consent of advisor.

Computer Science

Department chair: Theodore J. Stepanek
Faculty: professors David L. Powers, Arthur C. Fleth,
associate professors Donald A. Aron, Robert J.
Basin, K.V. Babu, Michael S. Ercolani, Joan P.
Stein, Theodore J. Stepanek, associate professors
Alan O. O'Brien, Michael J.
associate professors Charles C. Morlock, director William F. Coker

Degree offered: B.A., B.S., M.S., Ph.D.

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:16 Calculus I 4 h.
22M:20 Calculus II 4 h.
22M:27 Introduction to Linear Algebra 4 h.
22C:18 Introduction to Programming with PL/1 4 h.
22C:17 Programming with PL/1 3 h.
22C:16 Assembly Language Programming 3 h.
22C:21 Data Structures 3 h.
22C:23 Programming Language Concepts 3 h.
22C:31 Digital Systems and Computers 3 h.
22C:32 Introduction to Systems Software 3 h.
22C:50 Discrete Structures or 22C:55 Elementary Numerical Analysis 3 h.
Total 17 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. Undergraduate handbook, available at the Division of Mathematical Sciences office, includes suggested 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 15 semester hours in computer science courses, including 12 semester hours taken from among:

22C:21 Data Structures 3 h.
22C:23 Programming Language Concepts 3 h.
22C:31 Digital Systems and Computers 3 h.
22C:32 Introduction to Systems Software 3 h.
22C:50 Discrete Structures 3 h.
22C:55 Elementary Numerical Analysis 3 h.
Any course numbered above 22C:114 3 h.

Master of Science

A candidate for the M.S. degree in computer science must have completed the following courses or acquired equivalent proficiency:

22C:116 Operating System Principles 3 h.
22C:122 Advanced Computer Organization and Architecture 3 h.
22C:123 Programming Language Foundations 3 h.
22C:136 Introduction to Computation Theory 3 h.
A 200-level 22C course 3 h.
Another 22C course selected from 22C:127, 22C:144, 22C:145, 22C:153, 22C:156, or any 200-level course 3 h.
Mathematics and/or statistics courses 6 h.
Additional approved courses 6 h.
Total 30 h.

Recommended mathematics, statistics, and additional courses depend upon the student’s career objectives.

The student who intends to pursue applied computer science might profitably elect courses from:

22M:100 Matrix Theory 3 h.
22M:152 Theory of Graphs 3 h.
22S:120 Probability and Statistics 3 h.
22S:159 Introduction to Probability 3 h.
22S:164 Introduction to Mathematical Statistics I 3 h.
22S:168 Analysis and Design of Experiments 3 h.
Courses in business administration or industrial engineering.
Any M.S. candidate may elect to write a thesis, and with the advisor’s consent may apply up to 9 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 covering 22C:116 Operating System Principles, 22C:122 Advanced Computer Organization and Architecture, 22C:123 Programming Language Foundations, and 22C:126 Introduction to Computation Theory. The written examination attempts to conform
the interfaces between these four courses as well as the content of the separate courses.

Students should consult the Graduate Handbook for further information.

It is strongly recommended that the applicant for admission 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 equivalents of the courses required in The University of Iowa's computer science graduate curriculum is expected to complete these courses prior to admission to graduate courses.

Doctor of Philosophy

Doctoral students are expected to complete 60 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. Usually, however, the Ph.D. student acquires a master's degree either in computer science or in some other mathematical or physical science, during his or her course of study. Every Ph.D. candidate in computer science is expected to be knowledgeable in the following four categories:

Programming concepts, including programming, programming languages, design of algorithms, simulation, artificial intelligence, and numerical analysis;
Theory of computation, including automata theory, computability and formal languages, and analysis of algorithms;
Mathematical foundations, including set theory, algebra, analysis, logic, and graph theory; and

Computer systems, including operating systems, computer architecture and logical design, and database systems.

Although the plan of study for each student will be drawn up by the student and his or her committee to fit any special needs, every student is expected to complete approximately half of the coursework toward the Ph.D. in the first two categories above.

Graduate Service Courses

*Competence and experience in the use of a digital computer in problem solving is useful and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence 292/108 Introduction to Programming with PL/1 and 292/107 Programming with PL/1 is recommended. Students in fields in which other programming languages are heavily used may find 292/100 Introduction to Computing with FORTRAN, 292/108 Assembly Language Programming, or 292/109 Programming with COBOL more appropriate. The one-semester PL/1 course 292/110 Computing with PL/1 is recommended only for students with considerable programming experience using other languages.

Courses

Primarily for Undergraduates

292/300 Computer Education Tinkering Seminar
3 s.h.
292/301 Survey of Computing
3 s.h.
The nature, use, and limitation of computer and computing as evidenced in a terminal sample of basic concepts and operations. Survey of computer systems, programming, computer architecture, programming, computer-assisted instruction, information retrieval; the impact of computing technology on society.

292/7 Introduction to Computing with FORTRAN
3 s.h.
Basic concepts of computer structure and programming techniques, elementary assembly-language programming, algorithms, data representations, loops and data storage, major emphases on programming with FORTRAN.
292/8 Programming with COBOL
3 s.h.
Use of the business oriented language COBOL. Elementary concepts of programming, programming techniques for file handling, sorting, generation of reports from files, and maintenance of sequential and random-access files. Prerequisite: 292/108.

292/16 Introduction to Programming with PL/1
4 s.h.
Programming and program design techniques using portions of PL/1: programming language, variables, expressions, structured control constructs, internal algorithmic representations and character data; operation on structures: arrays, records, and lists. Prerequisite: 292/108.

292/17 Programming with PL/1
4 s.h.
Construction of 292/16-based structure, name scope, memory allocation and design of program linkage and data structures and pointers. Introduction to operating systems. Prerequisite: 292/16.

292/18 Assembly Language Programming
3 s.h.
Representation of data and instructions, CPU organization, addressing, memory storage, and use of basic register instruction set programming language. Overview of contemporary assembly language computing, the use of machine and symbolic languages. Prerequisite: 292/18 or 292/17.

292/29 Data Structure
3 s.h.
Overview of techniques and fundamental data structures. Techniques used for representing, organizing, and operating on links and lists. Representations, operations, and algorithms. Prerequisite: 292/20.
**Mathematics**

**Undergraduate Programs**

See "Division of Mathematical Sciences" in this section of the Catalog.

**Graduate Programs**

**Master of Science**

The M.S. programs include one intended primarily for secondary school teachers (I), one intended for students planning to work in industry or government (II), an applied mathematics program (III), and a program designed for students seeking the Ph.D. degree in other disciplines requiring considerable mathematical knowledge (IV). In each, the student must take comprehensive examinations over the material in the required courses. The student may choose other courses from any of the departments in the Division of Mathematical Sciences or from outside the division, with his or her advisor’s consent. With the permission of the graduate committee, a candidate in this program may substitute an appropriate part of the Ph.D. comprehensive examination for part of the master’s examination.

**Program III**

This program is oriented toward applied mathematics. Students in this program must take these required courses:

22M:101 Introduction to Partial Differential Equations
22M:102 Intermediate Differential Equations
22M:106 Continuous Mathematical Models
22M:135 Optimization Techniques
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
22M:171 Numerical Analysis: Differential Equations and Linear Algebra

Two from the following:

22M:118 Complex Variables
22M:150 Matrix Theory
22M:161 Discrete Mathematical Models
22M:163 Theory of Graphs
22M:166 Operating System Principles
22M:153 Design and Analysis of Algorithms
22M:154 Introduction to Mathematical Statistics
22M:155 Introduction to Mathematical Statistics
22M:167 Introduction to Stochastic Processes

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the Division of Mathematical Sciences. Students who have coursework or experience equivalent to the required courses may substitute electives.

**Program IV**

This program is designed for nongraded mathematics students working toward a Ph.D. in another area requiring mathematical knowledge. The program has no required courses. Course distribution requirements are the same as for program III.

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
Doctor of Philosophy

Most of the recent graduates of the Ph.D. program have found positions teaching in universities or colleges. There is ample opportunity for Ph.D. candidates to take courses in applicable mathematics, both in the mathematics department and 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 72 hours of graduate courses, at least three years of graduate residence, including at least one at The University of Iowa.

The comprehensive qualifying examination for the Ph.D. in mathematics covers three of these areas: algebra, analysis, logic and foundations, and topology. The student selects the three areas on which he or she wishes to be examined.

The candidate must also pass a candidate's examination on his or her field of research; write a thesis; and pass a final examination.

Ordinarily the candidate is expected to demonstrate proficiency in French, German, or Russian.

For information about the Ph.D. program in mathematics education, consult the brochure, Advanced Studies in Education, available from the College of Education.
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 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 the 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)

225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
225:125 Actuarial Principles of Life Insurance
225:180-182 Actuarial Theory I-III
225:177 Numerical Analysis for Actuaries
225:297 Seminar: Actuarial Theory

At least three courses from:
225:183 Demography and Life Table Construction
225:184 Risk Theory
225:186 Theory of Pension Funding
508:161 Operations Research II

Students must take at least one course from outside the Division of Mathematical Sciences, preferably from the College of Business Administration. The 225:153-154 requirement will be waived if the student has passed Part Two of the Examinations of Society of Actuaries.

Theoretical Statistics and Probability
(with or without thesis)

226:118 Introduction to Analysis I
225:153 Introduction to Probability
225:154-155 Introduction to Mathematical Statistics I-II
225:167 Introduction to Stochastic Processes

At least two of these:
225:172 Topics in Statistics
225:230 Introduction to the Theory of Nonparametric Statistics
254:101 Theory of Statistics I-II
225:222 Linear Models
225:226 Multivariate Analysis
225:264-265 Theory of Probability I-II

Applied Statistics
(without thesis)

225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
225:156 Analysis and Design of Experiments
225:173 Statistical Computation and Consulting

At least two of the following:
225:156 Applied Time Series Analysis
225:181 Application of Multivariate Statistical Techniques
225:162 Regression Analysis
225:168 Analysis and Design of Experiments II

At least two of these:
225:103 Introduction to the Design of Sample Surveys
225:153 Quality Control, Reliability, and Engineering Statistics
225:156 Introduction to Mathematical Statistics II
225:158 Applied Time Series Analysis
225:160 Applied Statistical Decision Theory
225:161 Application of Multivariate Statistical Techniques
225:162 Regression Analysis
225:230 Introduction to the Theory of Nonparametric Statistics
225:238 Bayesian Statistics II
225:265 Linear Models
225:266 Multivariate Analysis
225:270 Numerical Analysis: Nonlinear Equations and Approximation Theory

The remainder of the program will consist of selections from the above lists or other courses approved by the adviser.

Experience in a computer language (PL/I, FORTRAN, or BASIC) 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.

A student may choose electives in addition to the required statistics courses.

A program oriented towards biostatistics would include:
225:103 Introduction to the Design of Sample Surveys
226:161 Application of Multivariate Statistical Techniques
225:182 Regression Analysis

Electives chosen from among:
63:156 Principles of Epidemiology
63:176 Biostatistical Methods
63:101 Dynamics of Health
63:102 Man and the Environment
63:256 Chronic Disease Epidemiology

Students interested in operations research could choose electives from:
225:156 Introduction to Mathematical Statistics II
225:180 Applied Statistical Decision Theory
225:182 Introduction to Stochastic Processes
508:141 Operations Research II
508:142 Production—Inventory Models
508:143 Quantitative Investment Analysis
508:149 Digital Systems Simulation I
508:249 Digital Systems Simulation II
508:242-243 Mathematical Programming I-II
508:245 Stochastic Service Systems
508:248 Integer Programming and Network Flows

Programs oriented towards other applied areas are also possible. For a general program in applied statistics, most electives would be outside the Department of Statistics. The student should work 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 applications area, a program in another department may be
more appropriate; for example, educational measurement and statistics (education), operations research (industrial and management engineering), and biostatistics (preventive medicine and environmental health).

**Applied Statistics (with thesis)**

225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
At least two of these:
225:156 Applied Time Series Analysis
225:158 Analysis and Design of Experiments
225:161 Application of Multivariate Statistical Techniques
225:162 Regression Analysis
225:164 Analysis and Design of Experiments II
At least two of these:
225:103 Introduction to the Design of Sample Surveys
225:133 Quality Control, Reliability, and Engineering Statistics
225:138 Bayesian Statistics I
225:155 Introduction to Mathematical Statistics II
225:158 Applied Time Series Analysis
225:159 Analysis and Design of Experiments
225:160 Applied Statistical Decision Theory
225:161 Application of Multivariate Statistical Techniques
225:173 Statistical Computation and Consulting
225:200 Introduction to the Theory of Nonparametric Statistics
225:204 Bayesian Statistics II
225:256 Linear Models
225:258 Multivariate Analysis
225:170 Numerical Analysis: Nonlinear Equations and Approximation Theory

The remainder of the program will consist of selections from the above courses or, with the adviser's approval, courses in other fields related to the thesis.

Experience in a computer language (C, MATLAB, or BASIC) 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.

Ordinarily involving 3 semester hours of 225:191 Individual Study for two semesters, the typical thesis would be a statistical presentation of the results of a meaningful research project in another field, or a study of the characteristics of a new statistical method.

**Doctor of Philosophy**

To satisfy the course requirements for a Ph.D. in statistics, a student must successfully complete:
225:153 Introduction to Probability
225:154-155 Introduction to Mathematical Statistics I-II
225:158 Analysis and Design of Experiments
225:167 Introduction to Stochastic Processes
225:173 Statistical Computation and Consulting
225:115 Introduction to Analysis I
225:210 Analysis I
225:253-254 Theory of Statistics I-II
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:
225:168 Applied Time Series Analysis
225:161 Application of Multivariate Statistical Techniques
225:182 Regression Analysis
225:183 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
225:258 Multivariate Analysis
225:264-265 Theory of Probability I-II
It is recommended that students take 225:173, for at least two hours' credit, in two different semesters.

In addition, each semester a graduate student is registered for six or more credit hours, the student's registration must include at least one course of at least two hours' credit offered by the Department of Statistics, other than 225:191 Individual Study. 225:107 Readings in Statistics and/or Actuarial Science, or 225:299 Reading Research.

During the graduate program, students may wish to take coursework or seminars in other departments for the achievement of certain auxiliary goals of the doctoral degree in statistics—to relate his or her area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with foreign statisticians.

Each student is required to include in his or her program a component which involves experience in either teaching or statistical consulting.

Students expecting 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, 225:154-155 Introduction to Mathematical Statistics I-II, and 225:158 Analysis and Design of Experiments. The examination may be used in lieu of the master's written examination. Students who are unsuccessful in their first attempt may repeat the qualifying examination one time.

The student requests a comprehensive examination after completing most of the coursework in his or her approved plan of study, typically near the end of the second year.

The student must achieve at least a 3.26 grade-point average on completed course in the plan of study. A program which does not conform to the prescribed requirements, but which is of high excellence, may be approved by the department chair.

**Special Features**

Because statisticians are often teamed with other scientists in research projects, it is important that students gain experience in group efforts. In several courses, the department tries to provide this experience. In addition, the department houses the Statistical Consulting Center, which provides statistical assistance to members of the University...
Honors Programs

Open to seniors with a grade point average of at least 3.0 overall 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. These two courses constitute an introduction to experimental research. At the end of the research, the student presents a written report. There is also an honors examination. A student successfully completing these requirements receives the B.S. degree with honors.

Graduate Study, Faculty Roster, Courses

See "The College of Medicine" section of the Catalog.

Military Science

(Stage ROTC)

Department Head: Lieutenant Colonel Michael J. Burnside
Faculty: Professor Michael J. Burnside (Landera College)
Assistant professor Gary P. Schaefer (Landera)
Instructor Michael A. Porter (Clairott, Francis R. Robinson (St. Louis))

The Department of Military Science is the academic unit administering the Army Reserve Officers Training Corps (ROTC) program at The University of Iowa. Participation in the program is voluntary. Courses in the program carry credit 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 role in American society and current military organization and capabilities.

The ROTC Advanced Course offers for junior and senior students addresses the dynamism of organizational leadership from the small group to large and diversified organizations. Military history is highlighted in training the development of military skills and doctrine utilized in modern military operations and organizations. Practical instruction in developing individual leadership skills is emphasized. Between the junior and senior years, students attend a two-week, paid, advanced training camp at Fort Lewis, Washington. Selected students may also participate in active army training programs such as Ranger School, Air Assault School, and Airborne School.

Students who successfully complete the Advanced Course receive a commission as a second lieutenant in the U.S. Army and serve either as active duty or with the National Guard in the U.S. Army Reserve near Fort Hays. 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 program. In addition, students may qualify for the advanced course by taking a compression course approved by the Department during the spring semester.

Credit For Prior Training

Students with prior military training or experience may qualify for basic course credit and be allowed entrance into the Advanced Course. Prior service personnel are given advanced placement within the ROTC program and are eligible for a commission within two years.

Although the full Army ROTC program normally spans four years, it can be completed in two, three, or three and one-half years, with departmental approval.

Graduate School

Students commissioned as lieutenants upon graduation from The University of Iowa may apply for a delay of entry on active duty to attend graduate school. No additional time is required on active duty for such delays. Delays of up to three years are available, and law school is normally accepted.

Special Programs

The Perceiving Rifles and Big Red Berets are fraternal organizations engaging in intercollege military skills competition and service activities. The Cordillera is an auxiliary to Perceiving Rifles and members participate with cadets in many activities. The department also sponsors a small-bore rifle team that receives part in national competitions. Cadets compete for individual and national awards for leadership, academic achievement, athletics, and military proficiency. The department sponsors military-oriented ceremonial and social activities throughout the year, including the annual Military Ball and 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 tanks, for practical leadership exercises and in support of Perceiving Rifles. Cadets visit Rock Island Arsenal, River Island Corps of Engineers District, and Camp Dodge, near Des Moines, to observe army operations and review equipment. Junior-year cadets also use the Camp Dodge leadership reaction course, orienteering course, and rappelling facilities.

Financial Aid

Reserve Officers Training Corps scholarships providing 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. Subscriptions are on a minimum service obligation of four years. All cadets in the advanced course receive a $100-per-month, tax-free subsistence allowance. Cadets attending summer camps are paid while there and receive travel allowances.
Courses

23.119 Administrative Management 22.647
Professional administrative leadership and management instruction related to the modern business environment, including the role of executive assistant to the Museum Director, Assistant Director, and head museum staff. Emphasis on new developments in museology and technology.

Museum Training

Department chair and professor: George G. Schmoker
Facility assistant professor: George G. Schmoker
Instructor Joseph G. Hefer

The department offers courses which provide fundamental background in the historical foundations of science museums, exhibit theory and design, museum operations, and museum management. Courses have been offered continuously since 1910; the museum instructional program at The University of Iowa for the oldest of the 75 university- and college-based curricula in the United States. The museum is expanding, and graduates of the University occupy positions of responsibility as directors, curators, and exhibit specialists in museums throughout the United States and Canada.

A major in one of the natural sciences (biology, geology, or psychology), 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 field minor concentration in anthropology or archaeology, or a Ph.D. degree in science education. Required regarding program details should be directed to the appropriate department.

Courses presented in the department are of value not only to those intending to pursue careers in science museum work, but also as supplemental instruction to students in the arts and humanities with specialized interests. Graduate museum students are afforded the opportunity to gain practical work experience by participating directly in The University of Iowa Museum of Natural History exhibit program and through formal internships with other museums.

Courses

All registration by consent of instructor.

23.118 Museum Techniques

Coloring, preparing, and exhibiting biological materials for museum display, including the selection of materials for display. Emphasis on the principles of art and science. No credit for graduate students.

24.102 Museum Techniques

Concentration on 24.101, but may be taken as independent study.

24.103 Museum Accessory Work

Techniques used in preparation of display, utilization of materials and museum exhibit accessories; and for installing museum exhibits. Emphasis on techniques and procedures used in preparation or replication of archaeological, geological, biological, or botanical specimens.

24.104 Museum Accessory Work

Concentration on 24.103, but may be taken as independent study.

24.106 Principles of Exhibit Theory and Design

Concentration on 24.104, but may be taken as independent study.

24.107 Principles of Exhibit Theory and Design

Concentration on 24.106, but may be taken as independent study.

24.109 Special Readings and Projects: Science Museum

Concentration on 24.107, but may be taken as independent study.

24.111 Special Readings and Projects: Science Museum

Concentration on 24.107, but may be taken as independent study.

24.112 Special Readings and Projects: Science Museum

Concentration on 24.107, but may be taken as independent study.
A primary objective in a fine arts community of intellectual results, the University of Iowa School of Music has long been recognized as one of the excellent university-based schools of music in the United States. The School's on-campus enrollment of 600 students majoring in music is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student's development.

The faculty consists of highly trained visiting artists-teachers in each area of specialization. Faculty assistants in residence include the Student Ensemble String Quartet, Iowa Woodwind Quintet, Iowa Brass Quintet, Percussion Quartet, Vocal Quartet, and the Baroque Players. Private lessons with faculty members are offered in all band and orchestra instruments, voice, piano, and organ.

At the undergraduate level, the School's curriculum offers all qualified students an opportunity for the further study of music toward either professional or vocational goals. The graduate curricula are designed primarily in preparation for teaching in secondary schools, colleges, and universities, and for careers in performance. The School is a chartered member of the National Association of Schools of Music.

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 50 semester hours of coursework 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. Areas of concentration offered in both programs are performance, music education, music therapy, and composition.

General Requirements

All undergraduate programs 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 auditions examination in music theory (see "Graduate Programs" below). Students with deficiencies in theory must register for 25:11. All baccalaureate candidates in music must satisfy all College of Liberal Arts general requirements except the historical-cultural core requirement (see "Colleges of Liberal Arts" section of the Catalog for these requirements), and the following course requirements of the School of Music:

25:1-1 Literature and Theory I-II 6 s.h.
25:2-4aural Skills I-II 2 s.h.
25:5 Literature and Theory III-IV 6 s.h.
25:6-7aural Skills V-VI 2 s.h.
25:29-31 History of Music I-II 6 s.h.
25:71-72 Group Instruction in Piano I-II 2 s.h.

or adequate proficiency
25:26 Recital Attendance 0 s.h. (required of wind, percussion, string, and voice majors for seven semesters)
25:144 Senior Recital 0 s.h.
Four semester hours of electives from the following:

25:15 undergraduate Composition 2 s.h.
25:17 Arranging for Band 2 s.h.
or
25:101 Jazz Improvisation I 2 s.h.
or
25:102 Jazz Improvisation II 2 s.h.
or
25:157 Orchestration 2 s.h.
or
25:145 Contrapuntal Forms 3 s.h.
or
25:147 Tonal Forms 3 s.h.
or
25:148 Analysis of Music Literature, 1800-1950 3 s.h.
or
or
or
or
25:152 Analysis of Music Literature, Special Topics 3 s.h.
or
25:153 Keyboard Harmony 2 s.h.
or
25:212 Gregorian Chant 3 s.h.
or
25:215 fugue 3 s.h.
or
Four years of applied music.
Four years of participation in band, orchestra, or chorus.

Ensemble assignments are made at the discretion of the adviser and the ensemble directors. Keyboard majors may substitute accompanying in place of large ensemble participation for two semesters during their junior and/or senior years, with the consent of their advisers. Any requests for adjustment of the rules pertaining to performance in large ensembles must be submitted to a review committee.

The student may take advanced electives in performance (including chamber music and piano, accompanying), theory, composition, music education, music history and literature, and orchestration, and conducting.

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 B.A. or B.M. arts, certification to teach music in schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and vocal areas are listed below.
Vocal and Keyboard Majors
7S:147 Choral Methods and Conducting 3 s.h.
7S:148 Choral Literature and Conducting 3 s.h.
26:116-118 Diction for Singers I-III 4 s.h.
7E:145 Methods and Materials: Elementary School General Music 3 s.h.
7E:142 Methods and Materials: Secondary School General Music 3 s.h.
7E:191 Observation and Laboratory Practice in the Secondary School 8 s.h.
7E:192 Laboratory Practice in the Elementary School 8 s.h.
7S:187 Seminar: Curriculum and Student Teaching 1 s.h.

Keyboard Majors—Nonvocal Area
Keyboard majors who elect to teach in the nonvocal area must complete the requirements in either the brass-woodwind-percussion or string areas, and pass the proficiency examination of 25:71-72 Group Instruction in Piano I-II. Keyboard majors lacking satisfactory competence in voice also must register for 25:17 Voice for two semesters.

Teaching Minor
A student qualifies for certification as an elementary school general music teacher by completing the GP approved certification program for elementary teachers and 22-23 semester hours as follows:
7E:191 Basic Skills and Techniques in Music 3 s.h.
7E:145 Methods and Materials: Elementary School General Music 3 s.h.
7E:192 Laboratory Practice in the Elementary School 2 s.h.
Applied music 2 s.h.
Ensemble (chorus, band, or orchestra) 2 s.h.
Two of the following:
25:1 Literature and Theory I 5 s.h.

Music Therapy
Admission to the program in music therapy is based on demonstrated minimum audition skills and successful completion of 25:114 Orientation to Music Therapy. The number of students admitted to the program is limited by the types and amounts of clinical experience available on campus. In addition to the specific courses in music therapy listed below, specific courses are required in biology, sociology, abnormal psychology, and social psychology.
A six-month internship in an approved off-campus clinical facility is required before the completion of the degree and certification as a registered music therapist (RMT). For full job opportunities, students also are strongly encouraged to complete the music teacher certification requirements. Complete information on the program is available in the music education office. Course requirements for the major in music therapy are as follows:
25:98 Recreational Music Techniques 2 s.h.
25:114 Orientation to Music Therapy 2 s.h.
7E:144 Psychology of Music I 2 s.h.
7S:195 Laboratory: Psychology of Music 2 s.h.
25:138 Music Therapy Techniques: Atypical Children 3 s.h.
25:139 Music Therapy Techniques: Adult Clients 3 s.h.
25:140 Internship in Music Therapy 2 s.h.

Compostion/Theory Major
Students are not admitted to this program earlier than the sophomore year. Upon application for admission to the program, the candidate shall be assigned a committee of three faculty members, in consultation with whom a course of study leading to the degree shall be determined. Admission is based on
on an evaluation of original compositions submitted to an admission and advisory committee achievement in theory and composition courses; and keyboard competency tested by an examination including sight reading (Bach choral) and performance (Bach inventions or work of comparable difficulty). Course requirements for the major in composition/theory are:

25:1-2 Literature and Theory I, II 6 s.h.
25:3-4 Aural Skills I, II 2 s.h.
25:5-6 Literature and Theory III, IV 6 s.h.
25:7-8 Aural Skills III, IV 2 s.h.
25:81-92 History of Music I, II 8 s.h.

The thesis replaces the senior recital required of applied music majors, and consists of one or more original compositions, approved by the student's advisor and performed in regular/sponsored School of Music recitals and/or committee-approved scholarly paper dealing with theoretical issues.

Until admitted to the composition/theory program, the student must take private lessons on his or her major instrument or in voice. Following admission, the student undertakes applied music study as recommended by the advisory committee.

The composition/theory candidate participates in an approved ensemble for four years.

Honors
A student with junior or senior standing may undertake honors work in music with the approval of the director of the College of Liberal 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 qualifies for graduation "with honors" by completing satisfactorily from 6 to 8 semester hours in 25:85. Honors in Music. Types of honors projects for which credit is given in 25:85 are honors performances, solo and/or ensemble, honors compositions, orchestrations, arrangements, and honors essays, research papers, editorials, translations, etc.

A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses or required for graduation, such as 25:144 Senior Recital.

Honors students in music are encouraged to take graduate-level courses. Advanced coursework in music history, music theory, and languages in particularly recommended. An honors committee of at least three members is appointed by the honors sponsor to evaluate the student's work.

Financial Aid
A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.

Graduate Programs
The entering graduate student must take the School of Music advisory examination in music theory (harmony, ear training, forms, and counterpoint), and history and literature, before his or her first registration. The advisory examination is given each session on the twelfth day (including Sunday) before registration. A, B, C, or D designation of the examination may be given by the director of the School of Music. By general graduate admission, degree, and examination requirements, see the "Graduate College" section of the Catalog.

Master of Arts
The Master of Arts with thesis is offered in the areas of performance (including conducting), composition, music theory, and music history and literature. The Master of Arts without thesis is offered in the areas of music education and instrumental or vocal pedagogy (including accompanying). 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 courses must include the requirements listed below:

General
25:261 Introduction to Graduate Study in Music

Music Theory
25:145 Counterpoint Forms
25:147 Total Forms

One elective in analysis of music literature (25:148-160) or equivalent.

If a student is advanced into 25:145, 25:147, and 25:42, the student must take the course and the examination in music literature elective.

Any serious music theory and ear training deficiencies revealed in the advisory examination are to be removed through 25:11 Review Theory.

Music History
25:301-302 Advanced History and Literature of Music I, II
or equivalent, or satisfactory advisory examination score.

If accepted into 25:301 and/ or 25:302 as a result of the advisory examination, the student should elect another course from the music history sequence (25:323-324, 25:316-317, 25:322, 25:330-333, and may elect other musicology courses.

Ensemble Participation
25:185 University Choir, Kantorei
25:191 Symphonic Choir
25:162 Orchestra
25:194 Symphony Band, Wind Ensemble, Concert Band

Keyboard majors may substitute ensemble participation participation in a large ensemble, at their advisors' discretion. Theory, composition, musicology, and music education majors may, with their advisor's permission, substitute other ensembles. Voice majors, with their advisors' permission, may be excused from participation in large vocal ensembles during the period in which they are singing major roles in opera theater. Any request for
Admission

Before an applicant will be considered for admission, 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
- Pedagogy—contact School of Music
- Performance (Including conducting)—audition
- Music history and musicology—research papers, theses

Information about specific admission and curricular requirements for each area is available from the director's office.

Master of Fine Arts

The M.F.A. is for students of superior ability in the areas of composition, instruments, 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 (20-401 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, but all requirements for each degree must be met separately, including two thesis 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 fixed under the M.A. degree.
- One or more additional electives from the analytical studies sequence 25:148, 152 or equivalent.
- One or more additional courses in the music history/musicology sequence indicated in the master's degree requirements.
- 25:295 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 two courses in statistics for this requirement.
- Dissertation

All doctoral students must be available for participation in a large ensemble (25:245 Opera Theater: Roles), 25:190 University Choir, Kantorei, 25:191 Symphony Choir (5:192 Orchestra, 25:194 Symphony Band, Wind Ensemble, Concert Band) during each term of registration unless excused by their advisors. Keyboard majors may substitute accompaniment in place of participation in a large ensemble, at the discretion of their advisors.

Doctor of Philosophy

Areas of concentration for the Ph.D. include composition, music history and musicology, music education, music theory, and music literature.

The music literature program is designed for students who have already achieved a professional level of musical performance. The student is required to audit in 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 concert performance with orchestra or other appropriate ensemble. Vocalists may substitute the execution of one or more major roles 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
- Music education—research papers and audition
- 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.

Opportunities for Performance

The following organizations provide performing opportunities for qualified students:

- Camerata Singers
- Ohio Gold Singers
- Kantorei
- University Choir
- University Chorale, University Singers
- Opera Theater
- Collegium Musicum
- Chamber Orchestra
- Symphony Orchestra
- Symphony Band
- Wind Ensemble
- Concert Band
- Marching Band
- Jazz Band
- Percussion Ensemble
- Scottish Highlanders
Music for Nonmajors

Courses particularly recommended for students who are not majoring in music but have an avocational interest in it include the core sequence: 11:30-40 Masterpieces of Music; 25:15 Early Music; 25:16 Baroque and Classical Music; 25:20 Romantic and 20th-Century Composers; 25:25 Concert Band; and 25:26 Orchestra. The sequence 25:15-104 World Music 1/2, for students interested in non-Western music, and 25:10 Fundamentals of Music, 25:12 Basic Skills, and 15:31 Techniques in Music is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment. Nonmajors interested in performance should consult music advisors regarding appropriate courses in applied music.

Special Programs

The Center for New Music provides an environment for innovative composition and a vehicle for the performance of new works. Its repertoire includes the works of today’s young composers and works utilizing 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 schools of Music and Art and its film, dance, theater, and creative writing areas. The center’s basic purpose is to encourage talented young artists to pursue their artistic goals through multimedia and interdisciplinary projects, performances, and recordings.

Facilities

The University of Iowa Center for the Arts has one of the nation’s finest facilities for teaching and performance in music. In addition to Chico and seminary rooms, the Music Building includes 65 teaching studios, 72 practice rooms, a large library, two electronic music laboratories, and training and listening facilities with 50 listening posts. Four large rehearsal halls, ample studio and ensemble practice facilities, professional recording facilities, a fine arts computer studio with six terminals, eight practice and recital organs, and the 725-seat Cline Concert Hall. Hancher Auditorium seats 2,600 people for concerts, 2,400 for operas and other stage productions. Library resources include more than 50,000 volumes of music and books, more than 2,100 reels of microfilm, a microcard file of approximately 300 titles, nearly 5,000 LP records, and 176 periodicals in several languages. The acquisition program gives particular attention to a strong reference collection, emphatic resources for musical research and performance. The library’s quarters in the Music Building provide 324 study carrels, a microfiche room, a typing room, a seminar and rare books room, a large reading area, and a separate area for the Golden Sand Library, one of the world’s most famous collections of band music.

Courses

Primary for Undergraduates

Theory and Composition

15:2 Libرؤيةs and Theory I
25:13 Language and Theory I
25:14 Language and Theory II
25:24 Language and Theory III
25:25 Language and Theory IV
25:26 Language and Theory V
25:27 Language and Theory VI
25:28 Language and Theory VII
25:29 Language and Theory VIII
25:30 Language and Theory IX
25:31 Language and Theory X
25:32 Language and Theory XI
25:33 Language and Theory XII

Concert of 25:15, Corequies...
MUSIC FIELD (open to nonmajors)

Instruct in the student's minor field of performance or for non-music majors is offered for a fee of $35 per course per semester. A course consists of one half-hour lesson or two hours of class instruction weekly, at option of instructor.

23-304 Voice
23-306 Violin
23-308 Cello
23-311 Piano
23-318 Saxophone
23-320 French Horn
23-321 Trumpet
23-322 Euphonium
23-323 Trombone
23-326 Tuba
23-327 French Horn
23-328 Bassoon
23-329 Saxophone
23-330 Trumpet
23-331 Strings
23-332 Orchestra
23-333 Conducting
23-334 Opera Theater Dress
23-335 Opera Theater Dance
23-336 Opera Theater Studio
23-337 Opera Theater Production
23-338 Opera Theater Stagecraft

ENSEMBLE

No fee is charged for ensemble courses. Courses may be repeated. Prerequisite: consent of instructor.

23-102 Orff Instruments
23-104 Percussion
23-105 Ethnic Instruments
23-106 Renaissance Instruments
23-107 Baroque Instruments
23-108 Classical Instruments
23-109 Contemporary Instruments
23-110 Jazz Instruments
23-111 Early Music Instruments

UNDERGRADUATE PROGRAM

The undergraduate program in philosophy provides knowledge of the basic issues and the main developments in Western philosophy, and strengthens logical skills that are useful in a wide variety of fields. A major in philosophy can provide preparation for the advanced studies necessary for a career in religion or law, for example, as well as for a position in government 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 philosophy.

An undergraduate major is required to take at least 27 semester hours of courses numbered from 26-101 to 26-100, including:

26-103 Introduction to Logic
26-111 Ancient Philosophy
26-110 Early Modern Philosophy
Honors Program
The department administers an honors program for undergraduate students of superior ability. The student develops an individualized honors program in consultation with his or her adviser in the department. To be eligible for the program, a student must have a cumulative grade-point average of at least 3.0. A student eligible for and interested in the program should consult with his or her adviser as early as possible, preferably in the sophomore year.

Graduate Program
The graduate program in philosophy is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics, epistemology, history of philosophy, ethics, logic, and philosophy of science.

Master of Arts
The Master of Arts degree requires a minimum of 30 semester hours of graduate credit and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. In addition, the student must pass an oral final examination. There is no foreign language requirement.

Doctor of Philosophy
Candidates for the doctoral program must formally declare their major by the end of the first year of graduate study. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. In addition, the student must pass a comprehensive examination consisting of a dissertation area examination, a special area examination, and a general examination. Before taking the comprehensive examination, the student must show competence in French, German, Greek, or Latin. The candidate usually spends the fourth year writing the doctoral dissertation.

Courses

Undergraduates Only
- 261:1 Fundamentals of Western Thought 2.0
- 261:2 Fundamentals of Western Thought and Their Philosophical Foundations 2.0
- 261:3 Problems of Logical Reasoning 2.0
- 261:4 Problems of Political Philosophy 2.0
- 261:5 Problems of Religious Thought 2.0
- 261:6 Philosophy and the Individual 2.0
- 261:7 Philosophy and the Individual 2.0
- 261:8 Philosophy and the Individual 2.0
- 261:9 Philosophy and the Individual 2.0
- 261:10 Philosophy and the Individual 2.0

Undergraduates and Graduates
- 261:11 Introduction to Philosophy 3.0
- 261:12 Logical Analysis 3.0
- 261:13 Introduction to Logic 3.0
- 261:14 Introduction to Philosophy of Science 3.0
- 261:15 Introduction to Philosophy of Science 3.0
- 261:16 Introduction to Philosophy of Science 3.0
- 261:17 Introduction to Philosophy of Science 3.0
- 261:18 Introduction to Philosophy of Science 3.0
- 261:19 Introduction to Philosophy of Science 3.0

Philosophy/LIBERAL ARTS 175
Primarily for Graduates

28.251 Mathematical Logic 3 s.h.
Math ideas and structures of mathematical logic. Open to undergraduates with consent of instructor.

29.258 Philosophy of Science 3 s.h.
Exploration of the background of science, concepts and methods. Open to undergraduates with consent of instructor. 

29.259 Philosophy of Science 3 s.h.
More topics in the philosophy of science. Open to undergraduates with consent of instructor.

29.271 Seminar: Metaphysics 3 s.h.
May be repeated.

29.272 Seminar: Epistemology 3 s.h.
May be repeated.

29.273 Seminar: Philosophical Analytic 3 s.h.
May be repeated.

29.274 Seminar: Pragmatism of Logic 3 s.h.
May be repeated.

29.358 Seminar: Philosophy of Science 3 s.h.
May be repeated.

29.359 Seminar: Ethics 3 s.h.
May be repeated.

29.361 Seminar: History of Philosophy 2 s.h.
May be repeated.

29.370 Research: Value Theory 2 s.h.
May be repeated.

29.387 Research: Metaphysics and Epistemology 3 s.h.
May be repeated.

29.249 Research Project in Philosophy of Science 3 s.h.
May be repeated.

29.251 Research: History of Philosophy 3 s.h.
May be repeated.

29.253 Thesis May be repeated.

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 (3 s.h.)
- 27.11 Introduction to Physical Education (4 s.h.)
- 27.21-22 Teaching of Racquet Sports I & II (2 s.h.)
- 27.37 Teaching of Swimming (2 s.h.)
- 27.55 Human Anatomy (1 s.h.)
- 27.56 First Aid (2 s.h.)
- 27.57 Introduction to Athletic Training (2 s.h.)
- 27.7 Leadership Training (1 s.h.)
- 27.105 Administration of Physical Education and Athletics (2 s.h.)
- 27.106 Adapted Physical Education (2 s.h.)
- 27.107 Biomechanics of Physical Education (3 s.h.)
- 27.108 Psychological Perspectives in Physical Activity and Sport (3 s.h.)
- 27.137 School Physical Education (3 s.h.)
- 27.141 Elementary Exercise Physiology (2 s.h.)
- 27.47 Knowledge and Performance Tests in Physical Education (2 s.h.)
- 72.13 Introduction to Human Physiology (4 s.h.)
- 28.142 Contemporary Issues in Health Education (3 s.h.)

The program also requires one of these seven coaching courses:

- 27.32 Coaching of Gymnastics (2 s.h.)
- 27.33 Coaching of Football (2 s.h.)
- 27.34 Coaching of Baseball (2 s.h.)
- 27.35 Coaching of Track and Field Athletics (2 s.h.)
- 27.36 Coaching of Basketball (2 s.h.)
- 27.37 Coaching of Competitive Swimming (2 s.h.)
- 27.38 Coaching of Wrestling (2 s.h.)

These courses are required for teaching certification in physical education:

- 76.1 Growth and Motor Development (3 s.h.)
- 76.2 Methods and Materials in Elementary School Physical Education (3 s.h.)
- 27.27 Teaching of Dance (2 s.h.)
- 79.75 Educational Psychology and Measurement (3 s.h.)
- 79.81 Preparation Practicum (1 s.h.)
- 79.100 Introduction to Secondary School Teaching (1 s.h.)
- 79.145 Methods in Secondary Physical Education (3 s.h.)

In addition, electives are required for the Classroom Teacher (3 s.h.)

- 79.187 Seminar: Curriculum and Student Teaching (3 s.h.)

- 79.198 Coaching Practicum I & II (1-2 s.h.)
- 79.191 Observation and Laboratory Practice in the Secondary School (1 s.h.)

Bachelors in Physical Education (Alternative Careers)

The Bachelor of Science degree program in physical education includes courses in business to prepare students
for leadership roles in sports clubs, health spas, YMCA/YWCA's, commercial recreation, and industries where physical fitness of employees is emphasized. Students are also prepared for private enterprises, such as the ownership and operation of a sporting goods store.

Program requirements include:

10:21-22 Physical Education
Skills 8 a.h.
(Select from activities that have
• commercial potential, such as aerobics,
• archery, badminton, billiards, bowling,
• canoeing, cycling, dance, jogging, new
games, physical fitness, racquetball,
• self-defense, scuba, skin diving, speed
• tennis, tennis, or weight training, and
• include at least one activity that
• involves 1-1 to 1-1 trip planning, such as
• rock climbing, sailing, or skiing)

27:11 Introduction to Physical Education 0 a.h.
27:21 Teaching of Recreational Sports I 2 a.h.
27:51 Teaching of Gymnastics or 2 a.h.
27:37 Teaching of Swimming 2 a.h.
27:53 Human Anatomy 3 a.h.
27:56 First Aid 0 a.h.
or Red Cross Standard First Aid Card
Cardiopulmonary Resuscitation Certification
27:57 Introduction to Athletic Training 2 a.h.
27:96 Special Projects 3 a.h.
27:107 Biomechanics of Physical Education 3 a.h.
27:109 Psychological Perspectives in Physical Activity and Sport 3 a.h.
27:141 Elementary Exercises in Physiology 2 a.h.
College of Business Administration coursework (students confer with advisor for selection) 3 a.h.
17:41 Food, Nutrition, and Man 3 a.h.
72:13 Introduction to Human Physiology 4 a.h.
Two of the following:
104:106 Recreation Program 3 a.h.
104:106 Administration of Recreation I 3 a.h.
104:130 Park and Recreation Facility Management 3 a.h.
104:142 Principles of Outdoor Education 3 a.h.
11-13 semester hours from the following:
27:98 Leadership Training II 1 a.h.
27:98 Practicum in Special Physical Education 3 a.h.
27:103 Administration of Physical Education and Athletics 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.
72:180 Coaching for Related Professions 2-3 a.h.
72:71 Growth and Motor Development 2 a.h.
77:108 Child Development 3 a.h.
77:132 The Adolescent and Young Adult 3 a.h.
31:19 Psychology in Business and Industry 3 a.h.
31:156 Psychology in Management 3 a.h.
71:120 Drugs: Their Nature, Action, and Use 0-2 a.h.
64:175 Managerial Economics 3 a.h.
6L47 Introduction to Law 3 a.h.
19:155 Communication and Public Relations 3 a.h.

The department also recommends that the student earn certification as an exercise leader by the American College of Sports Medicine.

Bachelor of Arts: Predoctoral Program
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, biomechanics, or evaluation and statistics.

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 an area in which the student is interested.

Because the student need not meet certification requirements for teaching in the public schools, this curriculum offers considerable latitude in the choice of electives to fit individual interests and needs.

Required foundation courses:
4.13-14 Principles of Chemistry I-II 8 a.h.
4.18 Elementary Chemistry Laboratory I 2 a.h.
4.121 Organic Chemistry I 3 a.h.
22M:2-3 Mathematical Techniques I-II 6 a.h.
22M:20 Elementary Functions 3 a.h.
29:11-12 College Physics I-II 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.
27:38 Exercise and Sport Training I 1 a.h.
27:05 Adapted Physical Education 2 a.h.
72:75 Educational Psychology and Measurement 3 a.h.
75:145 Methods in Secondary Physical Education 3 a.h.
72:13 Introduction to Human Physiology 4 a.h.
72:202 Exercise Physiology 2 a.h.
72:302 Physiology of Exercise Laboratory 2 a.h.
99:120 The Chemistry of Biological Materials 3 a.h.
99:130 Metabolism 3 a.h.

Minor in Physical Education
The minor requires completion of 16 semester hours from the following courses:
27:95 Special Projects 3 a.h.
27:103 Administration of Physical Education and Athletics 2 a.h.
27:107 Biomechanics of Physical Education 3 a.h.
27:108 Psychological Perspectives in Physical Activity and Sport 3 a.h.
27:157 School Physical Education Programs 2 a.h.
27:141 Elementary Exercise Physiology 2 a.h.
27:48 Psychology of Sport 3 a.h.
Endorsement for Coaching

The Iowa Department of Public Instruction has provided the endorsement of certified teachers for the coaching of athletic teams in schools. This endorsement is intended for teachers who have majors in subjects other than physical education but who wish to coach interscholastic athletic teams. The endorsement does not permit the teacher to teach physical education classes in public schools.

Certification for coaching athletic teams at the junior high and secondary school level requires satisfactory completion of the following courses:

- 27:53 Human Anatomy 2-3 s.h.
- 27:56 First Aid 0 s.h.
- 27:57 Introduction to Athletic Training 2 s.h.
- Coaching of sport of interest
- 27:103 Administration of Physical Education and Athletics 2-3 s.h.
- 27:107 Biomechanics of Physical Education 3 s.h.
- 27:108 Psychological Perspectives in Physical Activity and Sport 3 s.h.
- 27:114 Elementary Exercise Physiology 2 s.h.
- 27:162 Observation and Laboratory Practice in the Secondary School 3 s.h.

*May be waived on the basis of appropriate coaching experience.*

Endorsement for Athletic Trainers

This endorsement is provided for teachers who want to be certified as trainers for athletic teams at either the secondary school level as a part of their regular teaching duties, or at the college and university level. The courses required are designed to meet the standards for certification set by the National Athletic Trainers Association, and include:

- 17:41 Food, Nutrition, and Men 3 s.h.
- 27:142 Nutrition 3 s.h.
- 31:1 Elementary Psychology 4 s.h.
- 79:75 Educational Psychology and Measurement 3 s.h.
- 72:13 Introduction to Human Physiology 4 s.h.
- 28:142 Contemporary Issues of Health Education 3 s.h.
- 27:53 Human Anatomy 2-3 s.h.
- 27:56 First Aid 0 s.h.
- 27:57 Introduction to Athletic Training 2 s.h.
- 27:105 Adapted Physical Education 2 s.h.
- 27:107 Biomechanics of Physical Education 3 s.h.
- 27:114 Elementary Exercise Physiology 2 s.h.
- 27:171 Medical Supervision of Athletics 2-3 s.h.
- 27:182 Evaluation Techniques in Athletic Training 2 s.h.
- 27:193 Athlete Training Modalities and Therapeutics 3 s.h.
- 27:194 Laboratory Practice in Athletic Training 2 s.h.

**Pre-Physical Therapy**

Students who wish to be considered for admission to a physical therapy training program must complete these courses:

- 27:21-22 Teaching of Recreational Sports I-II 4 s.h.
- 27:31 Teaching of Gymnastics 3 s.h.
- 27:37 Teaching of Swimming 2 s.h.
- 27:53 Human Anatomy 3-5 s.h.
- 27:56 First Aid 0 s.h.
- 27:57 Introduction to Athletic Training 2 s.h.
- 27:58-59 Practicum in Special Physical Education 6 s.h.
- 27:103 Administration of Physical Education and Athletics 2-3 s.h.
- 27:105 Adapted Physical Education 2 s.h.
- 27:107 Biomechanics of Physical Education 3 s.h.
- 27:108 Psychological Perspectives in Physical Activity and Sport 3 s.h.
- 27:114 Elementary Exercise Physiology 2 s.h.
- 27:163 Advanced Anatomy and Kinesiology 3-5 s.h.
- 41:14 Principles of Chemistry 1-5 6 s.h.
- 41:16 Elementary Chemistry Laboratory I 2 s.h.
- 28:1-12 College Physics 8 s.h.
- 31:1 Elementary Psychology 4 s.h.
- 31:13 Introduction to Clinical Psychology 3 s.h.
- 31:163 Abnormal Psychology 0 s.h.
- 37:3 Principles of Animal Biology 5 s.h.
- 27:81 Human Genetics 4 s.h.
- 31:103 Comparative Vertebrate Anatomy 4 s.h.
- 28:143 Contemporary Issues of Health Education 3 s.h.
- 72:13 Introduction to Human Physiology 4 s.h.

**Graduate Programs**

**Master of Arts without Thesis**

The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for teachers of basic physical education and in athletic 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 problems associated with teaching and coaching in public schools and community colleges in Iowa.

The following undergraduate course work is required background for the nonthesis M.A. program in physical education:

- 28:142-252 Contemporary Issues of Health Education 3 s.h.
- 27:53 Human Anatomy 3 s.h.
- 31:103 Comparative Vertebrate Anatomy 4 s.h.
- 27:105 Adapted Physical Education 2 s.h.
- 27:107 Biomechanics of Physical Education 3 s.h.
- 27:114 Elementary Exercise Physiology 2 s.h.
- 27:163 Advanced Anatomy and Kinesiology 3-5 s.h.
- 41:14 Principles of Chemistry 1-5 6 s.h.
- 41:16 Elementary Chemistry Laboratory I 2 s.h.
- 28:1-12 College Physics 8 s.h.
- 31:1 Elementary Psychology 4 s.h.
- 31:13 Introduction to Clinical Psychology 3 s.h.
- 31:163 Abnormal Psychology 0 s.h.

**Electives in physical education and related areas**

- Total 13 s.h.
- 30 s.h.

Credit may be given for experience and for competence in techniques when such competence is demonstrated by examination.

For the M.A. degree without thesis, the student must complete a minimum of 30 semester hours, at least 24 of which must be in physical education, including 27:201 Non-Thesis Seminar and at least.
Candidates who intend to terminate their graduate study with the M.A. degree with thesis should have an undergraduate major in physical education.

These courses are required for the M.A. degree with thesis:

27:240 Professional Preparation in Physical Education 2 s.h.
Two courses outside the area of specialization, from the following:
27:153 Advanced Anatomy and kinesiology 2 s.h.
72:202 Exercise Physiology 2 s.h.
27:302 Physiology of Exercise Laboratory 2 s.h.

27:205 Adapied Physical Education: Special Topics and Research 3-4 s.h.
27:242 Supervision of Physical Education 3 s.h.
27:257 Biomechanics of Human Motion 4 s.h.
27:267 Advanced Measurement and Evaluation in Physical Education 3 s.h.
27:306 Human Perceptual-Motor Performance 3 s.h.
27:307 Seminar: Research in Physical Education Curriculum 3 s.h.

These tools of research:
79:143 Introduction to Statistical Methods 3 s.h.
or
63:161 Introduction to Biostatistics 3 s.h.
220:100 Introduction to Computing with FORTRAN 3 s.h.
or
228:130 Introduction to Computing with FORTRAN 3 s.h.

Specialization area:
27:401 Seminar in Scientific Writing 1 s.h.
27:404 Thesis M.A. 4 s.h.
Courses approved by advisor 5-7 s.h.
Electives 4-6 s.h.
Total 38-50 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 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, anatomy, biomechanics, curriculum in physical education, exercise physiology, measurement and evaluation in physical education, motor behavior, and therapeutics.

The thesis program for the M.A. degree in physical education, together with the Ph.D. core courses, provide the required background for the Ph.D. candidate's specialization. The candidate must complete at least 30 semester hours of graduate study in the specialization of his or her choice, must write a thesis on a problem in that area, and must submit the thesis to an approved professional journal for publication.

Most of the courses in the areas of specialization are offered by departments other than the Department of Physical Education—Field House. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on thesis committees for the 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 is required to write a comprehensive examination prepared and evaluated by faculty members of the Department of Physiology and Biophysics in the College of Medicine. Such candidates graduate with minors in physiology.

The Ph.D. core requirements include:
27:405 Thesis: Ph.D. 12 s.h.
7P:242 Selected Applications of Statistical Techniques 3 s.h.
or
63:182 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.
and
27:202 Practice in College Teaching 3 s.h.
The foreign language requirement differs for each area of specialization. All
candidates not required to demonstrate proficiency in a foreign language must submit to complete TP-248 Data Processing or 22C-100 Introduction to Computing with FORTRAN.

The candidate must complete a minimum of 30 semester hours required and elective courses in his or her area of specialization. The courses required by area of specialization are:

Adapted Physical Education
7U-150 Exceptional Children 3 s.h.
7Z-201 Research 5 s.h.
27-206 Adapted Physical Education: Special Topics and Research 3 s.h.
60-108 Human Anatomy 4 s.h.
60-109 Human Anatomy and Neuroanatomy 4 s.h.

Administration and Supervision in Physical Education
27-242 Supervision of Physical Education 3 s.h.
7O-201 Foundations of School Administration 3 s.h.
27-241 Research 4 s.h.
27-207 Advanced Administration of Physical Education 2 s.h.
27-227 Advanced Administration of Athletics 2 s.h.

Anatomy
60-203 Gross Human Anatomy for Graduate Students 6 s.h.
or
60-108 Human Anatomy 4 s.h.
or
60-109 Human Anatomy and Neuroanatomy 4 s.h.

37-112 Cell, Tissue, and Organ Biology 5 s.h.
27-153 Advanced Anatomy and Kinesiology 5 s.h.
27-295 Electromyography in Kinesiology and Biomechanics 3 s.h.

Biomechanics
627-100 Readings in Energy Engineering 6 s.h.
(includes mechanics of fluids, transfer processes, and deformable bodies)
585-155 Intermediate Dynamics 3 s.h.
644-102 Biomechanics 3 s.h.
60-108 Human Anatomy 4 s.h.
27-202 Practicum in College Teaching 2-4 s.h.
27-295 Electromyography in Kinesiology and Biomechanics 3 s.h.

27-367 Research Techniques in Biomechanics 4 s.h.
Curriculum in Physical Education
7T-300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
7T-201 Secondary School Curriculum 3 s.h.
7P-181 Introduction to Theories of Learning 3 s.h.
27-301 Research Seminar 3 s.h.
27-308 Seminar: Models and Theory in Curriculum 2 s.h.
28-243 Philosophy of Education 3 s.h.

Exercise Physiology
37-112 Cell, Tissue, and Organ Biology 5 s.h.
or
60-208 Microscopic Anatomy for Graduate Students 5 s.h.
37-162 Endocrinology Laboratory 2 s.h.
7T-106 Pharmacology for Health Sciences Medical 5 s.h.
7T-202 Exercise Physiology 2 s.h.
27-302 Physiology of Exercise Laboratory 2 s.h.
7T-212 Medical Physiology 5 s.h.
7T-274 Advanced Exercise Physiology Seminar 2 s.h.
27-303 Advanced Exercise Physiology Laboratory 2 s.h.
99-130 Metabolism 3 s.h.

Measurement and Evaluation
22C-100 Introduction to Computing with FORTRAN 3 s.h.
7P-243 Intermediate Statistical Methods 4 s.h.
or
7P-244 Correlation Methods 3 s.h.
or
228-153 Introduction to Probability 3 s.h.
and
228-154 Introduction to Mathematical Statistics 3 s.h.
7P-240 Design of Experiments 4 s.h.
7P-255 Construction and Use of Evaluation Instruments 3 s.h.
7P-257 Educational Measurement and Evaluation 3 s.h.
27-367 Seminar: Research in Measurement and Evaluation in Physical Education 3 s.h.

Motor Behavior and Learning
27-312 Selected issues in Learning Processing and in Motor Coordination 3 s.h.
27-314 Seminar in Motor Behavior Research 2 s.h.
31-223 Information Processing in Psychology 3 s.h.

Therapeutics
101-214 Principles of Human Motion II 3 s.h.
101-202 Analysis of Scientific Literature 2 s.h.
101-237 Research in Therapeutics 3 s.h.
101-280 Teaching Practicum 3 s.h.
or
101-282 Clinical Educational Practicum 3 s.h.
or
101-284 Practicum in Research 3 s.h.
7W-121 Designing and Developing Instructional Materials 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.A. or M.S. degree, and 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.

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 levels. Because of our cooperative efforts with other departments to facilitate specialization, physical education students use additional special facilities in other departments on the campus.
<table>
<thead>
<tr>
<th>Courses</th>
<th>27.08 Leadership Training A</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Consult instructor before registering.</td>
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</table>

### 27.06 Leadership Training B
Consult instructor before registering.

### For Undergraduates and Graduates

27.02 topics in... Physical Education and Athletics
Consult instructor before registering.

27.06 Administration of Physical Education and Athletics
Consult instructor before registering.

27.08 Professional Physical Education for Elementary School
Consult instructor before registering.

27.09 Physical Education for Elementary School
Consult instructor before registering.

27.10 Physical Education in Secondary Schools
Consult instructor before registering.

27.11 Special Education
Consult instructor before registering.

27.12 Health and Physical Education
Consult instructor before registering.

27.13 Exercise and Physical Education
Consult instructor before registering.

27.15 Physical Education and Athletics
Consult instructor before registering.

### 27.02 Topics in Physical Education and Athletics
Consult instructor before registering.

### 27.03 Administration of Physical Education and Athletics
Consult instructor before registering.

### 27.04 Professional Physical Education for Elementary School
Consult instructor before registering.

### 27.05 Physical Education for Elementary School
Consult instructor before registering.

### 27.06 Physical Education in Secondary Schools
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### 27.07 Special Education
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### 27.08 Health and Physical Education
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### 27.09 Exercise and Physical Education
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### 27.16 Professional Physical Education for Elementary School
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### 27.39 Special Education
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### 27.40 Professional Physical Education for Elementary School
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### 27.41 Health and Physical Education
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### 27.42 Exercise and Physical Education
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### 27.43 Special Education
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### 27.44 Professional Physical Education for Elementary School
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### 27.46 Exercise and Physical Education
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### 27.47 Special Education
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### 27.49 Health and Physical Education
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### 27.50 Exercise and Physical Education
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### 27.51 Special Education
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### 27.52 Professional Physical Education for Elementary School
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### 27.79 Special Education
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### 27.80 Professional Physical Education for Elementary School
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### 27.81 Health and Physical Education
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### 27.82 Exercise and Physical Education
Consult instructor before registering.

### 27.83 Special Education
Consult instructor before registering.

### 27.84 Professional Physical Education for Elementary School
Consult instructor before registering.

### 27.85 Health and Physical Education
Consult instructor before registering.

### 27.86 Exercise and Physical Education
Consult instructor before registering.

### 27.87 Special Education
Consult instructor before registering.

### 27.88 Professional Physical Education for Elementary School
Consult instructor before registering.

### 27.89 Health and Physical Education
Consult instructor before registering.

### 27.90 Exercise and Physical Education
Consult instructor before registering.
Physical Education and Dance—Halsey Gym

Chair: K Peggy Burke
Faculty: Vivian L. Zera
professor emerita Margaret D. Fox, Mil Grade Scott
associate professor Judith H. Allen, N. Peggy Burke, Christine H. Gravel, Jeanette L. Kudiel, Carol L. Stevens
assistant professor Arlene A. Stilwell, Diane C. Orr, Ruth A. Leaver, Judith M. Lindoro, Jennifer L. Martin, Frederick Marini, Tressa L. Stevens, Judith Spray
instructor Catherine Balind, Katherine M. Carlsen, Diane L. Chaps, Linda E. Choi, Judith A. Davidson, Stasiak Gisela, Carol M. Heaton, Jody A. McDermott, Virginia Perdue, Carol A. Stinson, Diane M. Thompson, Deborah L. Wrobel
Degrees offered: B.A., B.S., B.G.S., M.A., Ph.D.

The Department of Physical Education and Dance—Halsey Gym offers bachelor's degree programs in physical education (teaching and nonscience majors), the teaching of dance, dance performance, pre-physical therapy, and sports communications.

It offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees in physical education.

Physical Education Undergraduate Programs

Each undergraduate student in physical education elects a wide variety of courses and activities in preparation for careers in business and industry, sports journalism and broadcasting, fitness and health clubs, sport specialty and sports marketing, professional dance and theater, and public school teaching and coaching.

The student acquires theoretical background through anatomy, kinesiology, physiology, and health courses, with implications for the performance and teaching of movement skills.

The undergraduate programs are also designed to prepare the student for graduate work in physical education. (See "Graduate Programs" for areas of specialization.)

The student who plans to teach must meet certification requirements (see the "College of Education" section of the Catalog), must maintain at least a 2.2 grade point average, and must demonstrate competence for teaching and/or leadership roles.

The professional majors in physical education may lead to either the Bachelor of Arts or Bachelor of Science degree.

The department also administers a nonprofessional major leading to a Bachelor of General Studies degree in physical health, physical education, and recreation. This program is designed not to provide career preparation but to give the student a broad acquaintance with material relevant to personal and family recreation and healthful living. Each B.G.S. student individually plans his or her program with an advisor, following broad guidelines and oriented to the student's objectives.

The programs are all follows:

Physical Education and Dance Teaching
Physical Education and Dance Core Requirements

28:10 Introduction to Human Movement 1 s.h.
28:67 Advanced First Aid (or Red Cross certification) 3 s.h.
7E:71 Growth and Motor Development 2 s.h.
7E:72 Methods and Materials of Elementary School Physical Education 2 s.h.
28:60 Anatomy 3 s.h.
28:91 Kinesiology 3 s.h.
28:106 Physiological Implications for Teaching Physical Education 3 s.h.
28:114 History and Appreciation of Dance 3 s.h.
or
28:121 History and Philosophy of Physical Education 1-2 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.

Professional Education Requirements

7P:75 Educational Psychology and Measurement 3 s.h.
75:91 Pre-Education Practicum 2 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>28:19</td>
<td>Introduction to Human Movement</td>
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<tr>
<td>28:80</td>
<td>Anatomy</td>
<td>3.0</td>
</tr>
<tr>
<td>28:81</td>
<td>Kinesiology</td>
<td>3.0</td>
</tr>
<tr>
<td>28:105</td>
<td>Physiological Implications for Teaching Physical Education</td>
<td>3.0</td>
</tr>
<tr>
<td>28:113</td>
<td>Measurement</td>
<td>2.0</td>
</tr>
<tr>
<td>28:116</td>
<td>Methods and Administration of Physical Education</td>
<td>3.0</td>
</tr>
<tr>
<td>28:121</td>
<td>History and Philosophy of Physical Education</td>
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</tr>
<tr>
<td>28:125</td>
<td>Psycho-Social Dimensions of Sport</td>
<td>3.0</td>
</tr>
<tr>
<td>28:136</td>
<td>Teaching of Modern Dance</td>
<td>2.0</td>
</tr>
<tr>
<td>28:37</td>
<td>Advanced First Aid</td>
<td>3.0</td>
</tr>
<tr>
<td>28:71</td>
<td>Growth and Motor Development</td>
<td>2.0</td>
</tr>
<tr>
<td>28:105</td>
<td>Care of Athletic Injuries</td>
<td>3.0</td>
</tr>
<tr>
<td>28:142</td>
<td>Contemporary Issues of Health Education</td>
<td>3.0</td>
</tr>
<tr>
<td>28:162</td>
<td>Sports Analysis</td>
<td>3.0</td>
</tr>
<tr>
<td>28:17</td>
<td>1: Introduction to Financial Accounting</td>
<td>3.0</td>
</tr>
<tr>
<td>64:10</td>
<td>Administrative Management</td>
<td>3.0</td>
</tr>
<tr>
<td>28:161</td>
<td>*-2 Principles of Economics</td>
<td>3.0</td>
</tr>
<tr>
<td>7:11</td>
<td>Growth and Motor Development</td>
<td>2.0</td>
</tr>
<tr>
<td>7:106</td>
<td>Child Development</td>
<td>3.0</td>
</tr>
<tr>
<td>7:198</td>
<td>Coaching Practice</td>
<td>1:3</td>
</tr>
<tr>
<td>28:14</td>
<td>Coaching Women’s Sports</td>
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<tr>
<td>28:25</td>
<td>Teaching of Sports</td>
<td>2.0</td>
</tr>
<tr>
<td>28:26</td>
<td>Dance Production</td>
<td>3.0</td>
</tr>
<tr>
<td>28:115</td>
<td>Twentieth-Century Dance</td>
<td>2.0</td>
</tr>
<tr>
<td>28:120</td>
<td>Dance &amp; Education</td>
<td>2.0</td>
</tr>
<tr>
<td>28:73</td>
<td>Composition 1</td>
<td>2.0</td>
</tr>
<tr>
<td>28:74</td>
<td>Composition 2</td>
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</tr>
<tr>
<td>28:111</td>
<td>Methods and Materials of Teaching Children’s Dance</td>
<td>3.0</td>
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<tr>
<td>28:100</td>
<td>5 beginning skills</td>
<td>3.0</td>
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<tr>
<td>28:105</td>
<td>Care of Athletic Injuries</td>
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</tr>
<tr>
<td>7:198</td>
<td>Coaching Practice</td>
<td>1:3</td>
</tr>
</tbody>
</table>
semester hours must be in 100-level courses.

Health Education Secondary Approval
This secondary approval area (minimum standards, not a major) for low endorsement 20 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 Men 3 s.h.
27:53 Human Anatomy 2 s.h.
or 28:80 Anatomy 3 s.h.
48:56 Non-Prescription Drugs 2 s.h.
27:56 First Aid 0 s.h.
or 2a:37 Advanced First Aid 3 s.h.
or Red Cross certification

72:13 Introduction to Human Physiology 4 s.h.
7C:112 Human Sexuality 3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
28:144 Administration of School Health Program 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 (low endorsement 103), the student must earn at least 28 semester hours in that area of specialization, including these required courses:

17:41 Food, Nutrition, and Men 3 s.h.
27:53 Human Anatomy 2 s.h.
or 28:80 Anatomy 3 s.h.
27:56 First Aid 0 s.h.
or 2a:37 Advanced First Aid 3 s.h.
or Red Cross certification
48:56 Non-Prescription Drugs 2 s.h.
72:13 Introduction to Human Physiology 4 s.h.
7P:106 Child Development 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 Health Program 3 s.h.
28:146 Methods: Health Instruction for Elementary Grades 3 s.h.

Honors
The Honors Program is designed to serve the interests of superior students. It gives the participant some research experience and a perspective in certain aspects of graduate work. The honors student in graduate education takes 29:gh:9-1 Honors Readings, completes a research 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 3.0 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 400 master's degrees and over 150 doctoral degrees during the past half century. These graduates have gone on to provide distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud tradition of producing leaders has been furthered by recent graduates, and we continue to encourage high aspirations of both the young women and men we currently serve.

The curriculum assumes previous education in the respective fields. A program is planned with the individual in light of his or her previous education and anticipated future career. Completion of the graduate degree usually leads to teaching, coaching, administration, or specialization in the schools or in a university. Research preparation is provided for anyone who wishes a career in that area.

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, for the individual student. Work outside the department provides a broader view and enrichment for the selected specialization of the master's or doctoral candidate.

The most common areas of specialization have been administration of athletics and physical education, coaching, measurement and evaluation, history and philosophy of physical education and sport, sociology of sport, psychology of sport, and sports communication.

Internships are available in many areas, and are strongly encouraged for specializations in administration, coaching, and communication.

The graduate student group is cosmopolitan and international in makeup.

A research laboratory is available in Halsey Gymnasium. It is equipped particularly for psychosocial, measurement, and motor learning research. Other equipment needs may be met on an interdepartmental shared-use basis. A computer terminal is available at Halsey Gymnasium, and complete University computer service is available as needed for research.

Master of Arts
The M.A. degree is awarded on completion of at least 30 semester hours of graduate work including thesis, or 36 hours of coursework without thesis. The curriculum may lead to teaching, administration, supervision in the schools, coaching certification, or preparation for advanced degree work in the chosen area of specialization. The student must demonstrate competency in anatomy, kinesiology, psychology, and
Residency Requirement
Two semesters of at least 9 semester hours in residence are required.

Dance
Bachelor of Arts

Required
28D:26 Dance Production 3 s.h.
28D:29 Rhythmic Analysis of Dance 2 s.h.
28D:73 Composition I 2 s.h.
28D:74 Composition II 2 s.h.
28D:30 Anatomy 3 s.h.
28D:81 Kinesiology 3 s.h.
28D:11 History and Appreciation of Dance 3 s.h.
28D:16 Twentieth-Century Dance 3 s.h.
28D:173 Composition III 2 s.h.
28D:174 Composition IV 2 s.h.
28D:177 Beginning Labanotation 3 s.h.
38T:105 Dramatic Art Laboratory 4 s.h.

Electives
Twelve semester hours from the following:
28D:111 Methods and Materials of Teaching Children’s Dance (same as 75:125) 2-3 s.h.
28D:113 Ballet Pointe 1-2 s.h.
28D:117 Ballet Pedagogy 2 s.h.
28D:120 Dance in Education (same as 75:120) 2 s.h.
28D:128 Dance Production Laboratory 1-2 s.h.
28D:130 Improvisation 1 s.h.
28D:136 Teaching of Modern Dance 2 s.h.
28D:141 Introduction to Movement: Dynamics and Personality Growth 3 s.h.

Pre-requisites
The Ph.D. degree is awarded on completion of approximately 90 semester hours of graduate work, including general requirements for the master’s degree and credit for the dissertation.

Competency in the areas noted under the M.A. program is also required for doctoral enrollment. 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 language or computer science.

The language requirement may be satisfied by taking two semesters of a given language with a minimum grade of C, by passing 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
28D:26 Techniques of Research 3-4 s.h.
28D:302 Seminar: Perspectives in Human Movement 2 s.h.
28D:401 Thesis 3-6 s.h.

Specialization
The student must complete a specialization of 30 semester hours, including dissertation. A student may also take approximately 20 semester hours in one or more departments other than physical education. If appropriate, some of these may be counted toward the specialization. The following specialization areas have been approved: administration of physical education/sports, psychology of sport, psychology of sport, administration of athletics/physical education, coaching, dance, measurement and evaluation, methods and supervision, philosophy of physical education/sports, psychology of sport, psychology of sport, or sport communication. Students desiring other specializations are encouraged to submit a course of study to the graduate committee for consideration.

Students in both the general curriculum and in an area of specialization will work with an advisor in developing their program according to guidelines that have been set by the departmental graduate committee.

Doctor of Philosophy
The Ph.D. degree is awarded on completion of approximately 90 semester hours of graduate work, including general requirements for the master’s degree and credit for the dissertation.

Pre-requisites
The student must have completed at least 60 semester hours in the areas noted under the M.A. program is also required for doctoral enrollment. 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 language or computer science.

The language requirement may be satisfied by taking two semesters of a given language with a minimum grade of C, by passing 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.
Technique Requirement
Dance majors must take a technique class each semester, with a maximum of 14 semester hours allowed toward a degree, and including a minimum of 4 semester hours of ballet and 4 semester hours of modern dance from the following:

260:6 Modern Dance 1-4 s.h.
260:8 Major Modern Dance I 3 s.h.
260:26 Major Modern Dance II 3 s.h.
260:28 Major Modern Dance III 2 s.h.
260:10 Ballet 1-2 s.h.
260:11 Major Ballet I 2 s.h.
260:12 Major Ballet II 3 s.h.
260:13 Major Ballet III 2 s.h.
260:9 Jazz 1-2 s.h.

Dance Education
See the B.S. in physical education (dance specialization) program.

Master of Arts (Dance Specialization)
The M.A. degree in physical education (dance specialization) is awarded upon completion of at least 38 semester hours of graduate work including thesis. The curriculum may lead to teaching of dance or to further work toward a dance career.

Prerequisites
Audition 260:73-74 Composition I-II 4 s.h.
260:100 Anatomy 3 s.h.
260:65 Kinesiology 3 s.h.
260:26 Rhythmic Analysis of Dance 2 s.h.
260:28 Dance Production 3 s.h.
260:114 History and Appreciation of Dance 3 s.h.

Required Courses
Two semester hours from these four courses:

260:145 Graduate Technique Tap 1 s.h.
260:148 Graduate Technique Modern Dance 2 s.h.
260:149 Graduate Technique Jazz 1 s.h.
260:150 Graduate Technique Ballet 2 s.h.
260:173 Composition II or 260:174 Composition IV 2 s.h.
260:177 Beginning Labanotation 3 s.h.
260:216 Physiological Functioning in Physical Education 3 s.h.
260:205 Techniques of Research 3-4 s.h.
260:115 Twentieth-Century Dance 3 s.h.
or 260:176 Dance Theory 3 s.h.
or 260:178 Criticism of Dance 3 s.h.
260:304 Seminar: Dance 2 s.h.
260:302 Seminar: Perspectives in Human Movement 3 s.h.
260:401 Thesis 3-4 s.h.

Elective courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the adviser.

Faculty
The faculty represents diversified backgrounds and specializations. Abilities and interest are complementary. Most faculty members hold advanced degrees. Several bring educational backgrounds from abroad. All are experienced teachers. Graduate faculty members are experienced in research and writing and are available for the guidance of graduate students in their areas of specialization. Many hold significant leadership positions and are frequently called upon for lectures, speeches, and research presentations.

Facilities
Gymnasiums, dance studios, special exercise rooms, and pools are used in the various programs in Halsey Gymnasium, North Hall, the Field House, the Recreation Building, and the recreation area at the Memorial Union. The field for outdoor sports and land-surfaced tennis courts are near Halsey Gymnasium. The proximity of the river makes canoeing instruction feasible in a regular class schedule. The archway range is located along the river in a rustic setting, outdoor fields and a track are available between the Field House and the Recreation Building. The University golf course is used for some classes and for the women's intercollegiate golf team.

Courses

Physical Education

Primarily for Undergraduates

318:16 Pacific Physical Education 1 s.h.
318:17 Human kinetics majors only. May be repeated.
318:18 Non-Major Track: Physical Education 1 s.h.
Electives, upon approval of those who have completed prerequisite in physical education are. May be repeated.
318:19 Coaching Women's Sports 1 s.h.
Introduction to the mechanics and psychology of coaching.
318:20 Junior, Senior, and Water Safety Instructor's Course 1 s.h.
Lead to Red Cross Junior Water Safety Certificate or Instructor's Certificate. Register after consultation with instructor.
318:21 Introduction to Human Kinesiology 1 s.h.
Study of the gestures of physical education and related disciplines, manual approach with guest speakers, job alternatives and opportunities discussed.
318:24 Teaching of Sports 3 s.h.
Methods of teaching tennis and individual sports.
318:25 Teaching of Sports 3 s.h.
318:17 Teaching of Dance 3-4 s.h.
Methods and techniques for the teaching of ballet, jazz, tap, and other forms of dance. Some attention is given to development of dance for young children, treatment of dance for individuals with disabilities, and the teaching of movement, emotion, and social dance. Dance may 3rd-4th. Prerequisites: 1 semester upper division coursework in music or dance. Consent of instructor.
318:329 Interdepartmental Elective: Physical Education 3 s.h.
Varying activities open to all students.
318:339 Officialing 1 s.h.
Officialing techniques for team sports.
318:339 Officialing 1 s.h.
May fulfill 20:01 or be taken as independent study.
318:37 Advanced Field 1 s.h.
Leadership for American Red Cross Advanced First Aid and Emergency Care Certificates.
340:01 Tennis 1 s.h.
340:41 Golf 1 s.h.
340:42 Badminton 1 s.h.
340:42 Volleyball 1 s.h.
340:41 Gymnastics 1 s.h.
340:41 Outdoor Dance 1 s.h.
340:41 Field Sports 1 s.h.
340:41 Softball 1 s.h.
340:41 Soccer 1 s.h.
340:41 Basketball 1 s.h.
350:31 Modern Dance I 1 s.h.
350:34 Modern Dance II 1 s.h.
350:91 Field and Related Dance Basic 50:60 dance courses; beginners in intermediate and advanced western square dance, beginning through advanced western, square dance, and popular dance; background and cultural information included.
350:92 Tricks and Field 1 s.h.
Dance

Primary for Undergraduates

250-T5  12 s.
Beginning Modern Dance

250-T6  14 s.
Beginning Modern Dance I

250-T7  12 s.
Beginning Jazz

250-T12  12 s.
Prerequisite: Beginning ballet technique.

250-T13  12 s.
Low intermediate level. May be repeated.

250-T15  12 s.
Intermediate level. Open to those who have completed 250-T12 or 260-T14 or equivalent. May be repeated.

250-T16  12 s.
Advanced level. Open to those who have completed 260-T16 or equivalent. May be repeated.

250-T18  12 s.
Introduction to Modern American Dance

250-T21  12 s.
Dance Production

250-T22  12 s.
Organization and procedures of all aspects of dance production.

250-T26  12 s.
Theater of Dance

250-T29  12 s.
Analytic Analysis of Dance

250-T35  12 s.
Mood and Movement of Dance

250-T36  12 s.
Intermediate level. May be repeated.

250-T37  12 s.
Advancement in modern dance technique. Continuation of 250-T36. May be repeated.

250-T91  12 s.
Advanced Compositional Process

250-T93  12 s.
Independent Study

For Undergraduates and Graduates

251-117 Methods and Materials of Teaching Children

251-T5  12 s.
Preparing creative movement experiences for the elementary school child. Series (2) 76:12.

251-T10  12 s.
Elementary dance techniques.

251-T11  12 s.
History and Analysis of Dance

251-T12  12 s.
Dance of the development of dance from primitive origins through the romantic period; emphasis on changing forms and functions of dance in society.

251-T13  12 s.
Twentieth-Century Dance

251-T14  12 s.
development of dance from the end of the romantic period to the present; including modern and social dancing.

251-T17  12 s.
Relief Pedagogy

251-T18  12 s.
Methods and materials of teaching beginning ballet.

251-T20  12 s.
Dance in Education

251-T29  12 s.
Historical contemporary trends of dance at all levels of education. Same as 76:100.

251-T31  12 s.
Arts in Residence
Physical Therapy
See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Physician's Assistant Program
See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Physics and Astronomy

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 industry.

The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but who do not 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 may provide 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>23M:25-26</td>
<td>Calculus I-II</td>
<td>8</td>
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<tr>
<td>23M:27</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>23M:28</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>23M:35-37</td>
<td>Engineering Calculus</td>
<td>4</td>
</tr>
</tbody>
</table>

Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in physics:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>23M:25-26</td>
<td>Calculus I-II</td>
<td>8</td>
</tr>
<tr>
<td>23M:35-36</td>
<td>Engineering Calculus</td>
<td>8</td>
</tr>
<tr>
<td>23M:27</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
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</tr>
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</table>

Physics and Astronomy/LIBERAL ARTS 169
Undergraduate Major in Astronomy

Astronomy includes the subdisciplines of astrophysics, classical astronomy, radio astronomy, and space astronomy. A balanced and integrated program of astrophysics, physics, and mathematics courses is required for the Bachelor of Arts degree in astronomy. The purpose of this program is to prepare the student for a career or advanced study in astrophysics, radio astronomy, or space astronomy.

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in astronomy:

- **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.

or

- **22M:35-37 Engineering Calculus I-II** 12 s.h.
- **22M:38 Differential Equations and Linear Algebra** 4 s.h.

- **29:17-19 Introductory Physics I-II** 12 s.h.
- **29:61-62 General Astronomy** 8 s.h.
- **29:115 Intermediate Mechanics** 3 s.h.
- **29:116 Introductory Quantum Mechanics** 3 s.h.
- **29:119-120 Introduction to Astrophysics I-II** 6 s.h.
- **29:129-130 Electricity and Magnetism** 8 s.h.
- **29:132 Intermediate Laboratory Two semesters** 4 s.h.
- **29:137 Astronomical Observatory** 2 s.h.
- **29:191 Atomic Physics** 3 s.h.

Undergraduate majors in astronomy who plan to pursue graduate study in astrophysics are advised to go beyond the minimum requirements listed above to the greatest feasible extent, and have:

- **29:117 Optics** 3 s.h.
- **29:118 Statistical Physics** 3 s.h.
- **29:171-172 Mathematical Methods of Physics** 6 s.h.

A program of courses suitable for a minor in physics or astronomy for baccalaureate candidates can be put together out of upper level courses offered for undergraduate and graduate. A few of courses approved will credit toward a minor is available in the department office.

For general requirements of the College of Liberal Arts, see the "College of Liberal Arts" section of the Catalog.

Honors

Selected junior and senior majors may take six to eight semester hours of 29:29 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their program for the Bachelor of Arts or Bachelor of Science with honors in physics or astronomy.

Graduate Program

Two advanced degrees are offered in physics, the Master of Science (with or without thesis) and the Doctor of Philosophy, and one in astronomy, the Master of Science (with or without thesis). A student who wishes to pursue a program in astronomy beyond the M.S. level may qualify for a Doctor of Philosophy degree in physics with specialization and a dissertation in astronomy or astrophysics.

An M.S. degree is not prerequisite to the Ph.D.

The Department of Physics and Astronomy cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematical Sciences (see the "Graduate College" section of the Catalog).

An interdepartmental program leading to the M.S. and Ph.D. degrees in chemical physics is also available.

Each entering graduate student is assigned to a faculty adviser who will assist in preparing a plan of study and in guiding the student's progress. A graduate student becomes a candidate for an advanced degree in physics or astronomy only after passing a satisfactory examination in all principal areas of the subject at the level of advanced undergraduate work. The examination is given during the first week of the second semester each year and must be taken by all first-year graduate students. After a student has selected a research specialty, the appropriate thesis or essay adviser becomes the candidate's general adviser and the chair of the final examination committee.

Master of Science in Physics

The M.S. degree in physics is offered with thesis or without thesis. Either degree may be an intermediate step toward a Ph.D. degree, or a terminal degree. The final examination in either case is an oral one, conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College.

The program for the M.S. degree with thesis requires 30 semester hours of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 6 of the minimal 30 semester hours may be used in research (29:261 Research: Physics).

The program for the M.S. degree without thesis requires 30 semester hours of graduate work, an independent study of the literature on a chosen topic, and the preparation of a critical essay on that topic. No more than 4 of the minimal 30 semester hours may be for the critical essay (29:220 Selected Critical Study).

Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics, for example, chemistry, astronomy, engineering, etc.

The candidate for either of the M.S. degrees must have satisfactorily completed the following course or their equivalents as an undergraduate or a graduate:

- **29:115 Intermediate Mechanics** 3 s.h.
- **29:118 Introductory Quantum Mechanics** 3 s.h.
- **29:117 Optics** 3 s.h.
- **29:118 Statistical Physics** 3 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:130 Advanced Laboratory (two semesters) 4 s.h.
29:171-172 Mathematical Methods of Physics 8 s.h.
29:191 Atomic Physics 3 s.h.
29:192 Nuclear Physics 3 s.h.
29:193 Introductory Solid State Physics 3 s.h.

The student's plan of study should provide for as much advanced work as aptitude and previous preparation permit.

Master of Science in Astronomy

The M.S. degree in astronomy is offered with thesis or non-thesis. The general requirements are the same as for the M.S. in physics (see above). Course requirements are:

29:115 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 6 s.h.
29:121 Solar System
Astrophysics 3 s.h.
29:130-130 Electricity and Magnetism 6 s.h.
29:133 Advanced Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:171-172 Mathematical Methods of Physics 8 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 as in his or her master's program as possible:

29:131 Radio Astronomy 3 s.h.
29:233-233 Theoretical Astrophysics 6 s.h.
29:234 Stellar Structure and Evolution 4 s.h.
29:235 Special Topics in Astrophysics 2 s.h.
29:263 Seminar: 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 coursework in both classical and modern theoretical physics for all candidates, whether their specialized research is to be in an experimental or a theoretical area;

Comprehensive examinations;

Participation in advanced seminars;

Original research in experimental physics, theoretical physics, or astrophysics; and

Preparation and defense of a written dissertation based on this work. All candidates for the Ph.D. must take at least 27 semester hours of 200-level courses in the department, excluding 29:220, 29:281, and seminars. The following minimum program is recommended as 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.
29:205 Classical Mechanics 3 s.h.
29:212 Statistical Mechanics I 3 s.h.

Electrodynamics 6 s.h.
29:245-246 Quantum Mechanics I-II 6 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 30 of the minimal 72 semester hours may be in research and seminars.

A candidate for the Ph.D. degree will not be recommended for the degree until he or she has written the dissertation in proper form for formal publication and has submitted it, with the approval of the research adviser, to a widely-distributed standard scientific journal for publication.

Financial Assistance

Persons qualified for graduate study are encouraged to apply for fellowships and assistantships. Inquiries should be directed to the head of the department.

Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. The associated 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 shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and machine 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; magnetospheric physics; solar-terrestrial, interplanetary, and planetary physics; atomic and molecular physics; low temperature physics; laser physics; and acoustics of musical instruments.

A major 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 computerized decoding and analysis of data. An unusually versatile 60-kW Van de Graaff accelerator, 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. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, and compounds are included in the experimental solid state program, as are surface studies of metals and semiconductors. Several experimental double plasma devices are used to study convection, nonlinear waves, and turbulence effects in low-temperature, steady-state plasmas. A variety of laser spectroscopy and molecular beam
24:03 Electrical and Electronics Engineering

Basic principles and practical experience necessary to operate with confidence; topics include the electrical properties of materials, electrical application of semiconductors, electromechanical devices, semiconductors, electrical machines, and transformers. Students must pass all prerequisite courses before enrolling.

24:05 Mechanics

Fundamentals of mechanics, including statics and dynamics, and the application of these principles to the design and analysis of structures and machines.

24:06 Plant and Animal Behavior

The study of the behavior of plants and animals, including behavior patterns, communication, and ecological relationships.

24:07 Microbiology

The study of microorganisms, including their classification, physiology, and impact on the environment.

24:08 Genetics

The study of heredity, including the transmission of genetic traits, molecular genetics, and genetic engineering.

24:09 Biometry

The application of statistical methods to biological research, including experimental design and data analysis.

24:10 Environmental Science

The study of the interaction between living organisms and their environment, including ecology, conservation, and environmental policy.

24:11 Oceanography

The study of the oceans, including their physical and chemical properties, and the marine environment.

24:12 Meteorology

The study of atmospheric processes and their impact on weather and climate.

24:13 Computer Science

The study of computer systems, including hardware, software, and programming languages.

24:14 Philosophy

The study of the nature of reality and the role of reason in human knowledge.

24:15 History and Sociology

The study of human societies and their development, including historical events and social structures.

24:16 Political Science

The study of government and politics, including political institutions, policies, and public opinion.

24:17 Economics

The study of the allocation of resources, including market systems, economic growth, and economic policies.

24:18 Sociology

The study of human societies and their structures, including social interactions and social institutions.

24:19 Psychology

The study of the mind and behavior, including cognitive processes, emotions, and personality development.

24:20 Anthropology

The study of human cultures and societies, including archaeology, linguistics, and cultural diffusion.

24:21 Archaeology

The study of human history, including the excavation and study of archaeological sites.

24:22 Geography

The study of the Earth's physical and human features, including climate, landscapes, and cultural patterns.

24:23 Urban Studies

The study of urban environments, including urban development, planning, and policy.

24:24 Environmental Studies

The study of environmental issues, including sustainability, resource management, and environmental policy.

24:25 Environmental Science

The study of the environment, including environmental science, environmental policy, and environmental remediation.

24:26 Environmental Economics

The study of the economic aspects of environmental issues, including environmental policy, environmental economics, and environmental law.

24:27 Environmental Law

The study of environmental regulations and their enforcement, including environmental policy, environmental economics, and environmental law.

24:28 Environmental Policy

The study of environmental policy, including environmental regulations, environmental economics, and environmental law.

24:29 Environmental Science

The study of the environment, including environmental science, environmental policy, and environmental remediation.

24:30 Environmental Economics

The study of the economic aspects of environmental issues, including environmental policy, environmental economics, and environmental law.

24:31 Environmental Law

The study of environmental regulations and their enforcement, including environmental policy, environmental economics, and environmental law.

24:32 Environmental Policy

The study of environmental policy, including environmental regulations, environmental economics, and environmental law.

24:33 Environmental Science

The study of the environment, including environmental science, environmental policy, and environmental remediation.

24:34 Environmental Economics

The study of the economic aspects of environmental issues, including environmental policy, environmental economics, and environmental law.

24:35 Environmental Law

The study of environmental regulations and their enforcement, including environmental policy, environmental economics, and environmental law.

24:36 Environmental Policy

The study of environmental policy, including environmental regulations, environmental economics, and environmental law.

24:37 Environmental Science

The study of the environment, including environmental science, environmental policy, and environmental remediation.

24:38 Environmental Economics

The study of the economic aspects of environmental issues, including environmental policy, environmental economics, and environmental law.

24:39 Environmental Law

The study of environmental regulations and their enforcement, including environmental policy, environmental economics, and environmental law.

24:40 Environmental Policy

The study of environmental policy, including environmental regulations, environmental economics, and environmental law.

24:41 Environmental Science

The study of the environment, including environmental science, environmental policy, and environmental remediation.

24:42 Environmental Economics

The study of the economic aspects of environmental issues, including environmental policy, environmental economics, and environmental law.

24:43 Environmental Law

The study of environmental regulations and their enforcement, including environmental policy, environmental economics, and environmental law.

24:44 Environmental Policy

The study of environmental policy, including environmental regulations, environmental economics, and environmental law.
Undergraduate Programs

Bachelor of Arts
A student seeking the B.A. degree with a major in political science must complete 27 semester hours of coursework in political science and 12 in one of these departments: economics, geography, history, journalism, philosophy, psychology, sociology, or anthropology.

The coursework in political science must include:
- 30:1 Introduction to American Politics
- 30:2 Introduction to Politics
It must also include two of these:
- 30:30 Introduction to Political Thought
- 30:40 Introduction to Comparative Politics
- 30:80 Introduction to Political Behavior
- 30:80 Introduction to World Politics

It must include at least 15 semester hours in political science courses numbered 100 or above. Transfer students must take at least 9 of the 27 semester hours of work in political science at The University of Iowa. Students must maintain at least a 2.0 grade-point average in all political science courses taken at The University of Iowa, and in all courses in the related departmental areas of concentration.

Bachelor of Science
Major requirements for the B.S. in political science are the same as for the B.A., except that two semesters of college-level courses (or the equivalent) in a foreign language are required, and the student must take three semesters of mathematics or statistics. Courses recommended for the mathematics/statistics requirement:

- 26:101 Calculus I
- 22:101 Introduction to Statistical Methods
- 22:140 Intermediate Statistical Methods

Other courses may be used, with the written approval of the director of undergraduate studies in political science.

Teaching Major
Undergraduates planning to teach in the social sciences with an emphasis on political science must meet these requirements:

- Some political science courses required as for the B.A. and B.S., except that the minimum requirement in political science courses numbered above 100 is 8 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 general grade-point average of 3.0 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 3.0. Honors students must take 30:180 Honors Introduction to Political Inquiry, and must complete at least two upper-level departmental courses, such as 30:182-183 Junior Seminar, with a grade of B or better each semester. Students interested in seeking a B.A. degree with honors should contact the departmental honors advisor prior to the beginning of the junior year.

Graduate Programs
At the graduate level, the department emphasizes the program leading to the Doctor of Philosophy degree in political science, which is particularly appropriate for students planning a scholarly academic career; and the Master of Arts in public affairs program, designed for students who wish to
prepare for careers in government service, public affairs, or civic education teaching in secondary schools or junior and community colleges. The general M.A. degree is normally pursued by persons with ultimate degree objective to the Ph.D.

Master of Arts in Public Affairs

Although all students in the public affairs program must take the core courses indicated in the schedule below, elective opportunities make possible several areas of specialization. Students interested in public administration may use their elective credit to take further courses in equivalent, state, or financial administration; administrative theory and behavior; or quantitative analysis. Students interested in public policy analysis may use their elective credit to take courses in quantitative research methods, and courses dealing with substantive policy fields such as economic policy, health policy, natural resources policy, or social policy.

The M.A. in public affairs is a thesis program. The student must complete at least 36 hours of coursework with at least a 3.0 grade-point average, and must pass a written final examination. Although the schedule suggested below implies completion within a year, the program is sufficiently flexible to accommodate students who may require additional time to meet all degree requirements.

Fall Semester
30:220 Administrative Theory and Public Policy 3 s.h.
30:118 Economics of the Government Sector 3 s.h.
Electives 9 s.h.

Spring Semester
30:222 American Public Policies 4 s.h.
30:329 Problems in Public Administration and Policy 4 s.h.
Electives 4 s.h.

Summer Session
30:391 Internship in Public Policy and Administration 3 s.h.
or
30:392 Practicum in Public Policy and Administration 3 s.h.

Elective 3 s.h.
Total 36 s.h.

Students are expected to choose at least one elective numbered 200 or above. In addition to a wide range of options in political science, the student may choose electives including economics, business administration, urban and regional planning, sociology, geography, higher education, social studies education, civil engineering, and law.

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 preliminary 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 the thesis and coursework.

M.A. without Thesis

If a student's first-year evaluation committee finds that he or she has completed coursework and research papers provisionally demonstrated in a master's thesis, it may recommend that he or she be allowed to proceed with a doctoral program without writing a thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.0, and review of the student's record by a final examination committee, which may waive the final oral examination.

The same requirements apply where a first-year evaluation committee finds the quality of a student's work inadequate for recommending continuation toward the Ph.D. but adequate for proceeding with the master's program, and recommends that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

The student seeking a Ph.D. degree must demonstrate command of one foreign language or other tool of research, selected with the approval of the doctoral committee. If the tool is other than a foreign language, the student's doctoral committee will specify the criteria to determine whether the requirement has been met. The tool requirement must be met before the student takes the comprehensive examination.

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
- Comparative politics
- International politics
- Political theory
- Public policy and administration
- Philosophy and methods of political research.

Before taking the written examinations, candidates must present a written dissertation proposal, which must explain and defend the proposal in an oral examination, which may also deal with any matter relevant to the written examinations.

Each Ph.D. candidate in political science must take at least one semester of special supervised training in teaching and in research. This instruction is normally given a student's assignment 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...
ecient and capable students to participate in some of the research projects being carried out in the department.

The department offers a minor program which should be attractive to students from a variety of disciplines. At least 8 of the 15 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 advisors can assist students in identifying sequences of courses for a minor which appropriately complement the student's major.

Bachelor of Arts

The student must satisfy the general College of Liberal Arts requirements for the B.A. degree and must complete at least 25 semester hours in psychology. At least 15 semester hours of the major must be completed in this department.

The B.A. program must include 31:1 Experimental Psychology I; 31:3 General Psychology, or equivalent; 31:43 Evaluating Psychological Research, or equivalent; and one area elective course or minor from among the five area groupings given below. The 31:43 requirement may be satisfied by a combination of 31:43 Introduction to Statistical Methods and 31:520 Experimental Psychology I, or equivalent. This alternative is strongly recommended to students in the B.A. program who plan to pursue graduate work in psychology or a related area.

Bachelor of Science

The student must satisfy the general College of Liberal Arts requirements for the B.S. degree and must complete at least 32 semester hours of course credit in psychology. At least 15 semester hours of the major must be completed in this department.

The B.S. program must include the following course, or equivalent; 31:1 Elementary Psychology, or 31:3 General Psychology; 31:43 Introduction to Statistical Methods; 31:127 Experimental Psychology I; 31:127 Experimental Psychology II; and one elective course from each of four or the five area groupings given below, with at least three of these four area electives being 100-level courses.

Candidates for the B.S. degree in psychology must satisfy the College of Liberal Arts natural science core requirement with two semesters of chemistry, or two semesters of physics, or one semester each of chemistry and physics, or one semester each of inorganic chemistry and zoology. The student should consult with his or her advisor concerning specific courses which will satisfy this requirement.

Students preparing for the B.S. must also complete either one semester of calculus and two semesters of one foreign language, or two semesters of mathematics through analytic geometry and four semesters of one foreign language.

The courses in natural science and mathematics required for the B.S. degree cannot be taken pass/fail.

Area Electives

Biopsychology and Physiological Psychology

31:50 Comparative Psychology and Ethology 3 s.h.
31:125 Psychology of Learning 3 s.h.
31:125 Brain Function and Learning 3 s.h.
31:126 Physiological Psychology and Psychophysiology 3 s.h.
31:129 Introduction to Behavioral Pharmacology 3 s.h.
31:129 Biological Aspects of Behavior 3 s.h.
31:135 Operant Behavior Analysis 3 s.h.

Clinical Psychology

31:13 Introduction to Clinical Psychology 3 s.h.
31:126 Personality 3 s.h.
31:161 Current Theories of Abnormality 3 s.h.
31:187 Abnormal Psychology 3 s.h.
31:188 Personality 3 s.h.
31:170 Behavior Modification 3 s.h.

Child and Developmental Psychology

31:14 Introduction to Child Psychology 3 s.h.
31:12 Development of Social Judgment 3 s.h.
31:14 Cognitive Development of Children 3 s.h.
31:166 Psychology of Sex Differences 3 s.h.
31:146 Individual Differences in Developmental Psychology 3 s.h.
31:153 Psychology of Language 3 s.h.

General Experimental Psychology

31:16 Introduction to Mental Processes 3 s.h.
31:102 Psychology as a Science 2 s.h.
31:11 Learning and Motivation in Children 3 s.h.
31:113 Psychology of Language 3 s.h.
31:119 Human Memory, Learning, and Conceptual Processes 3 s.h.
31:132 Motivation 3 s.h.
31:133 Perception 3 s.h.

Social Psychology

31:15 Introduction to Social Psychology 3 s.h.
31:103 Development of Children's Social Behavior 3 s.h.
31:106 Attitude Change 3 s.h.
31:105 Small Group Processes 3 s.h.

*Only one of these courses can be used to satisfy all area requirements.

Honors

The department has an active honors program open to majors with at least a 3.5 grade-point average in psychology courses and 3.0 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in the department's 31:95 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 to provide comprehensive training leading to the Ph.D. degree with emphasis in one of the following areas:
animal learning and biopsychology, child and developmental psychology, clinical psychology, general experimental psychology, social psychology, and social psychology. The program is designed to provide both general training and specialty training, with sufficient flexibility to encompass a wide spectrum of student interests. The primary purpose of the program is to produce graduates who are deeply committed to the study of behavior, familiar with fundamental knowledge about behavioral processes, thoroughly trained in the methods and techniques for careful investigation of basic and applied problems, and determined to make significant contributions to the discipline of psychology and to society generally.

The most appropriate jobs for graduates of this program are in academic, governmental, business, or private institutions which provide opportunities for continuing analysis and investigation of fundamental questions about behavior, for teaching about research results and methodologies, and for application of psychological knowledge and techniques to the solution of important practical problems. Prospective applicants should understand that the number of such positions is sharply limited and the competition for available openings is intense.

The graduate program in psychology is designed as a three-year program leading to the Ph.D. degree; students in the clinical area ordinarily have an additional off-campus internship year. A student entering with a master's degree from another institution will require at least two additional years in this department, depending on the nature and extent of previous research activity.

Master of Arts with Thesis

The Master of Arts degree with thesis is available and ordinarily is the degree taken by students who decide to terminate their work in this department after four semesters. The M.A. without thesis requires satisfactory completion of at least 30 semester hours of graduate credit, including courses required by the department, and successful performance on a written and/or oral examination covering the student's area of specialization. During the first three semesters, each beginning graduate student follows a curriculum involving both required and elective courses designed to develop understanding of the content, theory, research methods, and investigative techniques appropriate to the student's area of specialization. Students also engage in a supervised research practicum during each of these semesters.

By the end of the third semester, each teaching student is expected to have demonstrated competence in coursework and in research practice, and to have participated effectively in the teaching, research, and service functions of the department. In addition, each student intending to proceed toward the Ph.D. is expected to have made substantial progress in planning for the master's research project. A faculty-wide review of each student's progress is conducted at the point in the student's program.

Doctor of Philosophy

The Ph.D. degree in this department requires satisfactory completion of at least 72 semester hours of graduate credit, including at least 33 in the department. The student must satisfy requirements in statistics and in writing, and is expected to take sufficient work outside the specialty area to develop a reasonably broad background in the discipline of psychology as a whole.

The student is encouraged to become familiar with the history and philosophy of psychology. The nature of these requirements and their placement within the graduate program varies somewhat among the training areas, and depends also on the individual student's background and interests.

Formal advancement of a student to Ph.D. candidacy follows a review conducted after the fifth semester. By this time the student must have completed and defended the master's thesis, demonstrated an ability to approach psychological problems in an independent and creative manner, and passed a comprehensive examination. During the latter part of the third year and the first part of the fourth year, and while continuing selected coursework and advanced seminars, the student develops a prospectus for the dissertation research. Following approval of the prospectus, work toward the Ph.D. proceeds with the conflict of the doctoral study, preparation of the dissertation and, finally, the Ph.D. final examination, which is an oral defense of the dissertation.

More specific information about training area programs, degree requirements, policies and procedures for evaluation of student progress and performance, and other matters of concern to graduate students is set forth in the department's Graduate Handbook, which is provided to each student at the time of initial registration.

Graduate Specialty Areas

Animal Learning and Biopsychology

The focus of the program in animal learning and biopsychology is on the analysis of learning and motivation, primarily in nonhuman subjects, through the application of behavioral and physiological principles. Students in this program will have the opportunity to learn the most modern analytical and laboratory methods in computer-assisted experimentation, electronic instrumentation, learning and histological techniques, and biochemical assay procedures. Special faculty

background in the discipline of psychology as a whole.
Child and Developmental Psychology

The child and developmental psychology program provides opportunities for students to acquire a general understanding of the child-developmental field, as well as a focused understanding of developmental trends within a specific field. Specialized tracks include sensory and perceptual processes, verbal processes and memory, learning and thinking, social processes, and developmental psychology.

Social Psychology

The social psychology program offers specialized training in three subareas: social influences on behavior, attitude formation and change, and the psychology of groups. The list of these includes such phenomena as social learning, imitation, conformity, social facilitation, behavioral contagion, and social reinforcement. The second includes attitude acquisition, cognitive consistency, and the analysis of commitment, perception, and attribution. Under the third subarea, one might focus on group versus individual performance, on interdependence, or on topics in the area of social interaction.

In addition to thorough training in the basic disciplines of experimental psychology, statistical analysis, computer processing, etc., the student in the social area has ample opportunities to attend several observation laboratories and to develop skill in the conduct of field investigations.

Clinical Psychology

The clinical program strongly emphasizes an empirical approach to the study of psychopathology. It is designed for students who are primarily interested in developing scholarly understanding of psychopathology and obtaining research skills necessary to the systematic investigation of such phenomena.

Recognizing that students must become familiar with clinical material and competent in clinical skills, the department closely integrates practical experience into its Carl E. Seashore Psychology Clinic with coursework in the context, theory, and research methods in psychology, and with supervised research experience. Students may develop special competencies in such areas as psychophysiology, hypnosis, psychotherapy, behavior therapy, schizophrenia, psychodiagnosis, depression, and clinical-developmental psychology.

A special training program supervised jointly by faculty members from the clinical area and from the child and developmental area is available for students with interests in clinical aspects of childhood and development. Similar joint programs combining clinical training with substantial work in one of the department's other graduate training areas can be arranged.

Advanced students have opportunities for gaining additional practical experience through placements in clinical facilities maintained by local, state and University agencies. Students ordinarily begin a one-year internship at an accredited clinical facility either before or after completion of the four-year academic program. The clinical training program is fully approved by the American Psychological Association.

General Experimental Psychology

The general experimental program focuses on the study of human behavior. Three major subareas are represented: cognitive processes, sensation and perception, and experimental child psychology. Students specializing in cognitive processes acquire expertise in areas such as information processing and decision making, learning and memory, and concept formation and language behavior. Students with interests in sensation and perception may concentrate on visual perception, auditory processes, or mathematical models in perception and psychophysiology. Students in experimental child psychology specialize in areas such as discrimination learning, problem solving, and the transfer of training.

The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Swezey Laboratories of Psychology and adjoining space in East Hall, include three experimental animal facilities, several laboratories, a psychology laboratory, a number of small laboratory computers, automated data acquisition and reduction systems, observation suites with remote audiovisual input and recording equipment, soundproof chambers, closed-circuit TV systems, electrophysiological recording rooms, conditioning laboratories, the Carl E. Seashore Psychology Clinic, and well-equipped electronic, mechanical, and woodworking shops. Specially equipped research facilities are available for use in studies conducted at schools and other locations.

The University's WATAC, Computing Center, an IBM 370-158 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 East Hall. Office space for graduate students and faculty is provided in East Hall, and this psychology-education branch of the University's main library is conveniently located in the west wing of East Hall.

The research and teaching activities of the department are greatly benefited by the facilities and staff of other university and local agencies, including the University's Early Childhood Education Center, the University's General, Children's, and Psychiatric Hospitals, the Veterans Administration Hospital, the University Counseling Center, the Child Development Clinic, the Speech
and Hearing Clinic, and the Institute of Urban and Regional Research.

Financial Assistance

All students admitted to the graduate training program in psychology automatically are considered for the basis of merit, for which financial support as may be available in the form of teaching assistantships, research assistantships, fellowships, tuition scholarships, etc. No separate application for financial aid is required.

Graduate Admission

As is evident from the preceding paragraphs, the graduate program in psychology is geared primarily to students seeking the Ph.D. degree. All applicants are considered on this basis. A very small number of qualified applicants interested in advanced work only through the M.A. level may be admitted, primarily those who intend to pursue a joint graduate program involving psychology and another discipline or profession. Joint programs must be specially designed and the individual must apply to and be accepted by each program.

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 comprehensive consideration of prior academic performance, letters of reference, scores on the verbal and quantitative sections of the Graduate Record Examination, and the applicant's statement of reasons for pursuing advanced work in psychology. Initial review of admission materials is done by faculty members in the specialty area in which the applicant expresses primary interest.

An undergraduate major in psychology, including a laboratory course in experimental psychology, a course in statistics, and additional work in the natural sciences and math, is recommended though not required. Students who have not had such a background but are strongly qualified on other grounds may be admitted, but will be expected to quickly develop the necessary skills through special coursework or independent study prior to embarking on the regular graduate program.

A student who has completed substantial graduate work at another institution at the time of admission to this program will be expected to present documents, such as the master's thesis or equivalent, which demonstrate significant accomplishment in research and scholarly writing. This material and the record of previous graduate coursework will be reviewed 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 substantive research or writing for a master's degree at another institution while in 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 M.A. or the Ph.D. degree in psychology.

Special Faculty Strengths

National rankings of graduate programs in psychology consistently have shown this department to be among the top 20 in the nation. The weekly recognized commitment of the faculty to research and scholarship is manifest in the publication of some 45 articles, books, and technical reports each year, and in the fact that many of the faculty members are, or have been, active as editors, associate editors, and regular contributing editors for major psychological journals.

Courses for Undergraduates

Either 311 or 313 is prerequisite to all other courses in psychology except 3117 and 3114.

Subject to this general prerequisite and to specific prerequisites for particular areas, all psychology courses are open to freshmen. Either 311 or 313, but not both, may be taken toward the College of Liberal Arts and Sciences core requirement, and only one may be applied toward one major in psychology.

311 Elementary Psychology

Survey of current research and theory in the behavioral sciences, students are required to become familiar with studies, or interpretations in psychology through participation in demonstrative exercises and in actual research studies, in theory and practice of research reports. May be taken pass-fail.

315 Modern Psychology

Same as 311, but with additional concern for major and advanced specialty work in psychology. Students are required to become familiar with studies, or interpretations in psychology through participation in demonstrative exercises and actual research studies, in theory and practice of research reports. May be taken pass-fail.

316 Social Psychology

Survey of current research and theory in social psychology. Consideration of current methods of measurement and treatment of psychological disorders.

317 Introduction to Clinical Psychology

Survey of current research and theory in biological, psychological, and social aspects of development from infancy through adolescence.

318 Introduction to Social Psychology

Research methods and behavior of individual humans, organisms to factors in social environments, interaction and communication, attitude and health, interpersonal perception and experience, and social psychology. Contributions by psychologists and anthropologists.

319 Introductory to Social Problems

Survey of the study of individual human support patterns, social mobility, language, learning, prejudice, socialization, decision making, and group behavior. Considerations from information-processing disciplines, institutions, and the study of human society for the purpose of solving social problems and interactions and attitudes, emotions, and group dynamics.

317 Educational Psychology and Measurement

Same as 3117.

318 Psychology in Business and Industry

Applications of psychology to problems in the world of work, emphasis on personnel selection, training, and employee productivity. May be taken pass-fail.

4112 Psychometric Research

Current methods of selecting and administering standardized behavior samples, and the use of research methods and approaches in assessing and interpreting behavior samples. Basic concepts of educational and psychological testing.

4122 Advanced Psychological Research

Current methods of selecting and administering standardized behavior samples, and the use of research methods and approaches in assessing and interpreting behavior samples. Basic concepts of educational and psychological testing.

4133 Advanced Statistics for Behavior Analysis

Applications of psychological principles to psychological problems. Modern techniques, including intelligent, computer, and noncomputer applications, of the analysis of data in psychology, decision making, and evaluation.

4141 Language and Psychology

Introduction to the study of language, speech, function, form, and acquisition. Includes linguistic analysis, conventionalized language, metalanguage, descriptive and prescriptive grammar, language change, and sociolinguistics.

4151 Research Methods in Psychology

All students are required to participate in research projects and courses in methods, perceiving, measuring and evaluating behavior, including the use of systematic data collection methods and the analysis and communication of complex behavior. May be taken pass-fail.

4161 Special Topics in Psychology

For undergraduates major in psychology. Prerequisite: approval of faculty member and approval of department chair. Pass-fail grading.

4171 Research Paper in Psychology

Lectures, readings, and discussions in a variety of research topics in psychology. Lectures on topics of major for honors project. Pass-fail or 0 to 4.
3158 Honors Thesis Research 3 a.h. 

Supervised individual project, leading to written thesis and oral defense. Open only to honors students.

For Undergraduates and Graduates

3151 Social Psychology 3 a.h. 

Recent research and recent review of social psychology, with emphasis on laboratory study of social behavior, critical evaluation of contemporary theories and methodologies.

3152 Psychology as a Science 3 a.h. 

Analysis of the limits of the concepts, laws, and theories of modern psychology, with discussion of the role of introspection and probabilistic evaluation in analyzing psychological research. Prerequisites: junior or senior standing with consent of instructor.

3153 Development of Child's Social Behavior 3 a.h. 

Basic processes affecting infancy's responses to the social environment; attachment, dependency, social reinforcement, isolation, and social development.

3156 Personality 3 a.h. 

Conceptions, correlates, consequences of subjective functioning and personality development.

3158 Health Change 3 a.h. 

Current theoretical approaches to attitude change; laboratory and field methods of research; consideration of basic processes of change within conceptions of behavior and personality.

3157 Environmental Stress 3 a.h. 

Social psychology of cities, urban living, unemployment, social disorganization, and health. Prerequisites: junior or senior standing in the social sciences, psychology, history, and general education.

3159 Media Processes 3 a.h. 

Choice as an open process involving laboratory experiments, field studies, and reservations; relevant literature; topics may include frequency, relevance, precision, emotion, orientation, performance, efficiency, attention, motivation, and pattern recognition. 3151 or permission of instructor.

3160 Psychology of Aggression 3 a.h. 

Examination of major theories and concepts on aggressive behavior in human and experimental animals. Prerequisites: junior or senior standing in the social sciences, psychology, history, and general education.

3161 Learning and Thinking in Children 3 a.h. 

Study of research done on children's intelligence, reasoning, problem-solving, and memory. Prerequisites: junior or senior standing in the social sciences, psychology, history, and general education.

3162 Child Development 3 a.h. 

Not offered this year. Same as 3173.

3163 Development of Social Judgment 3 a.h. 

Cultural psychology in context. The development of beliefs about social actions and their consequences in early childhood. Prerequisites: junior or senior standing in the social sciences, psychology, history, and general education.

3165 University of Chicago 3 a.h. 

Prerequisite: one year of introductory psychology at the University of Chicago or equivalent.

3166 Cognitive Development of Children 3 a.h. 

Developmental research and theory concerning memory, perception, and motor processes of children.

3171 Educational Psychology 3 a.h. 

3171A: Psychology of the Differences 3 a.h. 

Topics in the nature of differences in behavior, possible base of these differences, and the psychological processes controlling behavior. Prerequisites: 3151 or permission of instructor.

3171B: Exceptional Children 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3172 Human Memory, Learning and Categorization 3 a.h. 

An introduction to contemporary psychology theory and research on learning and memory, categorization, and problem-solving. Prerequisites: 3151 or permission of instructor.

3173 Social Psychology 3 a.h. 

Logic and method of experimental method and analysis of test results; major areas include creativity of some major areas of research; experimental research. Prerequisites: 3151 or permission of instructor.

3174 Experimental Psychology 3 a.h. 

Laboratory study of psychology. Includes selection of relevant literature. Prerequisites: 3151 or permission of instructor.

3175 Projective Techniques 3 a.h. 

Psychological and sociological issues of learning and health in normal and human behavior. Prerequisites: 3141A or permission of instructor.

3176 Introductory Psychology 3 a.h. 

Prerequisite: 3141B or permission of instructor.

3177 Biological Psychology and Animal Behavior 3 a.h. 

Prerequisite: 3151 or permission of instructor.

3178 Social Psychology 3 a.h. 

Psychological and sociological issues of learning and health in normal and human behavior. Prerequisites: 3141A or permission of instructor.

3179 Clinical Psychology 3 a.h. 

Prerequisite: 3151 or permission of instructor.

3181 Historical and Theoretical Problems Related to Personality Development 3 a.h. 

Prerequisite: 3151 or permission of instructor.

3182 Development of Personality 3 a.h. 

Professional supervision of an undergraduate research project. Prerequisite: 3151 or permission of instructor.

3183 Psychology of Social Behavior 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3184 Research Methods in Personality Research with Critical Examination of Methodologies and Implications of the Parameters 3 a.h. 

Prerequisite: permission of instructor.

3185 Psychology 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3186 Personality Development 3 a.h. 

An introduction to the philosophy and methodology of the black man's uniqueness, with special emphasis on laboratory findings and the application of such trends to human groups. This course is open to students in all disciplines and is a seminar in the study of 3151 and other seminar courses.

3187 Special Problems in Psychology 3 a.h. 

Survey of theoretical and practical issues in the assessment and modification of mental processes and behavior. Prerequisites: 3151 or permission of instructor.

3188 Human Information and Behavior 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3189 Social Psychology in Social Psychology 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3190 Individual Differences in Development 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3191 Psychological Research Methods in Psychological Research 3 a.h. 

Prerequisite: 3151 or permission of instructor.

3192 Psychology of Art 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3193 Psychology of Personality 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3194 Personality Development 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3195 Development of Personality 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3196 Social Psychology 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3197 Personality and Social Psychology 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3198 Social Psychology 3 a.h. 

Prerequisites: 3151 or permission of instructor.

3199 Personality Development 3 a.h. 

Prerequisites: 3151 or permission of instructor.
park and recreation settings; voluntary and social agency recreation programs; institutional recreation programs; school, military service, commercial, and industrial recreation programs; and teaching and research.

In its recreation aspect, the profession deals with activities ranging from music and drama to sports and tourism. The park aspect deals with the planning, design, maintenance, and management of recreational (parks and facilities.

In addition to professional preparation, the Program in Recreation Education offers courses in leisure research, the history of cultural views and attitudes toward free time, and the study of leisure as a contemporary social and cultural issue. The department serves and consults with numerous systems throughout towns and the nation.

Bachelor of Science

The student must take 34 semester hours of professional core courses, including:

104:410 Foundations of Recreation
104:411 Leadership
104:415 Introduction to Therapeutic Recreation
104:416 Recreation Program
104:417 Administration of Recreation
104:418 Internship in Recreation
27:56 First Aid

The student must take 9 to 15 semester hours of courses in one of the areas of concentration described below.

Community Recreation

The community recreation concentration is designed for students preparing for positions in which they will be responsible for organizing and administering recreation programs; facilities, and departments. This concentration is oriented primarily to municipal, district, and county-level recreation and park departments.

Courses required for this area of concentration are:

104:410 Park and Recreation Facility Management
104:414 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 for organizing, planning, and leading recreation programs in treatment and correction settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

Courses required for this concentration are:

104:410 Orientation to Rehabilitation Settings
104:411 Orientation to Special Populations
104:415 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 outdoor, 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 very 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 climaxcd by a professional internship for a full semester in an agency and/or field setting of the student's selection. The internship is designed to lead to professional placement. More than 150 local, state, and national departments, agencies, and services provide fieldwork and internship opportunities for students in the program.

Honors

Admission to the honors program in recreation education requires a formal application, completed at least 30 semester hours of coursework at the University, completion of at least 9 of the 32 semester hours of required major coursework, and at least a 3.0 grade-point average on all college work completed and on all work attempted in the 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 his or her 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 (38 semester hours). An introduction to scholarly activities and research is provided through 104:103 Leisure Research, or equivalent, and preparation of a thesis or research report. The research will result in a modest contribution to knowledge, a review of a topic, or a synthesis or design in the park and recreation field.

Recreation Administration

This area focuses on the development and administration of recreational programs in such settings as municipal departments, schools, villages of special purpose agencies, churches, charitable, or synagogues; 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 phenomena, with
Therapeutic Recreation Administration

Therapeutic recreation relates to the development and administration of programs serving the mentally retarded, physically disabled, emotionally disturbed, and aging in both institutional and community settings.

The program is directed toward understanding recreation's role in a comprehensive rehabilitation process, including both physical and psychological facets, and thus prepares the student to work with a broad range of disability areas in either a medical setting or 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 understanding behavior of mentally retarded, physically disabled, emotionally disturbed, and aging. The student should also have skills in at least two program fields.

Financial Aid

Assistance is available in the form of graduate assistantships, research assistantships, teaching assistantships, and fellowships for graduate students. The student must obtain the assistance through the department, or through a special program in Therapeutic Recreation Service for Handicapped Children, or through independent research in these and other locations. The University of Iowa Psychiatric Hospital and Psychiatric Services, University Recreation Services, Iowa City Parks and Recreation Department, Systems Unlimited, various retirement and convalescence homes, and the Change Department of Parks and Recreation.

Courses

Primary for Undergraduates

140:56 Foundations of Recreation

Basic philosophical, historical scientific/developmental and philosophical background in leisure and recreation. Sections of individual recreation and areas of specialization. Career considerations and resources.

140:101 Recreation Leadership

Leadership principles and techniques program activities.

140:110 Orientation to Recreation Settings

Introduction to and community recreation through community psychology, recreation, physical fitness, community organization, recreation, aging and aging.

For Undergraduates and Graduates

140:101 Research Laboratory

Planning and conducting research in recreation, supervision, evaluation of resources, use of facilities, and leadership.

140:104 Recreational Program Planning

Program planning, leadership, supervision, evaluation of resources, use of facilities, and leadership.

140:105 Administration of Recreation

Program planning, leadership, supervision, evaluation of resources, use of facilities, and leadership.

140:111 Special-Impairment Orientation

Special-Impairment planning, leadership, supervision, evaluation of resources, use of facilities, and leadership.

140:123 Topics in Recreational Therapy

Topics in therapeutic recreation in total institutional and community rehabilitation effort. Specific areas given to cooperative role of therapeutic recreation to total rehabilitation program.

140:17 Senior Seminar in Therapeutic Recreation

Senior seminar in therapeutic recreation. Seminar on contemporary issues relevant to senior majoring in therapeutic recreation profession. Seminar on career in the field.

140:100 Park and Recreation Facility Management

Introduction to recreation and park facilities management personnel, program, financing, design, and standards.

140:104 Introduction to Planning and Design of Recreation and Park Areas and Facilities

Introduction to recreation and park facilities management personnel, program, financing, design, and standards.

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Religion

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 program provides preparation for the study and teaching of religion as an academic discipline. Many University students majoring in other subject areas elect religion courses in their general education; some elect religion as a second major.

Bachelor of Arts

For a major in religion, undergraduate students elect at least 24 semester hours of coursework in religion according to their own interest; p-routed they take a minimum of four 100-level courses in religion, one of which is ordinarily the majors' 110-level Senior Majors Seminar. Students majoring in religion 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 "Catalogue of Liberal Arts" section of the Catalog). The selection of the foreign language must be approved by the advisor.

Honors

Religion majors eligible for the liberal arts honors program may obtain 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 Oriental Scriptures Old Testament Post-Biblical Judaism New Testament History of Christianity Early to 1500 Modern (since 1500) America, Theology and Ethics Jewish Roman Catholic Protestant World Religions Methodology Religion in India, China, or Japan Religion and Personality Development Religion and Personality Development Religion and Health

Master of Arts

Candidates for the M.A. in religion must complete 30 semester hours of coursework, with a minimum of 10 semester hours in each of three areas of graduate study. A minimum of 8 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 of scholarly work in one field.

Master of Arts in Religion and Health

Study of the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University Hospital 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 coursework. Four may be earned in other disciplines and may be transferred from another accredited graduate or professional school.
The program includes required courses in religion and piety, in related fields of ethics, religion in America, and other relevant fields outside the School of Religion. The student ordinarily takes the comprehensive examination before writing the thesis. Knowledge of a foreign language, statistics, or another research tool may be required, at the discretion of the student's advisory committee.

In addition to the general requirements for admission outlined below, the school generally requires an on-campus interview of applicants to the M.A. program in religion and health; however, the interview may be conducted off campus by an accredited member of the Association for Clinical Pastoral Education.

Doctor of Philosophy

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate coursework. A maximum of 12 semester hours will be allowed for the dissertation. The student must select 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 coursework 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 examinations. With faculty approval, another language may be substituted for either French or German. In some areas, however, there are special additional language requirements.

Doctoral students prepare for the oral and written comprehensive examinations under the supervision of a three-member faculty committee. The committee will determine three subjects for the comprehensive examinations, 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 five separate programs:

- Judaism and Christianity in the Hellenistic world
- History of theology and religious thought in the West
- Contemporary theology and religious thought
- Studies relating theology and other academic disciplines
- History of Asian religions

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 requirements by the end of the second year of graduate study and at least 12 months before taking the comprehensive examinations.

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 examinations, 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 examinations 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 Graduate Students, which is made available 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 Hospital and Clinics provide clinical opportunities for students in religion and personality, 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 also utilize hospital personnel and facilities.

Graduate Financial Aid

The School of Religion has available three types of departmental financial aid: a teaching-research fellowship, teaching assistantship, and research assistantship. 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 ordinarily requires a score of 1050 on the Graduate Record Examination (GRE) and 3.0 grade-point average. Students must apply to the School of Religion as well as to the Graduate College. The Graduate Record Examination score of 1100 and a grade point average of 3.2 for admission to the Ph.D. program.

Courses

Primarily for Undergraduates

101 Old Testament Survey
200 Introduction to Judaism
301 New Testament Survey
400 Hebrew
405 Greek

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Rhetoric

Coordinator: Coover J. Oaken
Faculty: professor Margaret B. McConnell, Donald J. Oaken

Associate professor William O. Clark, Richard E. Beeman, Lois A. Kett, Boaz M. Trzcinski
Assistant professor Dane H. Kuppa, Dena Martin, Donna M. Maese

The Rhetoric Program offers students direct opportunities, through their own oral and written communication, to do other's evaluate their experiences and to explore and formulate possibilities for their personal and intellectual growth.

Responsible using various sources of information and investigating, analyzing, evaluating, and responding to the ideas, beliefs, and attitudes of other writers and speakers are major functions of the rhetorical coursework. Rhetoric 'educators' grow responsibly. However, it helps students clarify their own thinking and improve their own communication.

Satisfactory proficiency in rhetoric is a requirement for all baccalaureate graduation from the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). The Rhetoric Program's reading and writing labs are available to all University students, on a voluntary basis (see the "Services for Students" section of the Catalog).

Courses

114 Rhetoric 4.5 s
Instruction and practice in written and oral communication.Emphasis is on invention, organization, argumentation, and persuasion. Emphasis is on invention, organization, argumentation, and persuasion. Credit/no credit option. Students may not receive credit for both RHET 114 and RHET 101.

101 Rhetoric 4.5 s
Instruction and practice in written and oral communication.Emphasis is on invention, organization, argumentation, and persuasion. Credit/no credit option. Students may not receive credit for both RHET 114 and RHET 101.

101R Rhetoric 4.5 s
Instruction and practice in written and oral communication.Emphasis is on invention, organization, argumentation, and persuasion. Credit/no credit option. Students may not receive credit for both RHET 114 and RHET 101.

Russian

Department chair: Ray J. Farnell, Jr.
Faculty: professor Roman Lontsch, associate professor William O. Clark, associate professor Ray J. Farnell, Jr., Henry E. Farnell, Christopher J. Werth, associate professor Mykola Mykhalevitch, Mykola J. Seltzer
Degrees offered: B.A., M.A.

Department of Russian Language and Literature

The purpose of the Russian program is to give students training in both the written and spoken Russian language and in Russian literature. An important secondary objective of the program is to give students an understanding and appreciation of Russian civilization and culture. Knowledge of Russian is seldom an end in itself but rather a means to some other vocation. The department encourages all of its beginning students to pursue a joint major and to develop their interest in other fields.

With the increasing importance of Russian as a language of science and commerce, many students find that training in the language is an important aspect to careers in the natural and social sciences, engineering, medicine, and business. Students of journalism, literary science, and the social sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going on to law, international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literature, comparative literature, English, or other humanities disciplines.

Russian majors with the B.A. and the required education courses occasionally seek teaching careers in secondary schools. A number of governmental agencies regularly interview job candidates who have advanced training in Russian. Students who develop an excellent facility with the language may pursue careers in communications, literary and technical translation, and interpretation.

Bachelor of Arts

Students who major in Russian must meet the general College of Liberal Arts degree requirements (see the "College of Liberal Arts" section of the Catalog) and earn 18 total semester hours of credit in advanced Russian courses. Required courses are:

4/1/11: 112 Intermediate Composition and Conversation 8 s.
4/1/11: Advanced Composition and Conversation 3 s.
4/1/17: 172 Reading in Representative Russian Literature 3 s.

Three of the following:

4/1/51: 51 Literature in Translation 8000-8900 3 s.
4/1/52: Russian Literature in Translation 1600-1917 3 s.
4/1/58: Tolstoy and Dostoevsky 5-4 s.
4/1/81: Soviet Literature in Translation 3 s.
4/1/66: Russian Culture 3 s.
4/1/91: Russian Civilization 3 s.

Students majoring in Russian are urged to include related courses in economics, geography, history, or political science among their electives. All students majoring in Russian are strongly encouraged to enroll in the one-semester course 41/127 Phonetics and Pronunciation. With the consent of the instructor, students may enroll in 41/108 Special Readings for instruction in business Russian.

For a minor in Russian the student must complete a minimum of 16 semester hours in the department, 12 of which must be advanced courses selected with the approval of the department.
Honors
Russian majors of junior or senior standing with a grade-point average of at least 3.0 both in Russian and overall may enroll in the honors program in Russian. An extensive reading program with discussions, regular reports, and a seminar paper constitute each honors work unit of two semester hours. Students may take up to eight semester hours of honors in Russian.

Summer and Study Abroad Programs
The department regularly encourages undergraduates and graduate students to participate in intensive programs of language study both in the United States and in the Soviet Union. In recent years an increasing number of students have studied in summer and semester programs at Lingnitz State University under the auspices of the Council on International Educational Exchange. Other students have accelerated and refined their Russian language skills in various intensive summer programs at major American universities. Inquiries should be directed to the Russian department office.

Master of Arts
Offered with or without thesis, the M.A. program in Russian offers two major emphases, in literary or in language study.

The focus in literary studies is on the development of Russian literature, both as a national phenomenon and as a part of European culture. Students are expected to analyze writers’ styles, perceive 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. It is awarded annually on a competitive basis to the best qualified applicants. Ordinary teaching assistantships are not awarded to first-year students, though exceptions are sometimes made on the basis of advanced language skills. Applications are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental office.

Coursework for Nonmajors
The department offers special reading courses designed for students from other fields who need a reading proficiency in Russian in order to study social or natural sciences. A rigorous Russian course is offered for students in sciences who need to develop reading ability for research purposes. Some cases are open to University students from all departments and are offered in English. These include 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 lectures and sponsored films. Students sometimes put on Russian plays. Russian Circle is an organization open to graduates and undergraduates for social activities. Participation in Russian Circle also provides students with the opportunity to practice speaking Russian with other members of the department.

Language Laboratory
The University's Language Laboratory provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and shortwave radios, tape recorders, record players, soundproof recording rooms, and drop-in rooms. In electronic classroom, a soundproof workroom, and a library of tape and disc recordings are also available.

Courses
For Undergraduates and Graduates
41.101 Sommerty Russian 4 s.h.
41.102 Sommerty Russian 4 s.h.
Prerequisite: 41.101 or equivalent.
41.103 Russian for Reading 3 s.h.
Emphasis on reading scientific and technical Russian material for students, especially those majoring in science, who need to develop reading ability for their major studies. In addition to regular classes, afternoon reading in active use of the language. Prerequisite: 41.102 or equivalent.
41.104 Russian for Reading 3 s.h.
Prerequisite: 41.101 or equivalent.
41.105 Sommerty Reading 4 s.h.
Standard second-year course recommended for students wishing to read foreign language works. 41-credit-hour class, comprehensive examination at end of term. Further reading in active use of the language. Prerequisite: 41.102 or equivalent.
41.106 Russian for Reading 3 s.h.
Prerequisite: 41.102 or equivalent.
41.108 Special Readings 3 s.h.
41.110 12 semester hours of language instruction.
41.120 Introductory Conversation 3 s.h.
Prerequisite: 41.101 or equivalent.
41.120 Intermediate Conversation 3 s.h.
Prerequisite: 41.101 or equivalent.
41.120 Advanced Conversation and Civilization 4 s.h.
Prerequisite: 41.101 or equivalent.
41.120 Advanced Conversation and Civilization 3 s.h.
Prerequisite: 41.101 or equivalent.
Science Education

Science Education
Head: Robert E. Wagner

Associate Professor: Erwin E. Yav安静, Vincent N. Lemola

Assistant Professor: Charles W. Conner, John M. Paddock, Donald J. Phillips, Edward L. Pochan, Daniel S. Rabin, James A. Rynearson, T. Nelson

Adjunct faculty: Marya Deanna C. Aimee, Jennifer A. Hope, Teressa Flore, Torrence Brownstone, Thomas Safford, Matthew J. O'Connell, Paul A.

Grayling, John D. Dodd, Frank A. Castinova, Gayle L. Smith, Frank D. Castinova

Graduate Program Director: Joseph A. Conlon

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 optometry or mortuary science training, or some 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 elect to pursue graduate studies in a single area of science, it is often necessary for them to complete additional courses in their 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 "Academic Regulations" in this section of the catalog), the 58-semester-hour emphasis area in science education qualifies graduates for either degree. The language proficiency requirements are the only differences between the two degrees.

All of the emphasis areas in science education have the following characteristics in common:

Depth in a general area of science, equivalent to three or six semesters of sequential study;

Preparation in a second area of pure science, equivalent to two or three 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 one);

A view of science from an historical/philosophical/cultural perspective;

Experience with the application of scientific knowledge in a technological sense.
Students who wish to qualify for secondary teaching certificates with endorsement to teach science must complete a total of 26 semester hours of credit in specified courses (see "Secondary Education" in the "College of Education" section of the Catalog).

Outlines for the five areas of emphasis offered in science education are as follows:

### Biology Emphasis

**Courses in Biology**
- 2:1 Introduction to Botany 4 s.h.
- 37:3 Principles of Animal Biology 5 s.h.
- 2:138 Fundamental Genetics 3 s.h. (same as 37:138)
- 2:131 Evolution 4 s.h. (same as 37:131)
- 2:132 Ecology 4 s.h. (same as 37:132)
- 72:150 Intermediate Physiology 4 s.h.

Total 24 s.h.

### Courses in Chemistry
- 4:13-14 Principles of Chemistry I-II 6 s.h.
- 4:16 Elementary Chemistry Laboratory I 2 s.h.
- 4:21-22 Organic Chemistry I-II 6 s.h.

Total 14 s.h.

### Courses in Geology and Physics
- 25:9 Basic Physics 4 s.h.
- 12:3 Principles of Physical Geology 2 s.h.

Total 6 s.h.

(Mathematics as a Tool 22M:15 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 and a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools satisfy this requirement.

### History/Philosophy/Sociology of Science
- 97:126 Meaning of Science 2-3 s.h.
- 97:130 Science in Historical Perspective 2-3 s.h.

### Earth Science Emphasis

**Courses in Geology**
- 12:3 Introduction to Geology 4 s.h.
- 11:23 Earth History and Resources 4 s.h.
- 11:24 Man and His Physical Environment 4 s.h.
- 12:6 Evolution of the Earth 4 s.h.
- 12:9 Geology of Iowa 2 s.h.
- 12:41 Mineralogy 4 s.h.
- 12:108 Introduction to Oceanography 2 s.h.

Elective course (s) 4 s.h.

Total 20 s.h.

### Supporting Science Courses
- 4:13-14 Principles of Chemistry I-II 6 s.h.
- 29:11-12 College Physics 6 s.h.
- 29:50 Modern Astronomy 4 s.h.

Total 16 s.h.

### Courses in Geography
- 44:101 Introduction to Weather and Climate 3 s.h.
- 44:116 Natural Environmental Issues 2 s.h.

Total 5-6 s.h.

### Mathematics as a Tool
- 22M:20 Elementary Functions 3 s.h.

Additional courses are recommended.

### Application of Science

Two approved courses (5 semester hours) chosen with the advisor's assistance, a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools satisfy this requirement.

### History/Philosophy/Sociology of Science
- 97:126 Meaning of Science 2-3 s.h.
- 97:130 Science in Historical Perspective 2-3 s.h.

### Environmental Studies Emphasis

**Courses in Botany**
- 2:1 Introduction to Botany 4 s.h.
- 37:3 Principles of Animal Biology 5 s.h.
- 2:128 Fundamental Genetics (same as 37:128) 3 s.h.
- 2:131 Evolution (same as 37:131) 4 s.h.
- 2:132 Ecology (same as 37:132) 4 s.h.

Total 20 s.h.

### Courses in Chemistry
- 4:13-14 Principles of Chemistry I-II 6 s.h.
- 4:121-122 Organic Chemistry I-II 6 s.h.

### Other Environmental Courses

Twelve semester hours from the following:
- 44:19 Natural Environmental Issues 2 s.h.
- 44:19 Natural Environmental Issues 2 s.h.
- 44:101 Introduction to Weather and Climate 3 s.h.
- 44:121 Stream Processes and Water Resources 3 s.h.
- 44:122 Natural Resources of the United States 3 s.h.
- 44:124 Introduction to the Global Environment 3 s.h.
- 44:125 Environmental Impact 3 s.h.
- 44:126 American Wilderness: Environment and Issues 2-3 s.h.
- 44:177 World Food Problem 2 s.h.
- 12:108 Introduction to Oceanography 2 s.h.
- 12:125 A Planet in Crisis 2 s.h.
- 12:114 Energy in Contemporary Society 3 s.h.
- 523:150 Principles of Environmental Engineering 5 s.h.
- 523:154 Environmental Microbiology 3 s.h.
- 523:155 Limnology 2-3 s.h.
- 63:101 Dynamics of Health 3 s.h.
- 63:102 Man and the Environment 3 s.h.
- 63:109 Community Health 2 s.h.

### Mathematics as a Tool
- 22M:15 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
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Health Emphasis
Courses in Biology
97:3 Principles of Animal Biology 5 s.h.
37:116 Parasitology 4 s.h.
61:157 General Microbiology 4 s.h.
72:150 Introductory Physiology 4 s.h.
98:110 Biochemistry 3 s.h.
Total 20 s.h.

Courses in Chemistry
4:13-14 Principles of Chemistry I-II 8 s.h.
4:121-122 Organic Chemistry I-II 8 s.h.
Total 12 s.h.

Related Science Courses
63:101 Dynamics of Health 3 s.h.
63:105 Community Health 2 s.h.
4:211 Human Sexuality 1-3 s.h.
17:5 Human Development and the Family 3 s.h.
17:41 Food, Nutrition, and Man 3 s.h.
17:106 Basic Aspects of Aging 2-3 s.h.
7:1120 Drugs: Their Nature, Action, and Use 0-2 s.h.
Total 10 s.h.

Other Science Courses
12:2 Lectures in Men and His Physical Environment 2 s.h.
29:8 Basic Physics 4 s.h.

Mathematics as a Tool
22M:15 Mathematics for the Biological Sciences 4 s.h.

Additional courses are recommended.

History/Philosophy/Sociology of Science
97:128 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.
4:16 Elementary Chemistry Laboratory I 2 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
4:130 Physical Chemistry for the Life Sciences 3 s.h.
20:11 College Physics 4 s.h.
20:12 College Physics 4 s.h.
20:19 Introductory Physics III 4 s.h.
20:15 Intermediate Mechanics 3 s.h.

Physics Concentration
20:11 College Physics 4 s.h.
20:12 College Physics 4 s.h.
20:19 Introductory Physics III 4 s.h.
20:15 Intermediate Mechanics 3 s.h.
20:16 Advanced Mechanics 3 s.h.
20:17 Electricity and Magnetic Measurements 3 s.h.
20:13 Intermediate Laboratory 2 s.h.
4:13 Principles of Chemistry I 3 s.h.
4:14 Principles of Chemistry II 3 s.h.
4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
4:130 Physical Chemistry for the Life Sciences 3 s.h.

Course in Earth Science
20:50 Moon Astronomy 4 s.h.

12:6 Introduction to Geology 4 s.h.

Mathematics as a Tool
22M:25 Calculus I 4 s.h.
22M:26 Calculus II 4 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.

History/Philosophy/Sociology of Science
97:128 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 semesters 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 advisor 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 supplementary teaching certificate in a particular area of science. All science teaching minors must include:

75:151 Science Methods I: Individualized Instruction in Science 2 s.h.
75:152 Science Methods II: Resources and Teaching Strategies 2 s.h.
75:191 Observation and Laboratory Practice in the Secondary School 3 s.h.
97:128 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

Additionally, the student must meet the emphasis areas in his or her emphasis areas:

Biology
2:1 Introduction to Botany 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
97:103 Societal and Educational Applications of Biological Concepts 9 s.h.
Chemistry
4:13-14 Principles of Chemistry 8 a.h.
19 Elements Chemistry 2 a.h.
19 Laboratory I 2 a.h.
97:106 Societal and Educational Applications of Chemical Concepts 10 a.h.
Physics
29:11-12 College Physics 8 a.h.
97:105 Societal and Educational Applications of Selected Concepts of Physics 10 a.h.
General Science
2:1 Introduction to Botany 4 a.h.
29:61 General Astronomy 4 a.h.
12:3 Principles of Physical Geology 2 a.h.
or
12:4 Principles of Historical Geology 2 a.h.
4:13 Principles of Chemistry I 3 a.h.
29:11 College Physics 4 a.h.
Environmental Studies Emphasis
2:1 Introduction to Botany 4 a.h.
31:3 Principles of Animal Biology 5 a.h.
37:132 Ecology 2 a.h.
4:13 Principles of Chemistry I 3 a.h.
Elections in environmental engineering 3 a.h.
97:140 Problems in Integrating the Teaching of Environmental Science 3 a.h.
Earth Science
12:3 Principles of Physical Geology 2 a.h.
12:4 Principles of Historical Geology 2 a.h.
29:61 General Astronomy 4 a.h.
Geology and astronomy electives 10 a.h.
97:102 Societal and Educational Applications of Earth Science Concepts and Topics 10 a.h.

Iowa-UPSTEP
Iowa-UPSTEP is a continuing program for UI undergraduate students interested in exploring science teaching as a career option. Students register for program seminars and a variety of practicum experiences. In addition to experiences with youth, with seminars, and with regular courses, students are involved in excursions, social activities, and special action projects.

Graduate Programs
The Science Education Program offers graduate studies leading to the degree 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
*Professional education sequence 26 a.h.
History/philosophy of science 4 a.h.
Science (beyond 50-semester-hour undergraduate requirement) 10 a.h.
Minimum total 40 a.h.

(*See "Secondary Education" in the "College of Education" section of the Catalog.)

Master of Science without Thesis
Advanced science education 12 a.h.
Major field of science (beyond emphasis area for undergraduate major) 12-18 a.h.
Applied science 12 a.h.
Minor science field 10 a.h.
Minimum total 38 a.h.

Master of Science with Thesis
Advanced science education 10 a.h.
Advanced science 14 a.h.
Applications of science 2 a.h.
Research 4 a.h.
Minimum total 30 a.h.

Educational Specialist
Advanced science education 18 a.h.
History/philosophy/epistemology of science 10 a.h.
Major area of science 18 a.h.
Practicum 4 a.h.
Applications of science 4-6 a.h.
Research 6 a.h.
Minimum total beyond master's degree 30 a.h.

Doctor of Philosophy
Advanced science education 20 a.h.
Research 8 a.h.
Major area of science 28 a.h.
*Cumulative studies 16 a.h.
Minimum total beyond master's degree 72 a.h.
(I includes intensified science preparation, enriched science preparation, enriched professional preparation, integrative studies)

Admission
Requirements for admission to graduate study in science education are identical with 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 science education which involves 600 in-service teachers each year in special curriculum development and implementation. 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 fall Science and Education Conference that attracts more than 300 teachers and students from Iowa schools; sponsors a spring Science and Humanities Symposium, jointly with the U.S. Army Research Frontier, for about 400 high-school students and their teachers; sponsors several conferences for the improvement of science teaching and public awareness of science-activity issues; and each summer sponsors special workshops utilizing external authorities and enrolling 200 teachers, supervisors, and administrators.

Chautauqua Short Course Programs

The Science Education Center also operates the NSF-supported and JABS-organized Chautauqua Short Courses programs for college science teachers. Graduate 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
- Individualized learning
- Computer-assisted learning
- Simulation systems
- Classroom interaction models
- Cognitive development psychology
- Cross-cultural experiences
- Health education
- Instructional psychology
- Teacher behavior
- Mathematical activity
- Inquiry processes
- Instructional modes
- Concept formation
- Aptitude X Treatment Interaction (ATI)
- Attitudinal 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 sizeable number of foreign students is enrolled. The faculty has been involved for extended periods in international programs and projects as well.

Facilities

The physical facilities for science education programs 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 conference room, a library, and a computer center; two suites of offices for student program activities; space for the elementary school science courses; and two large teaching laboratories for the foundations of science sequence.

Third-floor facilities include an interactive curriculum 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 series 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 the science education program; and a secondary school teacher education seminar, including many faculty of the Iowa-UPSTEP model; 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 special education majors. The College of Education offers many basic courses in science education, for a list of specific offerings, inquire at the Science Education Program Office.

Primarily for Undergraduates

572D Investigation in Science
572U Science for Inservice Teachers
572F Conceptual Structure of Science
572K Critical Thinking and Problem Solving in Science
572J Special Topics in Science

573A Science Education Seminar
573B Science Education Seminar

Education in Science Education

For Undergraduates and Graduates

573T Societal and Educational Applications of Science
573Q Concepts and Trends

Review of core concepts and principles of the arts, humanities, engineering, and other professionals in the science education in the 21st century.
The standards 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 earned in the seven departments cooperating in the social studies education program. Distribution of the coursework is as follows: 12 semester hours in history; 12 semester hours each in economics, political science, and sociology; at least 3 semester hours in geography; and 9 semester hours in geography, anthropology, or psychology.

Students pursing a social studies education major will take survey courses introducing them to the various social sciences. Many of the departments also offer independent study and readings as alternatives to formal classes. There is no separate Honors program in social studies education. Students who qualify are encouraged to do honors work in the social science department in which they wish to concentrate their work.

Admission Requirements

Transfer students must have earned a minimum grade-point average of 2.5 on all work done in the subjects of the seven cooperating departments in order to be admitted to the program. Approval of candidacy for the master's degree will be granted only to students who have a minimum 2.5 grade-point average in all college work undertaken in the cooperating departments.

Master of Arts

Some graduates of this program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some are serving as curriculum consultants for school districts, while others are staff members in community colleges. A few have found the degree excellent preparation for their professional work in various correctional and penal institutions. For a small number, the master's program in social studies education has provided access to civil service positions at various levels of government.

The student may elect to take the master's degree with or without thesis, under either of two plans, both requiring 38 semester hours of credit in graduate courses.

In one plan the student completes at least ten semester hours of coursework in each of three of the seven cooperating departments, and may complete the remaining eight semester hours in one or among all of the three. In the other plan the student completes at least ten semester hours of coursework in two social sciences and not more than ten in education, and may complete the remaining eight semester hours in either or both of his or her social science fields.

Both plans require at least nine semester hours of credit earned in courses numbered 200 or above, including one such course in each of the student's three fields of emphasis. All candidates must also complete 98:201 Individual Instruction in Social Studies Education and/or 98:203 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 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 30 semester hours of undergraduate credit in one area of social studies at an accredited institution, and must have a minimum grade-point average of 2.75 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 2.75 grade-point average.

Doctor of Philosophy

Some graduates of the social studies education program have gone into administration in institutions of

Social Studies Education
Social Work

Director: Ruth A. Brandwein

Assistant Director: Ralph R. Ayres

Faculty, professors: Raffe E. Anderson, H. Wayne Johnson, Thomas H. Walsh, June E. Birkeland, Linda Garren

Adjunct professors: Linda A. Smink, Ann B. Lennard

Associate professor: Ruth A. Brandwein, John L. Craft, Joseph P. Dier, Mary Stanley Good, Kathleen A. Krasa, Irwin F. Ornitz, William H. Thomas

Assistant professors: Charlene M. Holt, Paul L. Jastram, B. Steven Karrow, Robert E. Crennberg, Larry Olson, Robert A. Jackson, Ronald W. Kuchinsky, Patricia L. Kelby, Gary P. Lewis, Kathleen E. Reiter, Judith Sherron, Corona J. Williams

Assistant professor emerita: A. Louise Myers.

Adjunct assistant professor: Marvin E. Brons, Craig R. Monahan

Adjunct assistant professor: Joseph H. Gross.

Adjunct instructor: Larry L. Harris, Jess C. Jones, Charles W. Parker, Martha J. Fordyce, Hildegarde R. proofread, Roger W. Welford, Japan M. Hattori, G. Michael Jacobson

Adjunct instructor: C. Morris Adams, Luda Crowder, Daniel L. Black, Gregory Cooper, Elizabeth Turner


Degree offered: B.A., M.S.W.

The School of Social Work provides an academic and professional training at the baccalaureate and master's level. The school provides a professionally oriented and career-oriented approach to professional education.

Bachelor of Arts

The B.A. program prepares students for beginning professional social work practice. The goals of the program are to prepare students for employment in social services using B.A. graduates, such as public welfare, group services, and corrections; to provide a base for graduate study in social work or allied professions; and to prepare students for informed community participation in social welfare issues. The program is accredited by the Council on Social Work Education.
Undergraduate students majoring in social work must satisfy the general College of Liberal Arts requirements, excluding the social science core. The following courses are required for the major:

**Freshman/Sophomore Years**

30:1 Introduction to American Politics 4 s.h.

or

30:110 The American Political System 4 s.h.

31:1 Elementary Psychology 4 s.h.

or

31:3 General Psychology 4 s.h.

34:1 Introduction to Sociology: Principles 4 s.h.

Any basic economics course 2-4 s.h.

**Table In Sequence**

42:22 Introduction to Social Work 4 s.h.

42:140 Human Behavior in the Social Environment 3 s.h.

42:141 Social Work Practice I 3 s.h.

42:143 Social Welfare Program and Policy 3 s.h.

42:144 Social Work Research 3 s.h.

42:119 Social Work and Discrimination 2 s.h.

or

42:127 Social Work and Racism 2-3 s.h.

or

Approved course from another department (see School of Social Work for list) 3 s.h.

42:171 Social Work Practice II 3 s.h.

42:178 Social Work Processes 2 s.h.

42:193 Field Experience 8-12 s.h.

42:199 Field Experience Seminar 1 s.h.

A minimum of 12 semester hours of coursework is required in one department listed below. Most students select either sociology or psychology. Courses used to meet core and foreign language requirements do not count toward the 12 semester hours.

American Studies

Anthropology

Business

Economics

Education

English

History

Home Economics

Journalism

Political Science

Psychology

Recreation Education

Religion

Sociology

Spanish

**Honors**

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. Students interested in such a program should contact the school.

**Admission**

Admission to the undergraduate program in social work requires:

- Completion, with at least a C grade, of 42:22 Introduction to Social Work, which can be taken the sophomore year;
- At least a 2.25 grade-point average on a 4-point scale; and
- Completion of the application process.

For more information, contact the coordinator of the undergraduate program in social work.

**Master of Social Work**

The M.S.W. program prepares social workers for leadership in the protection and for advanced social work practice either as generalists or in one of three concentrations. The comprehensive state of the program, to be met through a set of core requirements, are to enable all students to understand the dynamics of human development and change; commit themselves to working human service organizations responsive to people; understand the linkages between the society and the individual; and acquire intervention skills for working with individuals, families, small groups, organizations, and communities.

The Master of Social Work degree requires at least 60 semester hours of credit in graduate courses approved by the school including at least 35 semester hours earned after admission to the program. The student may obtain advanced standing for up to 12 semester hours of graduate study completed before admission to the program. Students who have completed an accredited undergraduate major in social work are eligible for a 12-hour reduction in credit requirements. With their adviser, who play an active role in assisting students in their educational planning, students should explore additional mechanisms for waiving courses.

The School operates a 12-month program. The summer term is considered one semester. Full-time students may enroll for a maximum of 13 semester hours each semester. Therefore, students entering the program with an accredited undergraduate social work degree and/or with advanced standing may expect to complete the program in three or four semesters (i.e., the summer or fall semester following fall enrollment). Students requiring the spring semester after fall semester generally complete the program the spring semester of the second year. Students must maintain at least a 2.5 cumulative grade-point average on a 4-point scale, may be accepted for M.S.W. candidacy, and must successfully complete a final capstone project. In lieu of the comprehensive examination the Graduate College generally requires. The student may elect a thesis option for credit, and can substitute the thesis work for the final examination project. The following is an outline of the M.S.W. degree requirements:

**Core courses:**

- 42:140 Human Behavior in the Social Environment 3 s.h.
- 42:141 Social Work Practice I 3 s.h.
- 42:143 Social Welfare Program and Policy 3 s.h.
- 42:144 Social Work Research 3 s.h.

**Total** 12 s.h.

**Other required courses:**

- 42:294 Interpersonal Communication and Change: Advanced Practice 3 s.h.
- 42:240 Human Services Administration 3 s.h.
- 42:201 Community Organization 3 s.h.
Concentrations

After admission, students may choose one of three 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 a suitable choice for students who want to focus on a particular field of practice rather than a particular level of system of intervention. Generalists are required to take 6 semester hours of coursework in each concentration, including the required advanced practice course in each. Other courses which can serve to meet the requirement will be made available upon entry into the program. Practicum will include some opportunity for practice experience at each system level.

The concentration in individual, family, and small group services prepares students for intervention with these client groups. It seeks to develop practice competence in students both as enablers of personal change and as brokers/advocates for individuals and families. Topics include family law and welfare, work with children, marriage and family counseling, and theories of personality.

The concentration in organizational human services is designed to develop practice competence for a variety of administrative roles in human service agencies as well as to enable students to act effectively in making such organizations more responsive to their clients. Topics include program evaluation, grant development, administrative law, and health and family policy.

The social work concentration is designed to prepare students for intervention in neighborhoods, communities, and social institutions. An international perspective is part of this concentration. It focuses both on developing more humanitarian forms of organization and social norms, and on mobilizing the alienated and oppressed to obtain equity. Topics include international social welfare, social planning, women's roles, and organizational change.

Concentrators complete a minimum of 9 semester hours of practicum in their concentration. In either the advanced research course or the final project must be related to their concentration.

Satellite Centers

In addition to offerings in the Iowa City campus, the school offers both class work and practicum learning in Des Moines, Sioux City, and Quad Cities satellite centers. Regular School of Social Work faculty are available for field work and to teach all required courses.

The centers have three major purposes: to enrich the educational programs of full-time students by providing greater diversity of practicum opportunities; to make pursuit of the graduate degree in social work geographically available to students unable to relocate to Iowa City; and to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on whether the student chooses a concurrent (three semester) or block (two semesters) practicum, practicum begins in the second or third semester in the program. Some students remain in the Iowa City-Cedar Rapids area for the remainder of their programs, but most are 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 located in the state capitol. It is also the largest city in the state. Many fine practicum 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 718,000 people, this center also provides a wealth of practicum opportunities unavailable in Iowa City. Regional and advocacy planning, agencies serving racial and ethnic minorities, and programs for the elderly are just a few examples. Students relocating in the Quad Cities also have the opportunity to commute to Iowa City for some classes and special events.

The Siouxland Center, located in Sioux City in the northwest corner of the state, provides opportunities for part-time degree study and continuing education. It is the only one of the others in that a full program is unavailable there.

Intensive, short-term, split session courses are offered in the Iowa City campus in the summer to facilitate students from other centers taking on-campus courses.

Part-Time Program

The School of Social Work has one of the largest part-time programs in the nation. Admission and degree requirements are the same as for full-time students but the program allows single parents, working people, and others unable to pursue a degree on a full-time basis to complete the program over a period of time not less than seven semesters (21 months) or more
Graduate Admissions

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 reasonable distribution of courses in the social sciences and humanities. At least a 3.0 grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of letter-graded graduate coursework (exceptions noted below)
- Three positive letters of recommendation, including one regarding academic abilities and one or more regarding social services or other work experience
- A personal statement from the applicant about his or her interests and career objectives.

In addition, the school prefers that applicants for admission to the M.S.W. program have two years of work experience in social services; it requires personal interviews with applicants for admission to part-time study; and it requires that foreign applicants score at least 600 on the Test of English as a Foreign Language (TOEFL).

It is the school's policy to admit 10 to 25 percent of the M.S.W. class with grade-point averages below 3.0. Those who are especially strong candidates on the basis of the other criteria may be selected as admissible. Since the school seeks to establish a heterogeneous student body, it makes special efforts to admit students representing a diversity of racial, ethnic, and socioeconomic backgrounds. Students with special conditions are also encouraged to apply. Applications for full-time study are accepted beginning in September 1 for the next academic year. Applications for part-time study may be made at any time.

Continuing Education

Through the Saturday and Evening Class Program in Iowa City and the School of Social Work's Des Moines, Cedar City, and Siouxlând Center, non-degree students may enroll for courses and workshops. Twelve credits of graduate coursework may be applied to the master's degree requirements for students who later enroll in the program.

Courses

For Undergraduates

4323 Introduction to Social Work
- Social welfare as an academic discipline; main approaches to social work; historical development of social work; philosophical bases for social work; role of governmen.

4325 Social Welfare Policy
- Basic concepts of social welfare policy; social problems; governmental and nongovernmental agencies; social work role in public policy making.

4379 Social Work Interdisciplinary Seminar
- Social work role in interdisciplinary settings; social work role in the health care system; social work role in the community; social work role in education; social work role in social work research; social work role in social work practice.

4381 Social Work Internship Seminar
- Social work role in social work education; social work role in community practice; social work role in research; social work role in social work practice.

4385 Internship Seminar
- Social work role in social work education; social work role in community practice; social work role in research; social work role in social work practice.

For Graduates and Undergraduates

Courses with numbers preceded by asterisks are required in the M.S.W. program.
elements of the planning process, not techniques used for planning. Preparatory: graduate standing or consent of instructor.

3270 Ethics in Developing Countries 3 s.
Cross-cultural and interdisciplinary analysis of moral and ethical considerations in the international development in the developing nations. Same as AE.307, 39.3, 42.17, 42.27, 53.77, 115.1, 115.27, 17.17.

3280 Human Behavior: Selected Aspects
Prerequisites for coverage of topics not covered in an existing course.

3281 Social Work Practice: Selected Aspects
Prerequisites for coverage of topics not covered in an existing course.

3282 Social Welfare Policy: Selected Aspects
Prerequisites for coverage of topics not covered in an existing course.

3283 Travel/Study Seminar
Study of seminar plus extended travel to foreign countries, arranged in consultation with a faculty member when a foreign country is available or interest is sufficient.

3291 Advanced Policy Study
Policy related to student's career is arranged in consultation with a faculty member, when a foreign country is available or interest is sufficient.

3293 Practicum Seminar
Preparation and planning for a practicum experience may be arranged in consultation with a faculty member, when a foreign country is available or interest is sufficient.

3294 Social Work
Preparation and planning for a practicum experience may be arranged in consultation with a faculty member, when a foreign country is available or interest is sufficient.

3295 Practicum in Social Work
Preparation and planning for a practicum experience may be arranged in consultation with a faculty member, when a foreign country is available or interest is sufficient.

3296 Development
Preparation and planning for a practicum experience may be arranged in consultation with a faculty member, when a foreign country is available or interest is sufficient.

3297 Social Work
Preparation and planning for a practicum experience may be arranged in consultation with a faculty member, when a foreign country is available or interest is sufficient.

3298 Advanced Social Work Research
Advanced course in research methods. Prerequisite: 32.92 or consent of instructor. Selection of a specific topic is not required to meet the same as needs assessment, program evaluation, and policy analysis. Prerequisite: 32.92.

3301 Social Change, Social Development, and Social Welfare
Studies the macro level of social policy; social work and social change; social welfare; the macro environment. Prerequisite: graduate standing.

3303 Organizational Change
Theories of organizational function, structure, and development, and the role of social workers in bringing about change. Prerequisite: graduate standing.

3305 Women and Social Change
Examination of societal change, both personal and societal, in the development of women's rights. Prerequisite: 32.32 and 32.33.

3306 Social Planning
Theories and practice of social welfare planning. Includes theoretical issues, planning, theories and principles, the politics of the planning process, and social science teaching in secondary schools. The degree equips the student for study for advanced degrees 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 urban areas.

Undergraduate students majoring in sociology should plan their programs in consultation with a sociology adviser and an adviser from the student's intended career field.

In 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 28 semester hours of coursework in sociology, including:

34:1 Introduction to Sociology: Principles 4 s.
34:2 Introduction to Sociology: Problems 4 s.
34:10-11 Theory, Research, and Statistics 6 s.
34:20 Electives 6 s.

Students should complete the two-semester course in research, and the appropriate coursework in 34:20 Electives to maximize their ability to benefit from the other sociology courses.

In addition to the sociology requirements listed above, the B.S. program in sociology requires the following:

32:12 Logic of Social Science 3 s.
29:10-11 Introduction to Logic 3 s.
29:10 Introduction to Philosophy of Science 3 s.
32:20 Elementary Probability and Statistics 3 s.

One of these two combinations:

23:10 Fundamentals of College Mathematics I 4 s.
The professional courses required for certification (23 semester hours). Sociology courses taken to fulfill the social science core requirements may also be counted toward the sociology teaching major. Other social science or history courses taken to satisfy the social science or historical-cultural core requirements may not be counted toward the hours required in related fields.

Honor
Students who wish to graduate with honors in sociology must be admitted to the honors program, have a departmental honors advisor, include 34:190 The Development of Modern Social Theory and 34:198 Honors Research in their programs, and take an oral examination upon completion of their honors research.

Graduate Programs
The graduate programs in sociology are directed toward professional careers. Depending upon which program the student chooses, the master's program prepares the student for doctoral studies or for professional positions applying sociology. The doctoral program has a research emphasis and primarily prepares sociologists for positions in colleges and universities or research in academic, private, or government positions. Opportunities for research, using 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 38 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 is sociologically appropriate. All candidates for the M.A. degree must complete 34:201 History of Sociological Theory, 34:202 Sociological Theory, 34:214 Elementary Statistics and Data Analysis, and 34:216 Sampling, Measurement, and Observation Techniques, with grades of B or higher.

M.A. in Criminal Justice and Corrections
This program is designed for individuals desiring to prepare for careers in the criminal justice system. It provides the student with training in the social and behavioral sciences, the administration of justice, counseling techniques, and administrative procedures. The program is administered by the Department of Sociology and has a strong sociological emphasis. A limited number of students are admitted to the program each year, so a low faculty-student ratio is maintained. Internships are available with local criminal justice agencies. This program requires a minimum of 45 semester hours and a research paper.

Joint Program in Sociology and Law
A student may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. The College of Law will credit up to 12 hours of graduate work taken after entering the joint program toward the 90 hours required for the J.D., even though those hours are also credited toward an M.A. in sociology.

At the discretion of the student's M.A. committee, the Department of Sociology may credit up to 12 hours of law coursework toward the M.A. degree. This cross-crediting allows a student to receive the J.D. and the M.A. by taking less coursework than would be necessary if the degrees were pursued independently. This program is highly individualized and allows the student to explore various aspects of the relationship between law and society.

Doctor of Philosophy
The Ph.D. degree in sociology requires a minimum of 72 semester hours of graduate-level coursework, including the post-M.A. courses 34:218 Intermediate Statistics and Data Analysis 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—history, 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 psychology, deviance, criminology, family, social stratification, organizations, 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 1100 from the quantitative plus verbal sections of the Graduate Record Examination. In addition to fulfilling the Graduate College requirements for admission (see the "Graduate College" section of the Catalog), the applicant completes a departmental application statement and uses its personal reference forms in obtaining three letters of recommendation.

Applications may be submitted 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 1.

Admission decisions are based on a composite consideration of prior academic performance, personal reference letters, scores on the Graduate Record Examination (GRE) Aptitude Test, and the applicant's statement of reasons for pursuing advanced work in sociology. The department has no specific undergraduate course requirements for admission, but a background in the social sciences with some mathematics training is useful. A foreign language is not required for admission and there are no foreign language requirements for either the M.A. or Ph.D. degrees in sociology. Inquiries concerning admission should be directed to the

Chair, Admissions Committee, Department of Sociology.

Admission to the M.A. program in criminal justice and corrections requires a B.S. or a B.A. degree, a grade-point average of 2.75 and a total score of 1000 from the quantitative plus verbal sections of the Graduate Record Examination (GRE) Aptitude Test. Enrollment in this program is currently limited to five admissions per year. A descriptive publication is available at the department office.

Graduate Financial Aid

The Department of Sociology offers three types of awards to graduate students: teaching assistantships, research assistantships, and teaching-research fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive assistantships work twenty hours each week for faculty members on either teaching or research assignments. The department may also offer tuition scholarships to some students.

Facilities

The department maintains a card punch and four interactive terminals for communicating with the University's main computer (IBM 370/168 and four PRIME 7500) and with the University's Hewlett-Packard 2000 educational computer. Also available for faculty and students are the facilities of the Center for Research in Interpersonal Behavior (CIRB), a data archive unit, and the Iowa Urban Community Research Center (UCRC). The CIRB facility includes a small-groups laboratory complex with audiotape, 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 UCRC 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, 34-4, 34-8, 34-14, and 34-120. All other undergraduate courses are open to freshmen with stated prerequisites.

34-1 Introduction to Sociology: Anthropology

Examination of how humans are organized into social groups, the analysis of social institutions, the study of behavior, and social change. (3-2-0) Prerequisites: 34-1 or consent of instructor.

34-2 Introduction to Sociology: Social Problems

Examination of some social problems, including deviant behavior, social movements, and social change. (3-2-0) Prerequisites: 34-1 or consent of instructor.

34-3 Introduction to Sociology: Social Psychology

Examination of the social psychology of individuals and groups, the study of socialization processes, and the role of social influences in the behavior of individuals. (3-2-0) Prerequisites: 34-1 or consent of instructor.

34-4 Introduction to Sociology: Social Control

Examination of social control systems, including formal and informal sanctions, deviant behavior, roles, and social control in society. (3-2-0) Prerequisites: 34-1 or consent of instructor.

34-11 Theory, Research, and Statistics

Introduction to basic statistical concepts, emphasis on descriptive statistics, the statement of research hypotheses, and the interpretation of research findings. Prerequisites: 34-1 or consent of instructor.

34-16 Comparative Sociology

Introduction to social structure, social change, and comparative research methods. Prerequisite: 34-1 or consent of instructor.

34-19 Sociology for Social Workers

Introduction to the social patterns of life, the causes of social behavior, and social processes in society. Prerequisite: 34-1 or consent of instructor.

34-20 Women in Society

Analysis of the role of women in society, emphasizing aspects of intergenerational, structural, and institutionalization processes. Prerequisite: 34-1 or consent of instructor.

34-26 Special Topics in the Sociology of Women

For students interested in pursuing research or teaching in the sociology of women.

34-100 Directed Individual Study

For students interested in pursuing research or teaching in the sociology of women.

34-110 Research (4-12-0, 3-12-0)

Faculty-supervised research projects. Prerequisite: written consent of instructor.

Advanced Courses

Social Theory

35-100 Research (4-12-0, 3-12-0)

For advanced students in sociology.

35-200 Social Theory

Surveys of selected works of major theorists, emphasis on classical and modern representative figures in sociology, and an introduction to contemporary developments in the field. (4-1-0) Prerequisites: 35-1 or consent of instructor.

35-26 Special Topics in Social Theory

For advanced students in sociology.

35-276 Special Topics in Society

For advanced students in sociology.

35-299 Thesis in Sociology

For advanced students in sociology. (1-0-0) Prerequisites: 35-1 or consent of instructor.

35-300 Thesis in Sociology

For advanced students in sociology. (1-0-0) Prerequisites: 35-1 or consent of instructor.

35-301 Thesis in Sociology

For advanced students in sociology. (1-0-0) Prerequisites: 35-1 or consent of instructor.

35-302 Thesis in Sociology

For advanced students in sociology. (1-0-0) Prerequisites: 35-1 or consent of instructor.

35-303 Thesis in Sociology

For advanced students in sociology. (1-0-0) Prerequisites: 35-1 or consent of instructor.
Minor
A minor in Spanish requires 16 semester hours of coursework in Spanish, including 10 semester hours at the 100-level. The seven courses listed above are not applicable toward the elective requirement for the Spanish major; the Spanish major may not be applied toward the minor. No more than 3 semester hours of credit may be applied toward the minor from the following:

- SPN 215 Introduction to Spanish
- SPN 277 Spanish Literature
- SPN 219 Introduction to Peninsular Literature
- SPN 240 Introduction to Latin American Studies
- SPN 246 Introduction to Andean Languages and Cultures
- SPN 248 Introduction to Hispanic Literature and Culture

Electives (6 s.h.)
The electives may be any courses numbered 35:10 above, except that no more than 4 semester hours may be elected in conversation courses—2 semester hours each of 35:105 Spanish Conversation: Junior Level and 35:125 Spanish Conversation: Senior Level—and the following courses may not be elected to fill this requirement:

- SPN 101 Spanish Language Practice
- SPN 102 Methods of Teaching Spanish
- SPN 156 Intensive Elementary Spanish
- SPN 157 Intensive Intermediate Spanish

One course given in English may be taken to satisfy the 3 semester hours of this requirement, provided additional readings are done in Spanish.

The undergraduate major program in Spanish described above will be followed by all students declaring a Spanish major.

High School Certification
Spanish majors who wish high school certification must complete 35:167 Spanish Phonology I in addition to the requirements listed above. Several courses in the College of Education are also required, as is one semester of practice teaching, taken in the senior year.

Undergraduate Programs in Portuguese
Major in Portuguese
Beginning courses in Portuguese are for students without previous foreign language study the experience. Classes are small, providing a great deal of individual attention in an informal language-learning environment. Courses, pronunciation, reading, and understanding basic Brazilian Portuguese and incorporating cultural material in the form of films and music.

The undergraduate major in Portuguese requires these courses, or their equivalents, for a total of 24 semester hours of coursework beyond the second-year level.

Language (6 s.h.)

- SPN 217 Advanced Portuguese I 4 s.h.
- SPN 218 Advanced Portuguese II 4 s.h.

Literature (6 s.h.)

- SPN 216 Brazilian Literature I 3 s.h.
- SPN 217 Brazilian Literature II 3 s.h.

Civilization (6 s.h.)

- SPN 115 Brazilian People and Culture 3 s.h.
- SPN 116 Modern Portuguese 3 s.h.

Electives (4 s.h.)

- SPN 313 Modern Brazilian Fiction: Novel and Short Story
- SPN 314 Modern Brazilian Fiction: Novel and Short Story
- SPN 207 Introduction to Portuguese Literature 3 s.h.
- SPN 109 Black Literature of Portugal 3 s.h.
- SPN 109 Nineteenth-Century Brazilian Novel 3 s.h.
Minor in Portuguese

The undergraduate minor in Portuguese consists of 18 semester hours in Portuguese, including six semester hours of 100-level courses.

Offerings for Undergraduate Majors

Undergraduate students in other disciplines may enroll part of the College of Liberal Arts literature core requirement with 35:8 Contemporary Latin American narratives, readings in English. The department offers several other literature and cultural survey courses which are taught in English and of general interest.

Latin American Studies Program

The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the political, political economy, and literature of Latin America, leading to a certificate in Latin American Studies. Students receiving this certificate must have sufficient competency in Spanish or Portuguese to be able to do background readings in the language before enrolling in the required senior seminar. For further information on the Latin American Studies Program, its certificate, and its new minor, see "Latin American Studies Program" in this section of the Catalog.

Master of Arts in Spanish

Candidates for the M.A. degree must have completed the equivalent of the undergraduate Spanish major.

Deficiencies may be remedied with the appropriate coursework.

Required Coursework

- Spanish phonology (either 35:157 Spanish Phonology I or phonology component of 35:208)
- 35:208-209 Graduate Spanish Linguistics I-II
- 39:226 Spanish Currents in Culture 3 s.h.
- 35:233 Seminar in Teaching 1 s.h.
- 35:251 Medieval Spanish Literature 1 3 s.h.
- 35:263 Historical Petro-Romance Language 1 3 s.h.
- Consume in Golden Age Literature 3 s.h.
- Course in Modern Spanish Literature 3 s.h.
- Courses in Spanish American Literature 6 s.h.

Electives bringing student's total to required minimum of 36 semester hours in the M.A. program

The student is also responsible for the works listed in the departmental reading list.

Maximum Study Loads

Maximum course registration is 15 graduate hours during the fall or spring semesters, and 8 graduate hours during the summer 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 10 semester hours in the fall or spring semesters, and for not more than 6 during the summer sessions. Additional hours may be taken only with Graduate College approval.

Transfer Credit

A maximum of 6 semester hours of graduate credit in approved course may be transferred from other institutions toward the 36-semester-hour requirement for the M.A. degree.

Teaching Certification

Exclusive of the practice-teaching requirement, graduate students may take the courses necessary for secondary teaching certification while completing M.A. requirements in the department.

Examinations

Three written examinations and one oral examination are given. For the written examinations, the student must include at least one topic from two of these three areas: I. Spanish linguistics; II. Medieval literature or Golden Age literature; and, III. Modern Spanish literature, Spanish American literature or Luso-Brazilian literature.

Doctor of Philosophy in Spanish

Two doctoral programs are available. One is oriented to Hispanic literatures. Before his or her comprehensive examination the candidate must become well acquainted with another Romance language and literature (a Portuguese-Brasilian program is especially 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 M.A. work was done at other institutions, consist of a two-hour written examination covering two to four literary works, one or more literary works and authoritative criticism of the work(s), 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 language and literature with emphasis on language. Before his or her comprehensive examination, the candidate must have completed a course in literature and the equivalent of three seminars of college Latin, and demonstrated a graduate level knowledge of a second approved foreign language and a reading knowledge of a third approved foreign language.

In both programs, coursework and individual reading must be designed to give the candidate a thorough knowledge of the Spanish language, its literature, and related civilization.
medieval to modern times; to provide
an integrative experience is a second
Romance-language, and to 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
disciplinary degree. The requirement
may be fulfilled by acceptable courses
at another institution or by the courses at
the University of Iowa indicated in
parentheses. The requirement may also
be met by independent reading and
examination. The candidate is
encouraged to pursue further studies in
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 Hero-Romance
Language I

2 s.h.

One additional course in Spanish
Romance linguistics

2 s.h.

Golden Age Literature

35:255 Dramas of the Golden Age

3 s.h.

35:256 Cervantes' Don

Quixote

3 s.h.

One of the following:

35:257 Fiction of the

Golden Age

3 s.h.

35:259 Lyric Poetry of the

Golden Age

3 s.h.

35:260 Instruction Prose of the

Golden Age

3 s.h.

35:262 The Picaresque Novel

3 s.h.

Modern Perinuclear 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-century stipulation is
met:

35:230 Nineteenth-Century Spanish

Novel

3 s.h.

35:231 Nineteenth-Century Spanish

Poetry and Drama

3 s.h.

35:233 Twentieth-Century Spanish

Poetry

3 s.h.

35:234 Twentieth-Century Spanish

Novel

3 s.h.

35:238 Twentieth-Century Spanish

Essay

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

35:245 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

35:232 Spanish American Essayists and

Thinkers

3 s.h.

35:233 Post-Modernist Spanish

American Poetry

3 s.h.

35:242 Spanish American Literature of

the Nineteenth Century

3 s.h.

35:243 Spanish American Colonial

Literature

3 s.h.

35:291 Images of Women in Latin

American Literature

3 s.h.

Area C

35:244 Spanish American Poetry of the

Twentieth Century

3 s.h.

35:257 Modernism

3 s.h.

35:275 Latest Currents in Spanish

American Poetry: 1950-Present

3 s.h.

Area D

35:251 Spanish American Drama

2 s.h.

35:245 Spanish American Short

Story

3 s.h.

35:254 Spanish American Short Story of

Fantasy

3 s.h.

Area E

Course in Brazilian literature

3 s.h.

Comparative Linguistics

35:208-209 Graduate Spanish

Linguistics I-II

8 s.h.

35:157 Spanish Phonology I

3 s.h.

or Phonology component of 35:208

Literary Theory

One of the following:

35:217 Literary Theory and Explication

of Texts

3 s.h.

35:294 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 basic program, as initial

employment opportunities are enhanced

by strong preparation in several areas.

Program II: Emphasis on

Language

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 Hero-Romance

Language I

2 s.h.

One additional course in Spanish

Romance linguistics

2 s.h.

Golden Age Literature

35:255 Dramas of the Golden Age

3 s.h.

35:256 Cervantes' Don

Quixote

3 s.h.

One of the following:

35:257 Fiction of the

Golden Age

3 s.h.

35:259 Lyric Poetry of the

Golden Age

3 s.h.

35:260 Instruction Prose of the

Golden Age

3 s.h.

35:262 The Picaresque Novel

3 s.h.
Modern Peninsular Literature
One of the following:
35:220 Nineteenth-Century Spanish Novel
0.5 s.h.
35:221 Nineteenth-Century Spanish Poetry and Drama 0.5 s.h.
One of the following:
35:223 Twentieth-Century Spanish Novel 0.5 s.h.
35:224 Twentieth-Century Spanish Poetry 0.5 s.h.
35:228 Twentieth-Century Spanish Essay 0.5 s.h.
35:221 Twentieth-Century Spanish Drama 0.5 s.h.
Latin American Literature
Three courses from at least two of the Latin American literature areas listed in Program I
Contemporary Linguistics
35:187 Spanish Phonology I 3 s.h.
or
Phonology component of 35:208 Graduate-level phonetics/phonology 3 s.h.
35:208-209 Graduate Spanish Linguistics I II 3 s.h.
Additional graduate language (exceeding seminars below) 2 s.h.
Literary Theory
One of the following:
35:217 Literary Theory and Explanation of Text 3 s.h.
35:284 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 language 4 s.h.
Ph.D. Comprehensive Examinations
The doctoral comprehensive examinations assume a general knowledge of Spanish peninsular and Spanish American literature and cover five broad fields, such as a literature period or a historical literary period, chosen by the candidate so as to include at least two Peninsular and two Hispanic American Areas.
Candidates choosing the program with emphasis on language take comprehensive examinations in two peninsular fields and one literature field, or, with permission of the department, in three language fields. The literature field may be either Peninsular or Hispanic American.
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 two-hour oral examination covering the candidate’s main field of study (60 minutes), the remaining fields (90 minutes total), and the Ph.D. reading list (15 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 completion 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 seeking an advanced degree in the Department of Spanish and Portuguese are required to spend 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 radios, tape recorders, record players, soundproof recording rooms, two drill rooms with 48 dual-channel tape recorders providing a simultaneous master deck tape and student deck, an electronic classroom, a soundproof work room, film and film projection equipment and facilities, and a library of tapes and disc recordings. The department offers to its majors a specific course in language laboratory procedures.
The department sponsors a 30-minute Spanish-language program, “Succesos en Español y Portugues” (“Happenings in Spanish and Portuguese”) broadcast weekly over University radio station WUIU.
Spanish Courses Primarily 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 with a departmental advisor. Students wishing to take more advanced courses may take the placement test. Transfer students who have taken college Spanish at other institutions will be placed according to courses previously completed.
A student may not, except with the approval of the chair, take for credit an elementary course after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.
35:1 Elementary Spanish 3 s.h.
35:2 Elementary Spanish II 3 s.h.
35:3 Intermediate Elementary Spanish 4 s.h.
35:4 Intermediate Elementary Spanish 4 s.h.
35:5 Advanced Elementary Spanish 4 s.h.
35:6 Advanced Elementary Spanish 4 s.h.
Prerequisites: 35:4 equivalent. A course at or above this level is a prerequisite for the major in Hispanic or Latin American studies.
Designated to introduce the broad diversity of Hispanic cultures in the Americas, with some
26-151 Lenguaje Literario y Periodismo
Tradicionalmente, esta clase se ha ofrecido para estudiantes de periodismo y comunicación. En ella se estudian los fundamentos de la escritura periodística y literaria, con un énfasis en la lengua castellana. Se ofrece cada verano.

26-153 Historia de la Literatura Española
Este curso se concentra en los escritores y movimientos literarios más importantes de la literatura española, desde el siglo X hasta la actualidad. Se ofrece cada verano.

26-154 Teatro de España
Este curso aborda la historia del teatro español, desde el teatro de las cortes hasta el teatro moderno. Se ofrece cada verano.

26-155 Historia del Religión en España
Se centra en la influencia de la Iglesia en la sociedad española a lo largo de la historia. Se ofrece cada verano.

26-157 Historia de la Arquitectura Española
Este curso se enfoca en el desarrollo de la arquitectura española desde el siglo X hasta la actualidad. Se ofrece cada verano.

26-159 Historia del Arte Español
Se centra en el desarrollo del arte español, desde el arte románico hasta el arte contemporáneo. Se ofrece cada verano.

26-152 Lenguaje y Literatura Española
Este curso se centra en la lengua y la literatura española, con un énfasis en el desarrollo de la lengua y la literatura española a lo largo de la historia. Se ofrece cada verano.

26-150 Lenguaje y Literatura Española I
Este curso se centra en la lengua y la literatura española en el siglo X. Se ofrece cada verano.

26-156 Lenguaje y Literatura Española II
Este curso se centra en la lengua y la literatura española en el siglo XI. Se ofrece cada verano.

26-158 Lenguaje y Literatura Española III
Este curso se centra en la lengua y la literatura española en el siglo XII. Se ofrece cada verano.

26-159 Lenguaje y Literatura Española IV
Este curso se centra en la lengua y la literatura española en el siglo XIII. Se ofrece cada verano.

26-160 Lenguaje y Literatura Española V
Este curso se centra en la lengua y la literatura española en el siglo XIV. Se ofrece cada verano.

26-161 Lenguaje y Literatura Española VI
Este curso se centra en la lengua y la literatura española en el siglo XV. Se ofrece cada verano.

26-162 Lenguaje y Literatura Española VII
Este curso se centra en la lengua y la literatura española en el siglo XVI. Se ofrece cada verano.

26-163 Lenguaje y Literatura Española VIII
Este curso se centra en la lengua y la literatura española en el siglo XVII. Se ofrece cada verano.

26-164 Lenguaje y Literatura Española IX
Este curso se centra en la lengua y la literatura española en el siglo XVIII. Se ofrece cada verano.

26-165 Lenguaje y Literatura Española X
Este curso se centra en la lengua y la literatura española en el siglo XIX. Se ofrece cada verano.

26-166 Lenguaje y Literatura Española XI
Este curso se centra en la lengua y la literatura española en el siglo XX. Se ofrece cada verano.

26-167 Lenguaje y Literatura Española XII
Este curso se centra en la lengua y la literatura española en el siglo XXI. Se ofrece cada verano.
the study of speech and hearing processes and their disorders. Honors of advanced degrees in this field include clinical service for people with speech, hearing, or language problems and work in areas such as speech therapy, medical physics, or audiological science. The department also offers graduate students the opportunity to conduct research in the areas of speech and hearing sciences.

Undergraduate Programs

Since the master's degree or its equivalent is the minimum level of preparation for persons seeking professional careers in the field, the undergraduate curriculum leading to B.S. or B.A. degrees in speech and hearing science does not qualify an individual to work professionally in this field. However, as a primary purpose of the preparation of students for graduate work. Hence, the undergraduate program emphasizes the normal processes of speech, hearing, and language. These undergraduate programs may also be taken by persons who want a degree in the College of Liberal Arts but who do not desire a career in this field.

The major requirements for the B.S. or B.A. degree in speech and hearing science are as follows:

- 31:143 Introduction to Statistical Methods
- 31:151 Elementary Psychology
- 31:153 General Psychology
- 31:151 Learning and Motivation in Children
- 31:111 Child Development
- 31:153 Introduction to Clinical Psychology
- 31:156 Personality
- 31:155 Abnormal Psychology
- One additional course in psychology, anthropology, or sociology

Students majoring in speech and hearing science must also complete or have had the equivalent of college algebra, trigonometry, college physics and calculus, and a college course in the biological sciences.

Honors Program

The senior-year program leading to the B.B. degree with honors in speech pathology and audiology is open to students who are in their final year of study. Eligibility is determined by a combination of academic achievement and personal qualities. The honors program is designed to provide students with the opportunity to engage in independent research and to develop original ideas and theories in the field of speech and hearing science. The department offers a variety of courses in the areas of speech, hearing, and language, and students are encouraged to take part in research projects and to develop their skills in critical thinking and problem-solving.

Graduate Programs

Master of Arts

The M.A. program in speech pathology and audiology may be a professional program that prepares students for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The programs for the professional M.A. are designed to assure that upon graduation the student will meet the requirements for immediate professional placement, while the general M.A. program allows greater flexibility in individual program planning.

The M.A. candidate must have a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior. The major in this field at the University of Iowa.

Before the first registration in the program, the entering M.A. degree candidate must take preliminary examinations covering 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 Programs

The professional M.A. program is designed to prepare clinicians in speech pathology and audiology. It is able to function independently in a variety of clinical settings. Persons completing the professional M.A. program meet all academic requirements for clinical certification by the American Speech and Hearing Association. The department offers the professional degree with various emphases. Each requires a minimum total of 32 semester hours of graduate credit for a master's degree in this department. Candidates for the professional M.A. degree are not required to present a thesis, but students demonstrating research aptitude and interest are encouraged to
All candidates preparing for the professional M.A. degree without thesis are required to take written comprehensive examinations.

Requirements for the professional M.A. degree include the following:

**A. All Majors**
- 3:115:1062 Nervous Processee of Speech and Language 3 s.h.
- 3:115 Foundations of Clinical Management 3 s.h.
- 3:122 Audiology Disorders 3 s.h.
- 3:121 Hearing Loss and Audiology 4 s.h.
- 3:141 Developmental Language Disorders 3 s.h.
- 3:344 Rehabilitation Audiology 3 s.h.

**7C:199 Counseling for Related Professions** 2-3 s.h.

or

**100 Psychological issues and Counseling Techniques for the Communication Disorders Professional** 3 s.h.

**3:510 Senior: Introduction to Research in Speech and Hearing** 0 s.h.

Two advanced seminars or tutorials 4 s.h.

Additional semester hours of practicum registration sufficient to meet supervised, direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech and Hearing Association, and to provide broad supervisory practicum experience.

*Equivalent undergraduate course will be accepted as meeting requirements.

**B. Speech Pathology, General Clinical Emphasis**

Courses listed under A and B:
- 3:145 Shunting 3 s.h.
- 3:212 Voice Disorders 2 s.h.
- 3:225 Neurophysiology of Speech and Language 3 s.h.
- 3:227 Cleft Palates 3 s.h.

Practicum, research, and elective courses to bring total to at least 38 semester hours.

**C. Speech Pathology, Emphasis on Clinical Work in Elementary and Secondary Schools**

Courses listed under A and B, and:
- 7E:104 Remedial Methods in Speech and Hearing 2 s.h.

**7E:102 Laboratory Practice in Elementary School** 5 s.h.

Practicum, research, and elective courses to bring total to at least 38 semester hours.

**D. Audiology, General Clinical Emphasis**

Courses listed under A, and:
- 3:120 Fundamentals of Laboratory Instrumentation 3 s.h.
- 3:121 Audiology Instrumentation Laboratory 1 s.h.
- 3:140 Mass Communication I 1 s.h.
- 3:240 Introduction to Diagnostic Audiology 4 s.h.
- 3:241 Advanced Audiology 4 s.h.
- 3:245 Amplification for the Hearing-Impaired 3 s.h.
- 3:245 Audiology Procedures for Special Populations 3 s.h.

Practicum, research, and elective courses to bring total to at least 38 semester hours.

**E. Audiology, School Hearing Clinician**

Courses listed under A and D, and:
- 7E:104 Remedial Methods in Speech and Hearing 2 s.h.
- 7E:107 Laboratory Practice in Elementary School 3-5 s.h.

Practicum, research, and elective courses to bring total to at least 38 semester hours.

**Requirements for Employment**

A number of states, including Iowa, require a state license in speech 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 state in which they plan to work. Completion of the following courses, in addition to those listed under C or E above, will meet the certification requirements of Iowa and most other states:
- 7E:102 Exceptional Children 3 s.h.
- 7X:170 Human Relations for the Classroom Teacher 3 s.h.

The department encourages candidates with special interests and goals to develop individualized programs in consultation with their advisor and the faculty, provided they clearly define their pursuits and present adequate plans of study.

In addition to the M.A. courses listed above, or their equivalents, the following courses are recommended for the Ph.D. in speech pathology or audiology:

**A. All Candidates**
- 3:120 Fundamentals of Laboratory Instrumentation 3 s.h.
- 3:218 Language Acquisition 3 s.h.
- 3:219 Experimental Psycholinguistics 3 s.h.
- 3:220 Advanced Laboratory Instrumentation 3 s.h.

**General Program**

The general M.A. program, for the student intending to pursue the Ph.D. degree, usually includes a substantial portion of the courses in the professional M.A. program. Additionally, students in the general M.A. program are required to present a thesis and successfully complete a final oral examination.

**Doctor of Philosophy**

The Ph.D. program provides comprehensive training for the academic and research scientist and prepares them for careers in academic research processes and their departments, 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, psycholinguistics, or hearing science. Within each area the candidate and advisor may provide for further concentration through suitable selection of advanced seminars and research areas. Most students will find that their special interests lie in one or more of the listed areas.

The department encourages candidates with special interests and goals to develop individualized programs in consultation with their advisor and the faculty, provided they clearly define their pursuits and present adequate plans of study.

In addition to the M.A. courses listed above, or their equivalents, the following courses are recommended for the Ph.D. in speech pathology or audiology:
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, usually 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 Ph.D. and graduate appointments, which supplement those specified by the Graduate College. A brief summary of these requirements is presented below. For more detailed information, contact the department chair.

Application Form

All applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the departmental 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. However, if the Ph.D. undergraduate grade-point average is above 3.0, the department will consider admission. Admission to the graduate program is granted on a case-by-case basis.

Completed applications must be received no later than February 1 for enrollment in the next summer session or fall semester. Later applications will be considered only in special situations. Applications for the fall semester must be received no later than the preceding November 1.

Applicants to Ph.D. Program

Completed applications must be received at least two months prior to the beginning of the term for which application is made: approximately April 1 for summer session, July 1 for fall semester, November 1 for spring semester. However, if an applicant wishes to be considered for graduate appointment, the admittance application must be filed by the deadline for appointment applications specified below. Applicants will be notified within six weeks after their applications are complete.

Applications for Graduate Appointments

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.

Success on the Graduate Record Examination (GRE) Aptitude Test is routinely required for consideration of 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 between March 15 and April 1, 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 its health service facilities are readily available for the clinical training of students in speech pathology and audiology. The University of Iowa Affiliated Speech and Hearing Services is accredited by the Preparatory Services Board of the American Board of Examiners in Speech Pathology and Audiology. Affiliated 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; Speech and Hearing Services, Pediatrics—State Services for Crippled Children; Speech Pathology Service, Child Psychiatry;
Urban and Regional Planning

Program chair: John W. Fisher
Assistant chair: David I. Banker
Ph.D. program: dean: Andrew Maklan
Degree: M.A., M.S.

Planning encompasses the development of policy alternatives to improve the quality of life in cities and regions. Planners provide courses of action in response to a variety of problems and opportunities, and assess the likely outcomes of these actions. Planners are involved in such diverse issues as land use, transportation, housing, environmental quality, public services, human services, and economic development.

The University of Iowa planning program is a two-year master's program, recognized by the American Planning Association. One of the few in the nation to approach planning from the perspective of policy analysis, the program is unique in that it covers all branches of the field within the same framework (represented by the core curriculum), independent of distinctions between physical planning, social planning, or economic planning. This approach enables students to acquire the knowledge and understanding and practical skills necessary to be effective planners, regardless of their chosen areas of specialization.

An independent academic unit administratively located within the Graduate College, the program has benefited from an opportunity to develop its curriculum and faculty interests without the constraints imposed by affiliation with another discipline or professional field.

Faculty and students in the planning program at The University of Iowa bring to each other a wide range of experience and prior education. Fields represented within the faculty, on the basis of previous training, include planning, architecture, public policy, economics, operations research, geography, engineering, political science, and law. The program's students have diverse undergraduate majors, including economics, political science, geography, architecture and landscape architecture, environmental sciences, engineering, anthropology, sociology, urban studies and planning, English, biology, history, classics, and philosophy. Because graduate students in the program number about 50, 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-semester-hour, four-semester (full-time) program encompassing two academic years. The curriculum is based on the general philosophy that planners must develop the theoretical and practical skills that permit them to identify issues and recommend alternative ways for resolving them, as well as the professional skills (e.g., report writing, presentations and briefings, team management) that allow them to function effectively in various organizational and political environments. Students become well-versed in such topics as macroeconomic theory, quantitative methods, formal presentations, and political bodies, and citizen participation.

Core Curriculum

At the heart of The University of Iowa planning program is a unique and integrated core curriculum, which occupies the first academic year. Its purpose is to provide a rigorous foundation for analyzing public and social issues.

The function of the core is to develop a conceptual understanding of the issues present in resource allocation, an understanding of the institutions—the various social, economic, political, administrative, and legal systems—that provide the context for policy analysis and contain public utilities; a capability for identifying social goals and normative criteria for organizing society's resources; and analytical skills, both quantitative (e.g., statistical forecasting, surveys, regional analysis) and nonquantitative (e.g., scenario writing, impact assessment). In total, the course work is for 27 semester hours.

Core Courses

First Semester
102:025 Economics for Policy Analysis I 3 s.h.
102:027 Planning Theory and Practices 3 s.h.
102:028 Urban Law and Legislation 3 s.h.
102:120 Introduction to Analytic Methods 3 s.h.

Second Semester
102:024 Collective Decision Making 3 s.h.
102:218 Economics for Policy Analysis II 4 s.h.
102:220 Introductory Analytic Methods 3 s.h.
102:300 Laboratory in Information Systems and Presentation 2 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 practice of planning. Later courses require evidence of success, evaluation, and organization of 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 may represent 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 9 semester hours of credit in courses offered by various departments and schools of the University, including the planning program.

Currently, there are nine sectoral majors—land use, transportation, housing, human services, 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 problem areas, 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 can be acquired by selecting the appropriate elective courses.

The balance between core courses, a sectoral major, and elective courses allow students the opportunity to acquire a rigorous and consistent foundation for policy planning, specialized knowledge to enhance entry-level employment prospects, and exposure to other specializations within the planning field.

Other Requirements

A two-part comprehensive examination is required for all students. One part consists of written examinations, and the other evaluates the student's ability to synthesize knowledge within the sectoral major.

A thesis is not required, although a student may petition to write one for up to 6 semester hours of sectoral major credit, in which case successful completion of the thesis satisfies the second part of the comprehensive examination requirement.

Each student must complete an internship in a planning or related agency and submit a report setting forth their experiences in meeting the objectives of the internship.

A concurrent studies program is offered between the Urban and Regional Planning Program and the School of Social Work, leading to an M.A. in Planning and an M.S.W. in social work. The joint program requires a student to address the planning and policy issues involved in social service delivery.

Twelve semester hours of credit in planning are accepted toward an M.S.W., and 12 semester hours of credit in social work are accepted toward an M.A. in planning. Separate admissions are required.

Urban Transportation

The urban transportation research and training program is offered through the Institute of Urban Transportation Studies of the Institute of Urban and Regional Research. The Institute is a separately administered unit at The University of Iowa. A transportation certificate is awarded to students in the urban planning department. The certificate program allows planning students with sectoral majors in transportation to extend their training and obtain an additional credential. A separate admission process is followed for joint candidacy. For particulars, see "Urban Transportation" in this section of the Catalog.

Financial Aid

Opportunities for students in the Urban and Regional Planning Program to receive financial support exist through a variety of sources and arrangements: fellowship scholarships, program research fellowships, contracts, or grant-funded research assistantships, and internships in local agencies. All but tuition scholarships require from 10 to 20 hours of work per week, under the direction of a faculty member or professional planning staff. Students initiate applications for fellowship support, and awards are made on the basis of merit, experience, interest, and need. In recent years the program has been successful in providing support to a majority of enrolled students.

Admission

Admission to the Urban and Regional Planning Program is open to individuals having any undergraduate major or area of concentration.

Admission is based on Grade Point Average (GPA) and the Graduate Record Examination (GRE) scores (quantitative, verbal, and analytical), letters of recommendation, and undergraduate achievement. Applicants are requested to have the application form and the above-referenced materials submitted by March 15 for fall admission, or by November 1 for spring admission. A full-time student is enrolled unless the student has substantially advanced preparation or has to spend more than two years.
Courses

130:25 Transportation in the U.S. Issues and Problems
Same as Econ 445:3.h.

130:27 Introduction to Planning and Policy
Pre- or corequisite: development of urban problems and current issues in land use, transportation, planning law, political science, public policy, environmental and regional planning.

130:30 Case Studies in Urban and Regional Planning
Survey of current issues in planning, presented from actual experience. Areas include housing, land use, environment, transportation, planning law, political science, public policy, environmental and regional planning.

130:34 Housing Analysis
Will not be offered 1980-81.

130:38 Planning for Urban Transportation
General overview of urban transportation during the land use-transport system, the urban transportation planning process, and how transportation affects urban and regional development.

130:40 Environmental Assessment and Environmental Policy
Definition, analysis, and resolution of environmental issues and policies of state government, and the local government.

130:41 Urban and Regional Analysis
Introduction to planning principles, the growth of the urban environment, the nature of urban policy, and the development of urban problems.

130:42 Regional Planning Principles
Study of urban and regional planning principles, their application to urban and regional planning, and the nature of urban development.

130:43 Urban and Regional Analysis
Introduction to planning principles, the growth of the urban environment, the nature of urban policy, and the development of urban problems.

130:43 Urban and Regional Analysis
Introduction to planning principles, the growth of the urban environment, the nature of urban policy, and the development of urban problems.

130:44 Urban Public Services
Study of urban and regional planning principles, their application to urban and regional planning, and the nature of urban development.

130:45 Urban Public Services
Study of urban and regional planning principles, their application to urban and regional planning, and the nature of urban development.

130:46 Urban Public Services
Study of urban and regional planning principles, their application to urban and regional planning, and the nature of urban development.

130:47 Urban Public Services
Study of urban and regional planning principles, their application to urban and regional planning, and the nature of urban development.

130:48 Urban Public Services
Study of urban and regional planning principles, their application to urban and regional planning, and the nature of urban development.

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130:51 Urban Public Services
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Urban Growth in Developing Countries

Program coordinator: Michael L. McNally

A nondegree graduate program of interdisciplinary and cross-cultural seminars and courses focused on problems of development in Third World countries is offered through the Center for Development Studies within the Institute of Urban and Regional Research. Intended to facilitate and coordinate interdisciplinary instruction and research, the program is available to graduate students from departments throughout the University.

In addition to a number of development-related courses offered in specific departments, the program includes a graduate course, 102:275 Urban Growth in Developing Countries, offered in the departments of Anthropology, Economics, Geography, Political Science, 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.

Urban Transportation

The University of Iowa Center for Urban Transportation Studies offers a graduate program, including coursework and research, in the interactions of society with the various modes of passenger and freight transportation. Active participation of nine academic disciplines allows the student to assemble a program spanning physical, economic, legal, social, and institutional elements. It is this multidisciplinary exposure which distinguishes the program from more traditional graduate urban transportation programs.

An effort is made to integrate issues of economic evaluation of alternative investments, environmental quality, travel demand, urban spatial structure, land use impacts of transportation, transit management and planning, and distributional equity into a technically sound, integrative framework.

The Graduate Program in Urban Transportation draws upon courses offered by participating departments and is coordinated by the Center for Urban Transportation Studies within the Institute of Urban and Regional Research. Academic certification has been authorized by the Graduate College of The University of Iowa, and is documented on the student's transcript.

Students admitted into the program participate in conjunction with the established degree (M.A., M.S., M.B.A., Ph.D., or J.D.) arrangements of their individual departments, programs, and colleges. Students who are enrolled, or who expect to enroll, in the following University disciplines are invited to apply for admission to the Graduate Program in Urban Transportation: business administration, economics, geography, law, political science, psychology, sociology, systems engineering, and urban and regional planning.

Requirements

The urban transportation program is not a degree-granting program, but instead issues a transportation certificate to students enrolled in degree-granting departments who complete an approved course of transportation study. The student should develop a course of study in consultation with his or her advisor or the director of the urban transportation program. The course of study must be approved by the urban transportation program executive committee prior to admission to the program.

The course of study should consist of 18 semester hours. Twelve of these 18 semester hours must be in transportation-related courses, and the remaining 6 hours must be in transportation-related courses outside the student's discipline.

Students must be enrolled in the transportation program for a minimum of one year (two semesters) to receive a transportation certificate. To insure knowledge of basic transportation planning and sufficient depth in a specific area, the student must complete the core courses and fulfill one option as part of the 12 semester hours of required transportation courses. The core consists of 3 required courses:

102:111 Introduction to Urban Transportation
(can be waived for students with prior training and/or experience in transportation)
587:272 Urban Transportation Planning
102:290 Transportation Policy and Planning

In addition, students must enroll in 102:311 Transportation Program Seminar for each semester they are enrolled in the urban transportation program; credits for 102:311 do not count toward the 18-credit hour requirement.

Two options are available to transportation program students:
102:281 Problems in Transportation and Land Use is required for the transportation policy option; 587:173 Transportation Systems Analysis is required to complete the transportation design option.

The student should make every attempt to take at least one course from each transportation program faculty member, as they represent the various disciplines germane to transportation planning.

Students are strongly encouraged to gain practical experience in transportation research by completing a thesis or major paper, either in conjunction with a course (such as 102:281 Problems in Transportation and Land Use) or a research assistantship.

Research

Research projects in urban transportation typically focus on problems of small urban systems and low density areas. In addition to coursework, student and faculty research activities—surveys, analysis of local travel systems, design and monitoring of small demonstration projects, etc.—students develop a broad base of skills and receive a practice-oriented educational experience in areas such as travel
behavior, transit systems design, transit finance, and impact evaluation.

Urban and regional laboratories available for this learning process (Carrollton, Rockies City, Cedar Rapids, Quad Cities, and Johnson County) provide an attractive range of smaller urban and regional transportation systems within which to study travel behavior and transit planning. Findings from local research are compared to those obtained elsewhere.

All students financially supported in the program participate in transportation research at the center; fellowship is available to students to conduct their own research activities.

Financial Aid

Fellowships, research assistantships, and summer assistantships are awarded to a competitive basis, with the level of financial support ranging from quarter-time research assistantships to half-time research assistantships. All out-of-state students receiving research assistantships are eligible for in-state tuition. Students receiving financial support during the academic year are eligible for half-time summer research assistantships, as funding permits; three assistantships are generally awarded for two months.

The financial support listed above does not cover all potential resources available within the University, but only indicates the typical levels of financial support available within the Center for Urban Transportation Studies.

Admission

Application for admission to the Graduate Program in Urban Transportation is made by submitting a duplicate University application form, two letters of reference, and a brief statement relating the nature and extent of the applicant's interest in urban transportation.

Women's Studies

Program chair: Carol De Biette Vetter
Faculty: professors Daniel L. Becker (Department of History and Theatre Arts), Linda Merker (History), John J. Knecht (Urban Studies), Patricia McDowell (English), Margaret McDowell (Religious Studies) and associate professors P. B. (Urban Studies), Ruth A. Brandt (Social Work), Jeannette P. Cramer (Urban Studies), Doris C. Freitas (Environmental Studies), Harriet M. Brown (English), and M. P. (Urban Studies) and associate professor Richard M. Routh (Social Work)

The Women's Studies Program is a multidisciplinary liberal arts program which is engaged in developing a body of knowledge about women in the humanities and social sciences and institutionalizing that knowledge within the University community. The term "women's studies" does not connotate a separation of education for women but emphasizes teaching and research about women which is of intrinsic interest to all students. This new academic dimension in education forms a cumulative pattern of learning about women and supplementing neglected areas of study in the existing curriculum, raises provocative intellectual questions, and opens wider the quest for truth about the human condition.

Undergraduate Study

Undergraduate students may complete a minor in women's studies by taking at least 15 semester hours in departmental courses associated with the program, including at least 12 semester hours in upper-level courses (numbered 200 or above), and maintaining at least a 2.0 grade-point average in these courses. Undergraduates in the Bachelor of General Studies program may choose a special area of concentration in women's studies.

Undergraduates may also elect women's studies courses from those listed below.

Graduate Study

Graduate students in the master's or doctoral programs may choose a comprehensive area in women's studies within existing disciplines. Graduate students who wish to pursue the Ph.D. in women's studies may do so by filing a plan of study for the ad hoc interdisciplinary Ph.D. through the Graduate College.

For information on faculty members in varied departments who will direct graduate study, contact the Women's Studies Program, 306 English Philosophy Building.

Associated Courses

The department courses listed below are associated with the Women's Studies Program.

For detailed descriptions of the courses, consult the appropriate department, school, or program in the Catalog.

Since the topic of some courses change from year to year, students should refer to the Schedule of Courses to determine whether the topic of the course for a given semester relates to women's studies. For example, 45-2 American Women may be seen as topic for the semester women and work; 140-190 themes in Art History may deal with women artists of the twentieth century, and 6170 Literature and Philosophy Thought might explore the origins of British feminist thought.

In addition to courses listed in the regular course schedule, women's studies courses for University credit are offered by the Saturday and Evening Class Program and by correspondence study.

Afro-American Studies

45-120 The Black Woman in America

45-120 The Black Woman in America

American Studies

45-1 American Indian Issues

45-4 Women in American Culture

45-4 Women in American Culture

45-4 Family and Sex Roles in American Life

45-4 Family and Sex Roles in American Life
German
12:125 Women in German Literature
12:126 Society in Traditional Europe
12:128 Society in Modern Europe
12:173 Families and Communities in U.S. History
14:182 Studies in Women in America After 1970
16:256 Readings: Women in European History
16:264 Seminar: History of American Women
16:267 Readings: History of American Women

Home Economics
17:12 Personal Financial Management
17:13 Marriage and Family Interaction
17:18 Sexuality and the Family

Law
9:126 Discrimination in Employment
9:305 Sex Discrimination Law

Literature, Science, and the Arts
32:194 Approaches to Women’s Studies

Nursing
96:100 Historical, Philosophical, and Social Foundations of Nursing

Physical Education
28:116 Principles of Athletic Administration
28:153 Sex Role Socialization Through Physical Education and Sports
28:167 Psychoph-Social Dimensions of Sport
28:242 Seminar: Health Concerns of Women
28:264 History of Women in Sports

Psychology
31:119 Psychology of Sex Differences
Rhetoric
15:3 Rhetoric

Social Work
42:273 Women and Social Change
42:281 Social Work Practice Selected Aspects

Sociology
34:109 Women and Society: Introduction to Women’s Studies
34:182 Courtship, Marriage, and Alternative Life Styles
34:185 Economic and Political Development: Women’s Roles
34:186 Directed Individual Study

Spanish and Portuguese
35:143 Introduction to Basque Language and Culture
35:141 Images of Women in Hispanic Literature
35:142 Basque Language and Culture II

Speech and Dramatic Art
368:142 Film and Ideology
368:160 Film Studies and Genres

Zooloogy

Department chair: George C. Caw

Faculty:

Graduate assistant: Matthew J. O. Breton.

Undergraduate Program

The undergraduate degree program in zoology provides a liberal arts background for a career in biological science. Graduates may enter directly into government service or industry. The program also prepares students for graduate or advanced degree programs leading to research, teaching, or other professional careers.
Honors

Students in the college-wide honors program may earn an honors degree in zoology upon completing a total of at least 6 semester hours in 37:196 Honors Laboratory Research, 37:197 Honors Reading in Zoology, and 37:198 Honors Seminar in Zoology.

Introduction to Research

The department offers 37:196 Introduction to Research to acquaint seniors majoring in zoology with the nature of practicing scientists’ work, through association with one of the department’s research groups in experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

Graduate Programs

The graduate programs of the department are designed to prepare students for different kinds of professional activities, including teaching at various levels; participation in research in private, educational, or governmental laboratories; or service involving some planning or administrative functions. More than 80 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 an M.S. degree have obtained technical or professional positions, some of which require independent responsibility in 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, evolution, and ecology. 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 up any deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor’s degree other than biology or zoology may request modification of 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, invertebrates, molecular biology, neurobiology, ecology, behavior, physiology, and parasitology. Most projects have ancillary 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 four general areas: developmental biology, ecology and behavior, genetics, and physiology. Each student selects one of these general areas for his or her concentration, and is advised by a committee of faculty members in that area.

Master of Science in Zoology

The M.S. degree with thesis requires 30 semester hours of graduate credit and a thesis based on original research. Ordinarily 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, and the choice of courses will be tailored to the student's background and career goals. The student can receive credit for other work he or she is required to take on the basis of a 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 literature or research report. No more than 4 semester hours of credit may be granted for the research report. Credit may be earned in graduate courses in zoology or cognate sciences; these courses are determined in consultation with the student's thesis committee and tailored to fit the student's background and career goals.

Credit received for 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 if approved by the advisory committee. On completion of the hours and acceptance of the research report by the student's faculty examiner, the student must pass a written examination covering his or her graduate program in zoology, including the area of the student's report.

Master of Science in Biology

The M.S. program with thesis requires 30 semester hours of graduate credit. Ordinarily 6 to 8 semester hours are applied to thesis research and writing. 6 to 12 semester hours to graduate courses in zoology, 8 semester hours to graduate courses in botany, and the remaining semester hours to free electives. 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. The botany and zoology departments also offer a 34-semester-hour program leading to the M.S. in biology, without thesis.

Doctor of Philosophy in Zoology

Each Ph.D. student's formal course or 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 coursework or proficiency requirement 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 or two specialized fields in zoology.

The student's research culminates in his or her preparation of a 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.

Graduate 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. Stipends and full tuition are available in federally-funded cell and molecular biology, and neurobiology training programs administered by the department. Two of these programs support postdoctoral fellows. Support through interdisciplinary programs in invertebrates (predoctoral) and cancer (predoctoral) is also available. The department also participates in the University-sponsored program of teaching-research fellowships. Students who apply for any departmental aid may be considered for others, if the review committee considers them eligible. The department provides some support each summer for students who arrange for training at marine laboratories on the coast, or at other appropriate summer stations. Most assistantships and other appointments for the following academic year are filled by April 1, but opportunities occasionally exist for appointments at other times, including the beginning of the fall or winter 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 on a Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative) score above 1300. The applicant should also take the Graduate Record Examination advanced biology test, and submit his or her score. Although the department prefers applicants who have completed undergraduate programs much like its own, it will consider applicants with
Special Facilities

The department is housed in a cluster of contiguous buildings. It has animal care facilities for mammals, birds, reptiles, amphibians, fish, and insects and other invertebrates, including protean and special facilities for research with viruses, fruit flies, and marine organisms. It has 12 walk-in and reach-in environmental chambers for special culture or animal care needs.

There are four transmission electron microscopes, including one for teaching and student research purposes, and one with high repetition capacities. The department also houses the scanning electron microscope facility of the University.

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 capabilities, and those with Nomarski optics. Centrifuges of various sorts, including refrigerated, high-speed, and ultra-high-speed models, are available.

Other special equipment includes electrophoresis and x-ray crystallography apparatus; electron amplifying and recording equipment for neurophysiological studies; a PDP-12 computer, and other desk-top computers; gas-flow and liquid nitrogen coolers for radioscience data collection and analysis, including gas-flow chromatographic and mass spectrometer counters; and a gas-flow counter; constant temperature bath units of various types for metabolism and growth studies; ovens and incubators; recording ultraviolet and visible spectrophotometers; dental stereomicroscope; microscopes; instruments and a field vehicle for field work in physical ecology; water meters, aerographs, and an "ocean"; microemulsion pH, tissue culture rooms and tables, and cold rooms. Laboratories are also equipped for advanced work, which call for specialized microscopes, biophysical, cytological, or physiological techniques.
31-123 Ecology
3.4 a. Biology of organisms; adaptations to physical and biological environments; competition; principles of natural selection; population and community structure; dynamics and diversity of ecosystems; interrelations among organisms and their environment; human impact on ecosystems; pollution; conservation; applications of the principles of evolution in biology, botany, or zoology, and 265B or equivalent, Same as 31-122.
3.123 Topics in Ecology
3.2 a. Emphasis on population and community ecology, emphasis on quantitative and experimental methods. Lectures, problem areas, and critical analysis of selected readings. Recommended, elementary biol., such as 265B and basis course, with a 205B-C patient, Prerequisites: 37-122 or equivalent.
3.123 Quantitative Field Ecology
3.2 a. Emphasis on taxonomic and morphometric hypotheses under field conditions, e.g., all work involved field trips and data treatments which are identifiable by specific methods and techniques. Prerequisites: 37-122 or equivalent, elementary biol., and permission of the instructor.
3.123 Animal and Plant Selection
3.1 a. Analysis of patterns of selection using the quantitative methods. Topics include evolution of sex, sea urchins, breathing systems, life history, phylogeny, group selection, coevolution. Limited to 16 students. Prerequisites: 27-131 or 27-128 or population genetics.
3.123 Cooperative Animal Behavior
3.2 a. Lectures, discussions, readings on aspects of animal behavior, neural basis, ethology, migration, aggression, communication, learning. Emphasis on social behavior, and study of problems related to agression in the ecology, evolution, or physiology, 3.124 or consent of instructor.
3.124 Cooperative Animal Behavior Laboratory
3.2 a. Prerequisites or consent: 37-142.
3.124 Biology of Hearts
3.125 Introductory Entomology
3.1 a. Survey of the major groups of insects, emphasis on morphological and developmental features, origin, and evolutionary trends. Prerequisite: 37-142 or equivalent.
3.126 Comparative Vertebrate Endocrinology
3.2 a. Representative experiments and instructor; effects of hormones on development and metabolism. Prerequisites or consent: 31-150 or equivalent.
3.127 Vertebrate Endocrinology
3.2 a. Introduction, speciation and evolution, analysis of gut-enteric pancreas, electronic organ systems, anatomy, form organization (e.g., proportion, muscle, connective tissue). Emphasis on vertebrate excretory systems. Topics include morphology, physiology, and function of the nervous system, physiology, 3.150, or equivalent.
3.128 Reproductive Endocrinology
3.2 a. Genital structures of species, classes of phenomena, and evolutionary mechanisms of vertebrates, properties of propagation, environmental influence, adaptation; endocrinology of reproduction, sex hormones, biology. Prerequisites or equivalent.
3.129 Behavioral Ecology
3.2 a. Behavioral and genetic techniques employed in study of behavior, including behavioral characterization, human and animal behavior analysis, mammalian behavior, songbird behavior, and animal behavior. Offered spring semester of even years. Prerequisites: consent of instructor.
3.136 Topics in Genetics of Scavony
3.2 a. Will not be offered 1982-83.
3.137 Quantitative Genetics
3.2 a. Principles of quantitative genetics presented in detail. Emphasis placed on practical applications and critical selection. Offered fall semester of odd years. Prerequisites: 37-124, or equivalent, 37-142 or equivalent.
3.138 Developmental Laboratory
3.2 a. Methods for experimental processing of biological data; emphasis placed on experimential techniques in the interpretation of developmental data and problems of development, and evaluation of the data using computer applications appropriate. Offered fall semester of even years. Prerequisite consent of instructor. Corequisites: 37-168 or equivalents.
3.139 Quantitative Methods in Biology
3.2 a. Application of statistical methods to biological data; data description and presentation, simple hypothesis testing, analysis of variance and linear models, using computer applications appropriate. Offered fall semester of even years. Prerequisite consent of student.
3.140 Developmental Biology
3.2 a. Developmental Biology, 3.121, and permissions, with emphasis on any dependences of those phenomena on genetic information, regulation of biochemical processes, primordial emphasis on precocious systems, but relevance to areas of outer environment, physiology, 3.122, or equivalent, consent of instructor.
3.141 Topics in Neurobiology
3.2 a. Specific topics in neurobiology, e.g., sensory systems, theoretical, with emphasis on any dependences of those phenomena on genetic information, regulation of biochemical processes, primordial emphasis on precocious systems, but relevance to areas of outer environment, physiology, 3.122, or equivalent, consent of instructor.
3.142 Topics in Neurophysiology
3.2 a. Topics in current neurophysiological research. Topics of current interest will be covered. Consent of instructor.
3.143 Neurogenic Mechanisms in Development
3.4 a. Principles of cellular and molecular biology in development. Developmental biology, 3.121, or equivalent, consent of instructor.
3.144 Introductory Neuroscience
3.2 a. Introduction to the neural sciences, including laboratory exercises and a research project based in the laboratory, 3.121, and consent of instructor.
3.145 Advanced Topics in Neuroscience
3.2 a. Advanced topics in neuroscience, including laboratory exercises and a research project based in the laboratory, 3.121, and consent of instructor.
3.146 Neuroendocrinology
3.2 a. Advanced neuroendocrinology, e.g., pituitary, hypothalamic, and autonomic nervous systems, with emphasis on any dependences of those phenomena on genetic information, regulation of biochemical processes, primordial emphasis on precocious systems, but relevance to areas of outer environment, physiology, 3.122, or equivalent, consent of instructor.
3.147 Topics in Neurology
3.2 a. Topics in current neurophysiological research. Topics of current interest will be covered. Consent of instructor.
3.148 Introduction to Neurosciences
3.2 a. Principles of cellular and molecular biology in development. Developmental biology, 3.121, or equivalent, consent of instructor.
3.149 Advanced Topics in Neurology
3.2 a. Specific topics in neurology, e.g., sensory systems, theoretical, with emphasis on any dependences of those phenomena on genetic information, regulation of biochemical processes, primordial emphasis on precocious systems, but relevance to areas of outer environment, physiology, 3.122, or equivalent, consent of instructor.
31510 Hours Laboratory Research 10 h.
For honors candidates.

31511 Hours Reading in Zoology 15 h.
For honors candidates.

31512 Hours Seminar in Zoology 15 h.
Discussions and readings centered on either single major topic or on regular lecture series of 31517. May be repeated.

31513 Introduction to Research on
Primarily for seniors majoring in ecology.
Prerequisite: consent of instructor.

Primarily for Graduates

31716 Genetics Seminar 6-12 h.
Lectures, discussions, seminars on selected topics in genetics, may be repeated. Prerequisite: 31716 or consent of instructor. Same as 81220, 31018, 31515, 81241.

31717 Seminar Zoology 6 h.
Weekly lecture on current research; limited to graduate students.

31718 Transmission Electron Microscopy 3 h.
Lecture and laboratory on methods of tissue fixation, sectioning, staining, and the interpretation of electron micrographs. Organization, histochemistry, physiology, and electron microscopy of plant and animal material. Prerequisite: 31711 or consent of instructor. Same as 31218, 31018, 81218.

31725 Seminar: Endocrinology 7 h.
Selected topics or current research interest in various physiological and endocrinological areas of endocrine system. Prerequisite: 31712 or equivalent.

31726 Seminar: Hormones and Behavior 7 h.
Discussions, readings, and reports on topics concerning neural and hormonal regulation of behavior. Prerequisite 31713, 31712, or equivalent to physiology and behavior.

31727 Fundamentals of Tropical Biology an Ecological Approach 8 h.
Tropical ecology in Central America. Sponsored by Organization of Tropical Studies. Four 20-week sessions. 
"Cultural, language, economic and summer field studies in Panamanian rain forests and captive animal collections. Same as 22320.

31728 Advanced Techniques in Light Microscopy 3 h.
Theory and technical techniques in light microscopy, with some demonstrations, including bright field, dark field, phase contrast, Nomarski, Transmitted.

31737 Seminar: Echology 7 h.
Current topics in evolutionary biology. May be repeated. Offered spring semester. Prerequisites: general zoology and consent of instructor.

31739 General Developmental Genetics 4 h.
Lectures, readings, discussions on gene action in development. Offered fall semester. Prerequisite: 31716 or equivalent.

31740 Seminar: Behavioral Genetics 1 h.
Consideration of current research applying genetic research methodologies to problems in behavioral biology. Offered fall semester of even years. Prerequisite: 31712.

31741 Advanced Seminar in Zoology 0.5 h.
Open to students on basis of current interest in research area bearing on neurobiology and behavior. Same as 81290, 71295, 81295.

31757 Seminar in Molecular Genetics 1 h.
Selected topics in molecular genetics discussed with emphasis on current theories. Prerequisite: consent of instructor.

31761 Seminar in Neurobiology 1 h.
Presentation of current literature. Prerequisite: consent of instructor.

31764 Advanced Techniques in Neurobiology 1 h.
Interdisciplinary and experimental course presenting neurobiological techniques used by different disciplinary groups throughout the University. Prerequisite: consent of instructor. Same as 31284, 31084, 71284, 72284.

31767 Problems in College Biology Teaching 1 h.
Preparation of syllabi, teaching methods, and assessing in course-level biology courses. Prerequisite: graduate status.

31768 Advanced Electron Microscopy Techniques 4 h.
Construction of 31718, but emphasizing experimental and practical aspects of electron microscopy, including negative staining, electron microscopy, electron diffraction, and biological applications. Prerequisite: consent of instructor. Same as 12404, 12404, 12404, 12404.

31768 Independent Study in Zoology 1 h.

31769 Independent Study in Zoology 1 h.

31771 Seminar: Cell Physiology 1 h.
Current topics in physiology studied through critical reading of the scientific literature. May be repeated.

31772 Seminar in Cellular and Molecular Biology 1 h.
Information transfer and regulation, assembly and development of complex, nematodes and transplants systems. Prerequisite: consent of instructor. May be repeated. Consent of instructor. Same as 31290, 71290, 72290, 81290.

31773 Seminar in Molecular Genetics 1 h.
Selected topics in molecular genetics discussed with emphasis on current theories. Prerequisite: consent of instructor.

31777 Seminar in Neurobiology 1 h.
Presentation of current literature. Prerequisite: consent of instructor.

31784 Advanced Techniques in Neurobiology 1 h.
Interdisciplinary and experimental course presenting neurobiological techniques used by different disciplinary groups throughout the University. Prerequisite: consent of instructor. Same as 31284, 31084, 71284, 72284.

31787 Problems in College Biology Teaching 1 h.
Preparation of syllabi, teaching methods, and assessing in course-level biology courses. Prerequisite: graduate status.

31788 Advanced Electron Microscopy Techniques 4 h.
Construction of 31718, but emphasizing experimental and practical aspects of electron microscopy, including negative staining, electron microscopy, electron diffraction, and biological applications. Prerequisite: consent of instructor. Same as 12404, 12404, 12404, 12404.
College of Business Administration

The college is organized into seven academic departments: Accounting, Economics, Finance, Industrial Relations and Human Resources, Management Sciences, Marketing, and, jointly with the College of Education, the Department of Business Education.

The undergraduate and graduate programs at the college are fully accredited by the American Assembly of Colleges and Schools of Business.

Research, executive development, and continuing education activities are supported by the external programs of the college: Industrial Relations Institute, 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 seven departments. The B.B.A. student completes background studies either in the College of Liberal Arts at The University of Iowa or in another institution, and usually enters the College of Business Administration as a junior.

The college’s B.B.A. curriculum requires 120 semester hours for graduation, with at least 48 semester hours in business courses and at least 48 semester hours in general business administration. The specialized concentration is effected through the student’s option for a designated major or area of concentration.

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 24 semester hours of credit in courses offered by the College of Business Administration, and at least 8 semester hours of credit in the student’s major or 6 semester hours in each area of concentration, must be earned at The University of Iowa.

A student who has not satisfied the quantitative methods, psychology/sociology, accounting, and economics requirements when admitted to the college must undertake them in the first enrollment and continue them until successfully completed. In general, students should complete all common requirements by the end of the junior year.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all coursework, in all coursework attempted at the University, in all business and economics coursework attempted, in all business and economics coursework attempted at the University, in all coursework attempted in the major or area of concentration, and in all coursework attempted at the University in the major or area of concentration.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Rhetoric communications
- Math/science-cultural
- Literature
- Natural sciences (excluding mathematics)
- Principles of psychology or sociology
- Social psychology
- Quantitative methods
- 6A: Introduction to Financial Accounting
- 6A.2 Introduction to Managerial Accounting
- 6E:1 Principles of Economics
- 6E:2 Principles of Economics
- 6F:15 Introductory Financial Management
- 6M:31 Introduction to Marketing
- 6L:47 Introduction to Law
- 6L:48 Environmental Management
- 6X:70 Computer Analysis
One of these courses fulfilling the requirement for a course in administrative processes under uncertainty.

6L:155 Business Policy 3 s.h.
6E:155 Business Policy 3 s.h.
6F:126 Managing the New or Small Business 3 s.h.

*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 or two areas of concentration. The requirements for a specific major are established by the departments of the college.

An area of concentration consists of a combination of at least three related courses (9 semester hours), selected by the student to meet a specific academic or career objective. Two courses in each area must be offered by the College of Business Administration.

The student selecting areas of concentration to meet graduation requirements must submit his or her proposal to the undergraduate committee for approval prior to the start of the senior year.

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 recognized on his or her transcript, the student must inform the Registrar's Office when "requiring for the degree.

Business Minor

Students majoring 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 (listed under "Program Requirements for Undergraduate Study") to be considered for admission to the business minor program. The courses listed below will satisfy all requirements for the minor in business administration:

A course in statistics numbered 225:8 or higher 3 s.h.
Principles of microeconomics 3 s.h.
Principles of macroeconomics 3 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
6A:2 Introduction to Managerial Accounting 3 s.h.
6M:31 Introduction to Marketing 3 s.h.
6F:10 Introductory Financial Management 3 s.h.
6L:31 Administrative Management 3 s.h.
6L:47 Introduction to Law 3 s.h.

"Must be taken" in junior or senior year.

Interested students should complete or be registered for the first seven courses listed above before applying for admission to the business minor program. The first seven courses listed above may be used to satisfy elective hours toward a baccalaureate degree and in some instances specific College of Liberal Arts requirements. Admission to the program is limited and meeting minimum standards does not ensure admission.

The requirements for a minor in business administration may also be satisfied by taking the 180 sequence of M.B.A. core courses during the senior year.

Credit by Examination

Students may earn up to 32 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) of the College Entrance Examination Board are used. It is possible to receive exemption with or without credit for some of the common requirements of the college. Information on the CLEP examinations is available from the Liberal Arts Advisory Office.

Maximum Schedule

Course schedules of more than 18 semester hours for a semester or 47 for a summer session require approval of the advisor/department.

Pass/Fail Grading

Of the total semester hours required for a B.B.A. degree, up to 12 may be taken on a pass/fail basis with the consent of the advisor and instructor. However, a student may not count more than 16 semester hours of pass/fail credit in his or her last 60 semester hours of coursework. Credits with 66, 6E, 6F, 6K, 6L, or 8M prefixes which are taken to satisfy the common business requirements may not be taken pass/fail, nor may courses in the student's major area or areas of concentration. Pass/fail registration must be completed during the first three weeks of a semester or the first two weeks of a summer session. For courses taken on a pass/fail basis, an earned grade of C or above is recorded as a P; otherwise, the grade earned (D or F) is recorded.

Second-Grade-Only Option

Unless obvious regress is involved and with permission of the advisor, a student may be permitted to repeat a University course and have only the grade and credit of the second registration used in calculating his or her cumulative grade-point average. This option may be applied to a maximum of 16 semester hours of work.

Admission

The college normally admits undergraduate students at the beginning of their junior year. Second-semester sophomores may be admitted if an accelerated program record has been established. Unconditional admission requires at least a 2.56 grade-point average (A = 4) in all college-level courses undertaken at The University of Iowa and all business and economics courses. The applicant should also have satisfied the following common requirements: mathematics, accounting, psychology, sociometry, quantitative methods, accounting and economics, and either historical-cultural or literature. No more than 60 semester hours, or equivalent, of transfer credit will be accepted for a student transferring from a two-year institution. Transfer credits for business and economics courses taken as the freshman or sophomore years are counted toward the 60 semester requirement only if such courses are normally offered at an upper division level at The University of Iowa.

Fulfillment of the minimum requirements does not ensure admission. The
college's admission committee reviews all applications and selects the applicants who appear best qualified. Students who have minor deficiencies in meeting admission requirements may be granted conditional or probationary admission.

Interdepartmental Graduate Programs

Master of Business Administration

The Master of Business Administration (M.B.A.) program is designed for individuals preparing for professional administrative careers in the business or public sector. The program advances career opportunities for the individual and at the same time provides industry and government with the professional personnel required in a dynamic economy.

A special program, the executive M.B.A. program, also leads to the Master of Business Administration degree. Applicants are carefully screened so that entry into this program is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Coursework in the executive M.B.A. program is presented in two academic years.

A senior student in the College of Liberal Arts who qualifies for admission to the M.B.A. program can use his or her electives during the senior year to satisfy most or all of the core course requirements of the M.B.A. program. This enables the student to receive the undergraduate degree at the end of the fourth year of study and the M.B.A. degree at the end of the fifth year.

The M.B.A. curriculum is designed for candidates whose undergraduate majors were in liberal arts, sciences, engineering, or other nonbusiness areas, as well as for graduates of schools or colleges of business administration. For the student who has taken prior business administration courses, 6th semester hours of coursework are required. For the student with prior coursework in business administration, some of the foregoing courses may be waived on the basis of exemption examinations or equivalent coursework of high quality. In all cases, a minimum of 33 semester hours of graduate work is required.

Foundation Courses (27 semester hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A:192</td>
<td>Accounting—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:193</td>
<td>Computer Methods—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6F:194</td>
<td>Managerial Finance—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6L:195</td>
<td>Management of Organization—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6M:196</td>
<td>Marketing Management—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:197</td>
<td>Quantitative Methods—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6L:198</td>
<td>Society, Law, and Business—M.B.A.</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>6E:190</td>
<td>Consumer and Firm Behavior</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:191</td>
<td>National Income Analysis</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

In the M.B.A. integrated core and applied core courses, the student continues the broad study begun in the sequence of foundation courses listed above and pursues in greater depth more advanced study associated with his or her own career objectives.

Following are the integrated and applied core course requirements. (27 semester hours) and the area of concentration requirement (6 semester hours):

Integrated Core (18 semester hours):

<table>
<thead>
<tr>
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<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A:114</td>
<td>Managerial Accounting—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:281</td>
<td>Administrative Science I—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6L:286</td>
<td>Administrative Policy—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or 6K:285</td>
<td>Administrative Policy—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:271</td>
<td>Statistical Methods—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6L:273</td>
<td>Marketing/Economic Theory—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or 276</td>
<td>Operations Research—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or 278</td>
<td>Operations Research—M.B.A.</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Applied Core (9 semester hours):

Three of the following, or two of the following and an approved elective.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6F:215</td>
<td>Financial Policy Decision—M.B.A.</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

6M:232 Marketing Management 2 s.h.
6L:256 Industrial Relations—M.B.A. 3 s.h.
6K:280 Management Information Systems—M.B.A. 2 s.h.

Area of Concentration (6 semester hours)

In addition to courses required of all students, each individual must select, with the assistance of the M.B.A. advisor, an area of concentration which includes at least 6 semester hours of coursework in that area. Areas of concentration include administrative studies, finance, industrial relations and human resources, management systems, and managerial accounting and marketing.

Master of Arts in Business Administration

While the M.B.A. degree program prepares students for professional administrative careers in the business or public sector, the Master of Arts degree program in business administration is designed for the student seeking specialization in one of several areas of business administration. In addition, it permits a research emphasis which then qualifies students for research or teaching positions or employment in a business-related position.

The program is available on both thesis and nonthesis bases and is sufficiently flexible to permit specialization according to the student's interests and objectives. The students may select a major in administrative studies, finance, industrial relations and human resources, insurance, management systems, and marketing. The minor may be developed from approved coursework combinations within the College of Business Administration or from outside the college.

All students in the M.A. programs must satisfy the common hour of knowledge requirement of the American Assembly of the Collegiate Schools of Business (AACSB). This means that the candidate's undergraduate or graduate coursework must include study in accounting, quantitative methods, organizational behavior, management, finance, marketing, and the economic
and legal environment pertaining to profit
and/or non-profit organizations.

Requirements for the Master of Arts
degree with thesis include:
Major area
Minor area
Economic theory and/or organizational
behavior
Electives
Thesis
Total

Requirements for the Master of Arts
degree without thesis include:
Major area
Minor area
Economic theory and/or organizational
behavior
Electives
Research methodology
Research reports (two)
Total

The minimum number of semester hours
for either program is normally earned in
courses exclusively for graduate
students (200 level); but where
appropriate, the student may take
courses at the 100 level. Additional
coursework 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.

A student in the thesis program will be
expected to defend the thesis in an oral
examination. The student may be required
to take a written and/or oral
comprehensive examination over
coursework. A final oral examination is
required in the nonthesis program.

Doctor of Philosophy in
Business Administration

The Ph.D. program is intended for
individuals preparing for faculty
positions in university or college
schools of business administration and
for business or government careers as
research directors, staff specialists, and
consultants. The program is sufficiently
flexible to accommodate specialization
according to the student's interests,
background, and objectives.

Foundation Areas

The purpose of the foundation areas is to
develop competency in research
methods and to provide the background
needed for study in any sequence of
courses. The requirements in the foundation
areas vary by semester and are
administered on an individual basis.
The Ph.D.-level courses required in the foundation
areas are:

Economic Theory

Statistical Analysis

Qualitative Analysis

Behavioral Science

Behavioral Science and Business Organizations

Specialized Areas

Preparation for dissertation research
begins with the student electing two
specialized areas of study. One or both
may be from the foundation areas and
one may be from outside the college.
Typical areas include accounting,
finance, marketing, management
systems, insurance, industrial relations
and human resources, and administrative
studies. Four graduate-level courses are
required in each specialized area.

The student must pass written
comprehensive examinations in both
specialized areas. Upon completion of

The Dissertation

Completion of the research and writing
associated with the dissertation normally
requires one year of full-time
effort. After completing the dissertation,
the candidate must defend it in an oral
examination.

Graduate Admission

Applicants seeking admission to
graduate work in business must submit a
Graduate College application form,
official transcripts of all undergraduate and
graduate work, three letters of
recommendation, and official scores on
the Graduate Management Admission
Test (GMAT). See the “Graduate
College” section of the Catalog for
more information.

Other Graduate
Programs

Joint Programs

Joint programs between the College of
Business Administration and the College of
Law and the School of Library
Science are available. A student can
concurrently earn an M.B.A. or M.A.
and a J.D. from the College of Law or an
M.S. in Library Science from the School of
Library Science.

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 Phillips Hall, an air-
conditioned high-rise building designed
especially for programs of the college.
The building contains seminar and
conference rooms, a computer
laboratory, an auditorium, and the
Business Library, in addition to a wide
range of classroom facilities.
Extensive research materials for business and economics are maintained in the Main Library, and the facilities of the University computing center are available to all students. Additionally, students have direct access to a complete computer laboratory within the college. The laboratory supports the instructional programs of the college, and the staff maintains a current library of computational programs and data tapes to service user needs.

The Industrial Relations Institute

The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations for the purpose of curriculum matters and research, and to conduct continuing education seminars and workshops for practitioners in the field of industrial relations.

The 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 to the 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.

The Institute for Entrepreneurial Management

The Institute for Entrepreneurial Management was created in 1979 to promote the entrepreneurial spirit among individuals, assist prospective entrepreneurs in evaluating the economic viability of their proposed business ventures, train owners/managers in the effective and profitable operation of their enterprises after they are successfully launched, and provide career guidance for college students as well as others. These Institute objectives are achieved primarily through a multidisciplinary research and continuing education program.

The Institute for Insurance Education and Research

The Institute for Insurance Education and Research is the college's continuing education arm in the field of insurance. The Institute conducts schools and seminars throughout the year at the University of Iowa campus in Iowa City and at other locations across the country. It also engages in contract research related to insurance for public and private organizations.

The 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 both on-campus and off-campus programs in order to reach the greatest possible percentage of their constituency. The staff members target their instruction to the specific needs of the labor movement in Iowa.

The 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.

Accounting

Active department head: John M. Smith

Adjunct professors: John H. Wilson, Jr., Stanley J. Skokos, John C. Schaefer, John H. Smith

Associate professors: James E. Collin, Steven C. Lender, Carol L. Kuznia, Wilford C. Lender

Assistant professor: Douglas V. De Jong, Richard A. Kuswa

Assistant professor: Robert A. Lender

degrees offered: B.B.A., M.A., M.B.A., Ph.D.

The Professional Program in Accounting at the University of Iowa is a two-year upper-division and graduate program which leads to a B.B.A. degree after the first year and to an M.A. degree after the second year. The program develops the technical proficiency and the conceptual, analytical, and communication skills required in the accounting profession. The program prepares candidates for careers in all areas of accounting and provides the educational qualifications for professional examinations such as those for the Certified Public Accountant (CPA) and the Certified Management Accountant (CMA). Students may enter the Professional Program in Accounting (1) after three years of preprofessional work which satisfies the general education requirements of the University and the business requirements of the College of Business Administration (see program for B.B.A., students) or (2) after completion of a Bachelor's degree in any field (see program for B.A. and B.S. graduates).

Candidates for the master's degree in accounting must maintain a 3.0 grade-point average in all graduate-level accounting courses and must pass an oral comprehensive examination.

Program for B.B.A. Students

A candidate for the B.B.A. may enter the Professional Program in Accounting after completing 90 semester hours of coursework, including the common requirements for the B.B.A. and B.S. (1) Statistical Analysis, and (2) Economics, grades of A or B in 8A:1 Introduction to Financial Accounting and 8A:2 Introduction to Managerial Accounting or the equivalent. Such students are designated as accounting majors.
Primarily for Undergraduates

6A:208 Cooperative Education Training Assignment 0 s.h.
6A:216 Introduction to Financial Accounting 3 s.h.
6A:217 Fundamentals of Accounting Information Systems, emphasis on external reporting (to be offered in spring semester only)...

6A:219 Introduction to Managerial Accounting 3 s.h.

6A:220 Accounting Theory I 3 s.h.
6A:221 Accounting Theory II 3 s.h.
6A:224 Auditing 3 s.h.
6A:225 Advanced Financial Accounting Problems 3 s.h.
6A:270 Advanced Accounting Electives 9-12 s.h.
6A:250 Accounting Internship 0 s.h.

Program for B.A. and B.S. Graduates

A student with an undergraduate degree in a field other than business administration can, with careful planning, complete the Program in Professional 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 as possible. For students entering in the fall semester with no previous accounting or business coursework, the typical first-year course includes:

6A:192 Financial Accounting—M.B.A. (should be taken fall semester) 3 s.h.
6A:214 Managerial Accounting—M.B.A. (should be taken spring semester) 3 s.h.
6A:115 Introduction to Taxation (should be taken spring semester) 3 s.h.
6A:125 Financial Accounting I (should be taken spring semester) 3 s.h.
6A:126 Financial Accounting II (should be taken summer session) 3 s.h.
6A:100 Price, Employment, and Production Theory 3 s.h.
6A:118 Business Computer Methods 3 s.h.
6A:116 Managerial Finance 3 s.h.
6A:110 Marketing Management 3 s.h.
6A:175 Microeconomics 3 s.h.
6A:165 Law and Business I 3 s.h.
6A:161 Individual Behavior in Organizations 3 s.h.
6A:176 Managerial Decision Models 3 s.h.

"May be taken during the junior year prior to entry into the professional program.

The following second-year requirements may be taken after admission to the Graduate College:

6A:220 Accounting Theory I 3 s.h.
6A:221 Accounting Theory II 3 s.h.
6A:225 Advanced Financial Accounting Problems 3 s.h.
6A:270 Advanced Accounting Electives 9-12 s.h.
6A:250 Accounting Internship 0 s.h.

Doctor of Philosophy

See the "College of Business Administration" section of the Catalog.

Courses

Unless otherwise indicated, courses in accounting are expected to be offered in the fall, spring, and summer sessions.

6A:208 Cooperative Education Training Assignment 0 s.h.
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6A:217 Fundamentals of Accounting Information Systems, emphasis on external reporting (to be offered in spring semester only)...
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Doctor of Philosophy

See the "College of Business Administration" section of the Catalog.

Courses

Unless otherwise indicated, courses in accounting are expected to be offered in the fall, spring, and summer sessions.

6A:208 Cooperative Education Training Assignment 0 s.h.
6A:216 Introduction to Financial Accounting 3 s.h.
Business Education/BUSINESS ADMINISTRATION

4A.145 Financial Accounting II 3 a.h.
Business combinations, acquisitions, and consolidations, as well as current FASB Accounting Standards and interpretations. Specific consideration given to accounting and reporting procedures in governmental and nonprofit organizations. Prerequisite: BA 145 and BA 147 (One semester hour earned).

4A.170 Special Topics in Accounting 0 a.h.
Gives special emphasis to select accounting major courses. May be repeated with new topics once. Prerequisite: 200-level accounting course (with a grade of C- or higher), or permission of instructor. Prerequisite: 3 hours of accounting.

4A.190 Financial Accounting — B.A. 3 a.h.
Survey of current practice and thought relating to general recording, internal control, budgeting, and the internal reporting function. Topics selected on basis of student and faculty interest. Prerequisite: completion of the first two undergraduate business majors. Credit can be repeated for credit. Prerequisite: completion of the first two undergraduate business majors. Credit can be repeated for credit.

Primary for Graduates

4A.144 Managerial Accounting — M.B.A. 3 a.h.
Emphasis on financial information relevant for management decision. Principles and concepts underlying managerial accounting systems discussed. Emphasis on ability to apply analytical techniques to both assembly and departmental level data. Offered as a seminar. Prerequisites: BA 182 and 261. (Fall 40-50 and Spring 261.)

4A.165 Financial Information for External Users 3 a.h.
Concepts and methods of corporate external reporting. Theoretical basis of current reporting practices explored in context of financial decision making. Financial statements, ratios and ratios analysis applied to both assembly and department level data. Offered as a seminar. Prerequisite: BA 145 or 182. (Fall 40-50 or 45-50).

4A.166 Auditing Theory 3 a.h.
Auditing concepts, controls, capital investment, off-balance sheet transactions and goodwill. Advanced study of analysis of controlling and auditing controls. Prerequisite: BA 182 or 165. (Fall 40-50 or 45-50).

4A.177 International Auditing 3 a.h.
Analyzes and compares different auditing methods, social/ethical issues in the selection and evaluation of auditing methods, implications of ethical capital markets for choice among financial reporting alternatives. Offered as a seminar. Prerequisites: BA 145 or 182 and either 4A.165 or 4A.186.

4A.185 Acquisition Information Systems 3 a.h.
Evaluation of the audit process as an information acquisition function. Special emphasis on internal control, evaluation of financial management systems, planning and implementation of audit procedures. Prerequisites: 4A.165 and 4A.166. (Fall 40-50).

4A.186 Auditing and Regulation of Accounting Professions 3 a.h.
Formal and informal ethical decisions, as well as governmental regulation and enforcement on current financial reporting and auditing practices. Acquire information about current standards and recent court cases. Prerequisites: 186, 187, 188, and 4A.165 or 166.

4A.187 Research in Auditing 3 a.h.
Individual research, analysis, and interpretation of current problems in auditing. Prerequisites: 4A.165 and 4A.166 as well as approval of the Department of Accounting and Finance. Prerequisite: BA 145 or 182.

4A.197 Contemporary Issues in Accounting 3 a.h.
Specific topics dealing with contemporary accounting issues, assignment of topics vary from semester to semester, depending upon instructor's interests and student interest. Prerequisites: Instructor Determined.

4A.2230 Creditability 3 a.h.
Describes major influences for the student staying at a college or in a major industry, school, government, and public accounting. Methods are exposed to ethics, positions, and potential trends. Prerequisite: completion of the first two undergraduate business majors. Credit can be repeated for credit.

4A.250 Financial Reporting in Accounting 3 a.h.
Theories of financial and the impact of changes in accounting standards on businesses and industries. Prerequisite: 4A.151.

4A.260 Accounting Data Base 3 a.h.
Through the student's research and analysis, the student will learn about different analytical methods and calculations used by businesses. Prerequisites: 4A.151, 4A.152.

The Undergraduate Program

The undergraduate program in business education is designed primarily for people who want to become teachers of business subjects at the secondary school level. Students in the program have two options: concentrating a major by satisfying one of several possible options in the College of Business Administration, or electing at least two nine-hour sequences from the available options. In addition, students majoring in business education must complete the general requirements for the Bachelor of Business Administration degree, as well as the courses required for the Iowa Professional Teaching Certificate.

Business education majors receive a broad foundation in business administration and economics, as well as specialized professional courses in business education, to prepare them for their first teaching experiences. Graduates of the program are qualified for positions in business as well as teaching.

Typically, business education students prepare for teaching two types of business subjects at the secondary school level. One type of program prepares teachers of basic business subjects, (e.g., general business, business law, economics, consumer economics, business management, business mathematics and accounting). Another type of program is available for the preparation of teachers of office-related subjects (typing, shorthand, word processing and office practice), in addition to those listed for the basic business teacher.

Studies under the supervision of each of two experienced secondary school business teacher and a university supervisor is the capstone of the undergraduate program. The student must choose from one of these two teaching options:

Business Major Option

Complete the requirements for a major in one of the following areas in the College of Business Administration:

1. A major in Business Administration.
2. A major in Finance.
3. A major in Management.
4. A major in Marketing.
5. A major in International Business.
6. A major in Entrepreneurship.
7. A major in Information Systems.
8. A major in Supply Chain Management.
9. A major in Accounting.
10. A major in Economics.

The Department of Business Education will be terminated effective May 10, 1981. No new applications to the business education programs are being accepted.
Accounting
Administrative Management
Economics
Finance
Financial Economics
Industrial Relations
Insurance
Management Systems/Management Science
Marketing
Administrative Services (see below)

Areas of Concentration Option

Complete two 3-semester-hour sequences from each of the following areas in the College of Business Administration:

Accounting
Administrative Management
Economics
Finance
Financial Economics
Industrial Relations
Insurance
Management Systems/Management Science
Marketing
Administrative Services (see below)
Basic Business (see below)

Administrative Services Major
Requirements for the administrative services major are:

65:2 Business Typewriting Problems 3 s.h.
65:22 Advanced Shorthand and Transcription 3 s.h.
65:35 Business Machines Applications 2 s.h.
65:112 Word Processing 3 s.h.
One of the following:
6L:125 Organizations.
Communication 3 s.h.
6L:126 Written Communication in Business 5 s.h.
One of the following:
6L:115 Office Management 3 s.h.

65:105 Data Processing with COBOL 3 s.h.
Total 17 s.h.

*Administrative services majors who do not intend to teach shorthand must substitute 65:147 Basic Systems Analysis.

Concentration in Basic Business
65:103 Decision Making for Consumers 3 s.h.
65:104 Principles of Basic Business 3 s.h.
One additional course in business administration or economics, approved by advisor 3 s.h.
Total 9 s.h.

Teacher Certification

The courses required for the basic Professional Teaching Certificate can be found in the "College of Education" section of the Catalog. In addition, these courses are required of all business education teaching majors:

65:101 Principles of Business Education 3 s.h.
(To be taken in junior year)
65:102 Methods: Business Subjects 3-6 s.h.
75:177 Seminar: Curriculum and Student Teaching 3-12 s.h.
(Taken concurrently with student teaching)

The Graduate Program Certification Only

This is a special classification for graduate students who have earned bachelor's degrees without fulfilling requirements for a secondary teaching certificate. For this program, the student fulfills all certification requirements by completing a sequence of graduate-level education courses (20-28 semester hours) approved by the advisor (see M.A.T. Program below). In addition, the student may be required to complete courses in business administration, accounting, and economics to strengthen undergraduate preparation in business. The business education course 65:191: Principles of Business Education is also required. No degree objective is implied, although it is possible to request a change in graduate status. In such instances, the nearest faculty review of the student's qualifications would occur before any change could be made.

Professional Improvement (P.I.)

This is a special-purpose category for graduate students who wish to complete additional coursework without a further degree objective. Students so classified must be fully accepted as P.I. students and must meet regularly with an advisor. At the same time, there is great latitude in the types of courses which are possible. Many students interested in special workshops, seminars, conferences, and institutes are admitted in this category, if such students wish to apply for a degree at a later time, all credit computed while admitted for P.I. must be evaluated, and the application is reviewed as if it were a new one for admission purposes.

M.A. Program

This nonthesis program in business education is designed for the graduate student who holds a teacher's certificate and has either a major or a minor teaching area in business education. Its purpose is to upgrade professional competence in teaching business subjects in the secondary school or at the community college level.

Upon completion of the courses required for the three areas of study in business education, business administration, and education, the candidate selects for the final comprehensive examinations either a two-hour examination in each area, or a three-hour examination in business education and a three-hour examination in one of the remaining two areas. A minimum of 32 semester hours must be included in the program with the advisor's approval, within these flexible distributions.

Business Education
65:201 Foundations of Business Education 3 s.h.
65:265 Directed Readings 1 s.h.

Three of the following:
65:203 Seminar: Basic Business 2-3 s.h.
65:204 Seminar: Teaching Business Accounting 2-3 s.h.
65:205 Seminar: Office Education 1-3 s.h.
65:207 Seminar: Information Processing 3 s.h.
65:208 Seminar: Managing Business Instruction 3 s.h.
65:240 Seminar: Business Teaching 2-3 s.h.
Total 12-17 s.h.

Business
Six to 15 semester hours of credit in business, management, economics, or related business areas, such as business data processing, business communication, office management, or business systems.

Education
Six to 12 semester hours of credit in general education areas which meet the professional needs of the student, such as counselor education; educational administration; educational psychology; measurement, and statistics; instructional design and technology; post-secondary and continuing education, or special education.

M.A.T. Program
The Master of Arts in Teaching (M.A.T.) program is a 36-semester-hour nonthesis course of study. It is designed for superior business graduates who have had few or no education courses. The program enables students to enrich their background by completing graduate courses in substantive business and education areas and in graduate courses which constitute professional preparation for secondary school teacher certification and community college teaching.

Two semesters and two semesters are usually necessary to complete the M.A.T. program, which requires 15 semester hours in business and business education and 30 semester hours in graduate education courses.

The business and business education courses must include:

65:191 Principles of Business Education 3 s.h.
65:192 Methods of Business Education Subjects 3-8 s.h.
The graduate courses in education must include:
Educational psychology 3 s.h.
Philosophy or history of education 3 s.h.
Observation and laboratory practice 12 s.h.
One approved elective 2-3 s.h.
Candidates for the M.A.T. degree must pass comprehensive final examinations in business education and in education. These examinations are taken during the semester in which the candidate expects to receive the degree.

Ph.D. Program
The program is available to qualified candidates who aspire to college and university positions as business teacher educators or as administrative positions in business education. Graduates of this program have also assumed administrative positions in other areas of education and in business, industry, and government. The Ph.D. program is designed to improve the competence of business teachers at the post-secondary school level, primarily four-year college-level teachers of business teacher education programs and to strengthen the research and administrative skills of students aspiring to both instructional and administrative positions in post-secondary and secondary business education programs.

The Ph.D. candidate in business education is expected to satisfy the requirements for two tools of research before taking the comprehensive examinations. The tool areas are to be chosen from foreign languages, statistics, advanced mathematics, computer programming, scientific method, or other appropriate research tools approved by the advisor.

The doctoral program requires coursework, approved by the advisor, in each of the following areas:

Business Education
Consortium core recommended:
65:201 Foundations of Business Education 3 s.h.
65:210 Managing Business Instruction 3 s.h.
65:221 Seminar: Business Education Research 3 s.h.
65:220 Seminar: Business Education Policy 4 s.h.
Two additional 200-level courses in business education 6 s.h.
Total 16 s.h.

Cognate and Related Areas
Business: A minimum of 9 semester hours in 200-level courses from such areas as accounting, business administration, economics, or administrative-support systems (including business communications, data processing, and systems, and related courses).

Education: A minimum of 9 semester hours in 200-level courses from such areas as counselor education; educational administration; educational psychology; measurement, and statistics; instructional design and technology; post-secondary and continuing education; or special education.

The program requires the completion of 90 semester hours beyond the bachelor's degree, including the dissertation and two approved courses in economic theory beyond Principles of Economics. A three-hour comprehensive examination is required in each area of study.

Courses
Primarily for Undergraduates

65:109 Keyboarding: Problem solving relating to personal and business communications such as letters, memos, and reports. Open only to students with no previous formal keyboarding course. Prerequisites 65:108 or equivalent. 3 s.h.
65:215 Business Reporting Principles
An in-depth development and integration of skills and knowledge necessary for solving problems related to the production of various business documents. Emphasis is placed on the mechanics of business correspondence. Prerequisites 65:108 or equivalent. 3 s.h.
65:224 Survey of Business Education
An introductory survey of business education and organization and development of skills necessary for entering the field. Open to students with less than one year of high school mathematics or science. Prerequisites 65:108 and consent of instructor.
Economics

Department chair: Timothy W. McGuire
Faculty: professors: Marki Berrier, John Fudale, and Darrell Stone; associate professors: Joseph C. Crotty, Michael G. Furlow, and Mark S. Ritter; assistant professors: Brian McFadden and Catherine A. Stone. 

Economics is concerned primarily with the topics of production, distribution, and consumption of goods and services in society. It involves the systematic study of such topics as wealth and poverty, money, banking, inflation, and unemployment, and the role of government in the economy. The study of economics provides a solid foundation for understanding the workings of the economy and the decisions of individuals, businesses, and governments.

Undergraduate Majors

The bachelor's degree programs in economics provide an excellent educational background for a variety of purposes in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations, and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economists are also regarded as excellent preparation for law and for graduate study in such fields as business management, public administration, health and hospital administration, urban planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees in economics—the B.A. and B.B. degrees are offered at the College of Liberal Arts and
B.B.A. in the College of Business Administration.

The B.B.A. and B.S.B. programs are designed for a well-rounded liberal arts education. Requirements for the B.B.A. degree emphasize instruction in the business fields of accounting, finance, marketing, business law, and management.

For descriptions of the B.A. and B.S.B. degree programs in economics, see the "College of Liberal Arts" section of the Catalog.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. degree in economics requires 18 semester hours in 100-level economics courses, including:

- 6E:103 Microeconomics 3 s.h.
- 6E:105 Macroeconomics 3 s.h.

Candidates for the B.B.A. degree may qualify for the degree through an alternative program by meeting the common requirements of the College of Business Administration and completing two areas of concentration, each consisting of at least three courses (nine semester hours), two of which must be courses offered by the College of Business Administration. The student may select courses from those offered by the Department of Economics to fulfill the areas of concentration requirement. The two areas of concentration must be approved by the advisor.

The student selecting areas of concentration as a method of meeting graduation requirements must submit his or her proposal to the Undergraduate Committee for approval prior to the start of the senior year.

Master of Arts

The department offers a three-semester M.A. program in applied economics, with opportunities to specialize in microeconomics, urban and regional economics, international economics and finance, economic development, financial and monetary economics, economics of the public sector, health economics, economic planning and budgeting, business and managerial economics, or labor economics and labor relations.

The first-year course sequence for the basic M.A. program is as follows:

**First Semester**
- 6E:183 Statistical Methods in Economics 3 s.h.
- 6E:203 Topics in Economics 3 s.h.
- 6E:204 Microeconomics I 3 s.h.
- Economic history course or elective 3 s.h.

**Second Semester**
- 6E:202 Price Theory 3 s.h.
- 6E:184 Methods of Quantitative Economics 3 s.h.
- Elective 3 s.h.

The M.A. program requires a course in economic history or history of economic thought. The student has the option of taking three electives and writing a thesis, for a minimum total of 32 semester hours of graduate credit, or taking five electives and writing a research paper in each of two 200-level economics courses, for a minimum total of 34 semester hours of graduate credit.

A student who performs well in the first semester of the M.A. program may transfer into the Ph.D. program at that time, without loss of credit.

**Joint M.A.-J.D. Program**

The department collaborates with the College of Law in offering a joint program in which the department accepts up to nine semester hours of law credit toward the M.A. degree in economics, and the College of Law accepts graduate credits in economics toward the Juris Doctor (J.D.) degree.

**Doctor of Philosophy**

The Ph.D. program is designed to provide rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation.

The Ph.D. program has a minimum mathematics requirement of two semester of calculus, which the student must satisfy by the end of the first semester of the program.

The core sequence:

- First Semester
  - 6E:180 Mathematics for Economists 3 s.h.
  - 6E:183 Statistical Methods in Economics 3 s.h.
  - 6E:200 Topics in Economics 1 s.h.
  - 6E:204 Microeconomics I 3 s.h.

- Second Semester
  - 6E:203 Microeconomics II 3 s.h.
  - 6E:206 Macroeconomics II 3 s.h.
  - 6E:211 Mathematical Economics I 3 s.h.

- Third Semester
  - 6E:205 Microeconomics II 3 s.h.
  - 6E:221 Econometrics I 3 s.h.
  - Field course 3 s.h.

- Fourth Semester
  - 6E:222 Econometrics II 3 s.h.
  - Field course 3 s.h.

For students with sufficient mathematical and statistical background, 6E:180 and 6E:183 are waived.

Students planning to specialize in economics should take appropriate courses in mathematical statistics.

Students planning to specialize in economic theory should take a third semester of calculus and 6E:212 Mathematical Economics II.

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 major area requirement includes at least one course (three semester hours) in economic history or the history of economic thought. The student must achieve at least a 3.2 grade-point average in the major area courses. At the end of the first year in the Ph.D. program, the student takes qualifying examinations, covering theory, mathematical economics, and statistics.
After passing the relevant core courses, the student takes the comprehensive examinations covering microeconomics, macroeconomics, and econometrics. A student who does not pass the qualifying examination or does not pass the comprehensive examinations may complete a M.A. program.

The student must present a dissertation prospectus within ten months after passing all the written comprehensive examinations. 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 8 hrs/wk (fall or spring semester). The typical amount of service in each term is 15 hours per week.

Courses

Primary for Undergraduates

Note: ECE and ECE2 may be taken in either order or they may be taken simultaneously; they satisfy the social science core requirement.

ECON 2/200 Comparative Education Teaching Assignment 0-1 h
ECON 341 Principles of Economics 4 h
Organizational and institutions (Western economic systems and institutions) and their competition in the external economic. Reflective and independent judgment of University members required.
ECON 441 Principles of Economics 4 h
National income and output, employment, income, prices, money and credit, government finance, wages and labor policy; economic growth and equilibrium; individual income determination, Pareto; principle of University members required.
ECON 541 Intermediate Microeconomics 5 h
ECON 542 Intermediate Microeconomics and Policy 5 h
Exploration of microeconomic and macroeconomic choices and analysis of real, economic, social, and policy issues. Not open to students who have taken ECE or ECE2.

Economic Analysis and Policy

ECON 680, 685, and 785 Topics in microeconomics, market and non-market behavior, and more advanced microeconomic issues. Prerequisite: graduate or professional student.
ECON 690, 695, and 795 Advanced microeconomics. Prerequisite: graduate or professional student.
ECON 715 Economic theory of consumer behavior, producer behavior, and choice model in interpreting economic decisions, conditions for efficient resource allocation by market mechanism. Prerequisites: ECE and ECE2.
ECON 716 Econometrics 3 h
Principles of econometric techniques and their applications. Emphasis on the problem of dependent variables. Prerequisites: ECE and ECE2, or senior standing. Prerequisites: ECE and ECE2, or senior standing.
ECON 711 Labor Economics 3 h
Analysis of labor markets with emphasis on working problem areas, labor supply, labor demand, and labor productivity and benefits. Prerequisites: ECE and ECE2, or senior standing.
ECON 720 Health Economics 3 h
Introduction to econometric theory and applications of quantitative analysis in the problems of production, distribution, and choice of health services. Prerequisites: ECE and ECE2, or senior standing.
ECON 725 Economics of the Government Sector 3 h
Econometric of government sector employment and applications of quantitative analysis in the problems of production, distribution, and choice of government services. Prerequisites: ECE and ECE2, or senior standing.
ECON 740 Political Economy of the Military Industrial Complex 3 h
Property rights and defense, the theory of the "military-industrial complex," economic consequences of defense spending on the balance of payments. Prerequisites: ECE and ECE2, or senior standing.
ECON 750 International Economics 3 h
Foreign exchange and balance of payments; international monetary arrangements and policies; theory of International trade; size of world trade; balance of payments. Prerequisites: ECE and ECE2, or senior standing.
ECON 751 International Relations in the World Economy and Conflict 3 h
Economic issues associated with the "new world order" in international relations. Issues of supply and demand conditions, market structure, impediments to economic growth, international trade, capital flows, and military and political issues. Prerequisites: ECE and ECE2, or senior standing.
ECON 752 Economic Development: Sub-Saharan Africa 3 h
Evolution of development of Sub-Saharan Africa; examination of theories and policies of economic development. Prerequisites: ECE and ECE2, or senior standing.
ECON 753 Food and Agricultural Policy 3 h
Economic analysis of major elements in the farm policy. Emphasis on agricultural production, prices, and income, government programs and policies, marketing, and research and development. Prerequisites: ECE and ECE2, or senior standing.
ECON 754 Economic Growth and Environmental Policy 3 h
Analysis of the relationship between economic growth and energy and environmental policies. Prerequisites: ECE and ECE2, or senior standing.
本科行政管理/金融

6B.263 Federal Tax Policy 2 a.h.
Effects of federal taxation on resource allocation, income and wealth distribution and economic stability, enforcement proposals for changes in federal tax system.

6B.264 State and Local Government Finance 3 a.h.
Economic incentives of government; purposes and problems of taxation, intragovernmental government, intergovernmental relations; public debt management, tax systems, procedures, revenues, evaluation, and prescriptions for change.

6B.265 Regional Economics
Analysis of economic theory, analysis, planning, implementation and evaluation of regional policies; nature of regional need for location, resource mobility, demand, and technology; spatial interdependence; design and use of regional accounts and economic models for regional analyses, policy formulation, and planning. Prerequisite: consent of instructor.

6B.266 Quantitative Economics
Prerequisite: consent of instructor.

6B.267 Trade in Economics
Prerequisite: consent of instructor.

6B.268 Shareholder Behavior
Prerequisite: approval of instructor.

6B.269 Workshops in Economics
Prerequisite: admission to Applied Economics and Statistics.

6B.261 Economic Seminar
Advanced Graduate Seminars

6E.110 Seminar in Economic Theory
Prerequisite: permission of instructor.

6E.120 Seminar in International Economics
Prerequisite: consent of instructor.

6E.220 Seminar in Economic Development
Prerequisite: consent of instructor.

6E.221 Seminar in Labor Economics 3 a.h.
Prerequisite: consent of instructor.

6E.222 Seminar in Urban and Regional Economics
Prerequisite: consent of instructor.

Finance

Departments of: Charles E. Markham; Faculty: instructors Clifford B. Beacham, Charles E. Markham, Michael E. Rosefi, Robert M. Salsbury, Stuart M. Seidel, Bennett J. Vogeck, Edmund W. Blau, Michael F. Bowerman, Richard A. Stone, and Allen F. Kauzinas; assistant professors Thomas J. Cook, Carl Schwager Department of: O.A. G., M.A.B., Ph.D.

6F.123 Public Finance
Undergraduate Program

The undergraduate finance program deals with the theory, organization, and operations of the financial system from both the social and individual 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 consoitipation or treasury work in non-financial businesses, as well as investment banking, or in non-profit or government organizations. Insurance specialists may find employment in life and property insurance companies, in the insurance buying department of large corporations, or in brokerage firms.

Requirements for the Bachelor of Science degree in Business Administration in one of the finance or insurance streams are as follows:

Finance

6F.121 Statistical Analysis
6F.122 Financial Markets and Institutions
6F.117 Intermediate Financial Management

At least 2 semester hours of accounting beyond the basic core, followed by any two of these:

6F.122 Security Analysis
6F.124 Commercial Banking
6F.116 Case Problems in Financial Management

Insurance

6E.121 Statistical Analysis
6F.120 General Insurance
6F.111 Investments
6F.121 Property and Liability Insurance
6F.122 Life and Health Insurance

At least one of the following:

6F.123 Public Economics Security Programs
6F.124 Risk Management

Three additional hours of courses specified by the student's advisor.

Graduate Programs

Refer to "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

6F.252 Corporate Education Training Assignment 6 a.h.

6E.224 Introduction Financial Management

6E.122 Microeconomics of Business Finance: theory and practice in business finance; security analysis, M.A.B., Ph.D.

6F.252 General Insurance

6E.121 Financial Theory

Theory of risk and ruin: arrangements for dealing with risk, insurance habits, types of insurance, functions of life insurance; capital markets, investment policies, and management of life insurance companies; the economics of capital formation and the implications of insurance contracts.

6E.121 Industrial Finance in Finance

Industry-wide guided readings in selected topics in business.

6E.121 Investments

Analysis involved in selecting among alternative financial claims from the viewpoint of the individual, present value, security analysis, money developments, regression, P.4.10 or consent of instructor.

6E.122 Security Analysis

Valuation of corporate securities, financial statement analysis, economic and regulatory environments. Prerequisite: 6E.11 or consent of instructor.

6E.123 Financial Markets and Involvements

The role of money and capital markets in the processes of change and development, flow of funds, institutions, and pricing in financial markets. Prerequisite: 6E.15 or consent of instructor.

6E.124 Corporate Banking

Management of commercial banks and other financial intermediaries and their role in economic development in a free market. Prerequisite: 6E.12 or consent of instructor.

6E.125 Risk Management

Analysis of investment decision making in financial management, asset and liability management, asset pricing, interest rates, and insurance of real estate.

6E.126 Case Problems in Financial Management

Case problems applicable to financial management, including case studies of individual financial problems. Prerequisite: 6E.11 or consent of instructor.

6E.127 Financial System

An introduction to topics in finance not covered by regular courses: credit hours and course content determined by instructor. Prerequisite: consent of instructor.

6E.128 Corporate Finance

Corporate financial and capital structure. Prerequisite: 6E.12 or consent of instructor.

6E.129 Life and Health Insurance

Life, health and annuity contracts from the viewpoints of the insured, the insurance company, and the regulatory agencies. Prerequisites: Life, annuities, insurance, estate planning. Prerequisites: 6F.25.
Management Sciences

Management Information Systems Track
One computer science programming course (22C:18-17 recommended)
6C:181 Management Systems Design

One of the following:

6C:182 Managerial Information Processing and Decision Behavior
6C:173 Managerial Economics
6C:178 Management Science Topics

Master of Arts

The Master of Arts program in management science is designed for the student who seeks an opportunity for specialization in a research experience. The general requirements are specified in the description of the Master of Arts in business administration. Students must consult with a faculty adviser to prepare a plan of study to the master's degree.

Doctor of Philosophy

Candidates wishing to earn a Ph.D. degree in management sciences should refer to the description of the degree leading to the Ph.D. in the "College of Business Administration" section of the Catalog, and then consult with a faculty adviser.

Courses

Primarily for Upper-Division Undergraduates

M&M: Cooperative Education Training Assignment 0 E.H.
B.800 Computer Analysis 3 E.H.
Introduction to the computer and its uses in the operations and management of organizations; topics include computer terminology, programming, microcomputer systems, and manufacturing operations.
6E:71 Statistical Analysis 3 E.H.
Fundamental principles of statistical evaluation; study of methods for solving managerial problems involving uncertainty, or risk; decision of collection and use of data. Prerequisite: 3E:66.
6B:68 Production Management 4 E.H.
Organization and management of manufacturing enterprises; production design and process planning; plant layout and materials handling; work simplification and measurement, inventory control. Prerequisites: 6C:3 or 6C:74.

For Undergraduates and Graduates

6C:181 Structured Programming 0.5 E.H.
In-depth study of selected issues in computer programming. Prerequisite: consent of instructor.
6C:181 Managerial Behavior in Organizations 3 E.H.
Principles of equilibration, planning, operating, strategizing, exchange, equilibration, decision making, and group performance applied to behavioral organizational contexts. Prerequisites: 6C:61 and completion of the sociology or psychology requirement, or consent of instructor.
6C:182 Group Behavior in Organizations 3 E.H.
Basic characteristics of organizational structure and group processes from perspectives of a variety of paradigms. Prerequisites: 6C:61 and completion of the sociology or psychology requirement, or consent of instructor.
6C:183 Decision Analysis and Management of Organizations 3 E.H.
Applied organization theory to problems of organizational design and operations; examines organizational structure and processes appropriate for particular types of organizational development and change. Prerequisite: 6C:61 or consent of instructor.
6C:184 Business Policy 3 E.H.
Study of the overall management implications of general managerial concepts in light of today's changing environment; the role of government, with particular emphasis on the business policy role of the firm. Prerequisites: 6C:61 or 6C:82, or consent of instructor.
6C:185 Managerial Economics 3 E.H.
Economic analysis applied to basic problems in production, pricing, and production; provides foundation for more specialized work in management. Prerequisites: 6E:81, 6E:82, and 6E:71.
6C:173 Decision Theory for Business 3 E.H.
Incorporation of mathematical models into business problem-solving; mathematical (or model) games, statistical decision problems; application of decision functions; available procedures. Beamer's Decision Theory for Business: an example. Prerequisite: 6E:71.
6C:186 Managerial Decision Making 3 E.H.
Decision making in business, education, and government; analysis of decision making in environments where success is measured in terms of goals, constraints, and changes. Prerequisite: 6E:71.
6C:177 Simulation Methods 3 E.H.
Simulation of behavior of computer simulation, and its relationship to business decision making; simulation computer science and computer analysis and design. Prerequisite: 6C:176.
6C:187 Management Science Topics 3 E.H.
Practical topics in management science. Prerequisite: 6B:170 or 6B:171.
6C:170 Management Science Topics 3 E.H.
Practical topics in management science. Prerequisite: 6B:170 or 6B:171.
Graduate Programs

See "Interdepartmental Graduate Programs" in the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

6M:87 Introduction to Marketing 3 s.h.

6M:130 Consumer Behavior 3 s.h.

6M:137 Advertising Theory and Planning 3 s.h.

6M:138 Marketing Communications 3 s.h.

6M:141 Senior Seminar in Marketing 3 s.h.

6M:147 Marketing Management 3 s.h.

Primary for Graduates

6M:91 Strategic Readings in Marketing 1-9 s.h.

6M:213 Marketing Research 3 s.h.

6M:233 Marketing Management II 3 s.h.

6M:224 Marketing Research Methods 3 s.h.

6M:235 Consumer Behavior 3 s.h.

6M:236 Product Management 3 s.h.

6M:239 Marketing Communications 3 s.h.

6M:240 Multivariate Techniques in Marketing 3 s.h.

6M:241 Psychological Scaling for Marketing Applications 3 s.h.

6M:242 Semantic Analysis in Marketing 3 s.h.

6M:246 Field Studies in Marketing 3 s.h.

6M:250 Thesis in Marketing 3 s.h.

6M:255 Industrial Organization 3 s.h.

6M:256 Industrial Organization 3 s.h.
The College of Dentistry is both administratively and physically an integral part of the University. It draws upon and contributes to the University's diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the colleges of Medicine, Nursing, and Pharmacy in the University Health Center, whose teaching, research, and service activities have earned international recognition.

Doctor of Dental Surgery

The basic educational program leading to the degree Doctor of Dental Surgery (D.D.S.) consists of at least three years of preprofessional study and approximately four years of study in the College of Dentistry. The dental curriculum consists of five 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 mini-courses in the basic science program which are corollary between the basic and clinical sciences.

Community Dentistry
- Ethics, epidemiology; nutrition; preventive dentistry; community health; principles of human behavior; dental economics; dental jurisprudence.

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. Students are introduced to dental auxiliary utilization and its role in efficient and effective patient treatment.
- Third-year dental students rotate through a series of "clerkships" which expose them to each of eight clinical disciplines.
- Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment which closely simulates conditions in private dental practice. Fourth-year students also are exposed to various extramural health programs at state and University Hospitals and the State Department of Health. There are available preceptorships in which fourth-year dental students assist in selected dental offices throughout New York. These preceptorships expose students to facets of dentistry usually not observable in an academic setting, such as practical business management procedures, appointment-book control, the dynamics of present 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 the dental profession.

Committee for Appeals
When a student has been asked to withdraw from the college, or desires 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 such matters as student scholastic 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, Missouri, 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 in 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 by the member states for a five-year period in lieu of their 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 Medicine, Nursing, and Pharmacy; a Basic Sciences Building; University Hospitals, and a Health Sciences Library. The Health Sciences Library houses all of the University's special health science holdings, including the College of Dentistry's collection of more than 10,000 volumes on dentistry and allied scientific subjects, and the more than 260 professional journals the college can receive.

The Dental Science Building consists of two connected four-story wings located on either side of a mall. The north wing is devoted to clinical teaching, with several departmental clinic facilities, support laboratories, clinical research space, offices, and an automated learning center. The south wing houses a variety of teaching, administrative, and research facilities, including teaching laboratories, research laboratories, administration area, an audiolingual production center, and the programs in community dentistry.

Student Organizations
All dental students are eligible for membership in the American Student Dental Association. Students who rank in the upper 12 percent of the senior class are eligible for Omicron Kappa Upsilon, a national dental honorary dental society. Two national dental professional fraternities, Delta Sigma Delta and Psi Omega, have chapter houses at Iowa, and both have sponsored organizations. There is also a Dental Student Wives Club.

Expenses
The College of Dentistry maintains a Supply-Item Management System (S.I.M.S.) that provides the student with most of the instruments and supplies necessary throughout dental training. The instrument usage fee for the program leading to the D.D.S. degree is payable in installments over the first three years of the program.

A fee for expendable laboratory supplies is charged each of the first two years. A $100 breakage fee must also be deposited; the deposit is refundable upon graduation or termination of enrollment.

Financial Assistance
Under the Health Professions Loan Program, it is possible for dental students to borrow a maximum of $10,000 plus $2,000 each year of their undergraduate professional studies. Eligibility is established by completion of the College Scholarship Services Financial Aid Form, which includes a parent's financial statement. Dental students may also apply for Guaranteed Student Loans through banks and other lending agencies; students may borrow a maximum of $15,000 over the four-year D.D.S. professional program. Interest 

A number of short-term loans are available from the American Dental Association, the Iowa Dental Association, the College of Dentistry, and other sources, to help students in financial emergencies. These loans are available through the financial aid coordinator of the student financial aid committee in the College of Dentistry. See the 'Financial Aid' section of the Catalog or inquire at the Office of Student Financial Aid for information regarding other 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 for the class entering the College of Dentistry the following August. The prospective dental student is encouraged to complete the program leading to a standard bachelor's degree before entering dentistry, or to consider a combined program which enables him or her to earn a standard bachelor's degree upon completion of the freshman
Electives
Sufficient coursework in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.

The dental admissions committee may waive or reduce some of the above requirements when the candidate for admission is considered outstanding in other respects.

Combined Liberal Arts-Dentistry Course
The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University makes it possible for the student who enters the College of Dentistry to obtain the bachelor's degree from the College of Liberal Arts upon successful completion of the freshmen 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 successful completion of the last 30 hours in the College of Liberal Arts at The University of Iowa preceding enrollment in the College of Dentistry satisfies the College of Liberal Arts residency requirement.

Grade-Point Requirement
The applicant should have a cumulative grade-point average of at least 2.5 (A = 4.0). In addition, the 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.

Required Dental Admission Test
All applicants must complete the Dental Admission Test sponsored by the Council on Dental Education of the American Dental Association. Tests are given two times annually, and The University of Iowa is a testing center. Applicants must take the test no later than October in order to be admitted the following year. Applicants may obtain test application forms from the University or the American Dental Association. Test applications should be submitted well before the test deadline.

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 their notification of admittance. This deposit is not refundable but is credited toward the first term fee. An applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Additional Admission Considerations
Fulfilment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From the applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants' academic records, his or her activities 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. Preference is given to nonresident applicants from states without dental schools, and to other nonresident applicants who have demonstrated outstanding scholarship and promise. Nonresident 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 satisfaction of all requirements for admission to the Graduate College, possession of the Doctor of Dental Surgery degree or its equivalent, and departmental approval. 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 basic 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 8 a.h.
60:104 Oral Microscopic Anatomy and Embryology 1 s.h.
51:152 Dental Microbiology 4 a.h.
69:203 Introduction to Human Pathology 5 a.h.
71:111 Pharmacology for Health Sciences: Dental Students 5 a.h.
72:152 Man-Medication Physiology 4 s.h.
99:161 Biochemistry for Dental Students 4 a.h.
General Microscopic Anatomy for Dental Students 4 a.h.

Nondepartmental Courses

113:150 First-Year Dental Surgery 0 s.h.
133:150 Second-Year Dental Surgery 0 s.h.
153:150 Basic Dental Clinic 6 a.h.
Selection from a series of elective mini-courses to emphasize the scientific basis of dental practice.

133:150 Dental Therapies 4 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics and postoperative pain control; prescription writing; drug interactions; emergency drugs.

112:170 Third-Year Dental Surgery 6 a.h.

112:175 Program Oriented
Opportunities for foreign dental study are negotiated with the faculties of dental colleges abroad.

112:180 Fourth-Year Clinic 6 a.h.

112:185 Gastrointestinal Bacteriology 6 s.h.
Required each year during covering specialty rotations. Commercially prepared equipment used in conducting a continuing education forum.

112:240 Introduction to Control Systems 3 a.h.
Lecture, laboratory and role-playing sessions with emphasis on decision making, diagnosis and treatment planning, delivery of dental care, and development of students' ability to work in and manage clinical environments, and improve preventive, diagnostic, and therapeutic procedures using computers and computers. Preventive and comprehensive evaluation, and preventive and therapeutic procedures.

112:290 Advanced Dental Studies 1 a.h.
To provide graduate students with an overview of advances in other clinical specialties within the college. Offered alternate years.

Clinical Management Concepts

Faculty: associate professor Thomas V. Botcher associate professor Vincent S. Unger clinical assistant professor Daniel Scott associate professor (Emertem)

112:197 Pre-Dent Advise Seminar 1 a.h.
Weekly series of meetings and student activities arranged to provide educational experiences in patient relations and treatment coordination utilizing comprehensive patient record systems.

112:199 Clinical Admission Seminar 1 a.h.
Clinical training for, diagnosis, and treatment of patients with oral soft tissue disease; determination of optimal dental treatment for various soft tissue disease treatments.

112:290 Advanced Seminar 1 a.h.
Two lecture-discussion sessions each week following the basic courses and skills needed for the clinical practice. Topics include principles of patient management, pathophysiology, histologic, surgical, and radiographic findings, and interpersonal communication. Preventive dental student.

Dental Hygiene

Department chairs: Paula Smrekski Paula Smrekski: Associate professor, B.S., M.S. Eileen DeSantis, B.S., M.S. Nancy Sidky, B.S., M.S.

113:101 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

113:102 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

113:103 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

113:104 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

113:105 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

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Department chairs: Paula Smrekski Paula Smrekski: Associate professor, B.S., M.S. Eileen DeSantis, B.S., M.S. Nancy Sidky, B.S., M.S.

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113:102 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

113:103 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

113:104 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

113:105 Dental Therapies 1 a.h.
Clinical experience with drugs for sedation, analgesics, antibiotics, local anesthetics, and postoperative pain control; prescription writing; drug interactions; emergency drugs.

Bachelor of Science

Qualified by education and license, the dental hygienist applies knowledge of the basic, social, dental, and clinical sciences in providing patient services for the prevention and control of dental disease.

The Bachelor of Science degree program in dental hygiene complements the four years of general education followed by two years of specialized study. Students who wish to graduate in December rather than May may enroll in an extended summer session to accommodate the junior and senior years.

The curriculum is accredited by the Commission on Dental Accreditation of the American Dental Association. Program graduates are prepared to take the national and state dental hygiene licensure examinations required for dental hygiene practice.

Included in the general education requirements are courses in the basic and social sciences. These courses provide the student with educational preparation in disciplines relevant to specialized study in medical and dental sciences and in dental hygiene.


In addition, seniors learn the basic theory and clinical skills required for dental hygiene practice in 88:81 Dental Hygiene Core I and 88:82 Dental Hygiene Core II, which integrate content in dental anatomy with the theory and practice of dental hygiene.

During the senior year, students advance their clinical skills in 88:86 Clinical Dental Hygiene, in 92:80 Advanced Periodontics for Dental Hygiene. Students are assigned to work with a graduate student in periodontics to perform procedures on patients who have active periodontal disease. This experience not only advances dental hygiene clinical skills, but provides both the hygiene and graduate dental students with a learning
experience emphasizing the team approach.


Senior students also are enrolled in 88:87 Practicum: Community Dental Health and 88:88 Seminar: Community Dental Health.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and audiovisual media, are incorporated into an integrated core. Learning emphasis is on the relationship between the intertwining 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 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, two and one-half years of mathematics, and one year each of biology and chemistry.

**College Preparation**

Eligibility for admission to the professional program in dental hygiene requires satisfactory completion at least semester hours of college coursework. In fulfilling this requirement, the student must satisfactorily meet the general education requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

- Five semester hours (eight for transfer students) of biology or general biology—87:350 Principles of Animal Biology.
- Three semester hours of organic chemistry—4:6 General Chemistry I, 4:6 General Chemistry Laboratory.
- Four semester hours of microbiology—81:164 Microbiology.
- Three semester hours of nutrition—17:142 Nutrition.
- Four semester hours of psychology—3:1:1 Elementary Human Anatomy.
- Four semester hours of psychology—72:13 Introduction to Human Physiology.

These prerequisites provide the educational basis for the dental hygiene courses of study. In addition, students admitted into 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 as appropriate background for transfer to the bachelor's 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 submit 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 before 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 faculty within recent years has recognized the need for preparing graduates to contribute toward the advancement of new knowledge in dental hygiene. This has resulted in revision of graduate program goals placed its thrust prominent 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 consists of the pathophysiology of dental plaque, including plaque microbiology and biochemistry, and the relationship of plaque to caries and periodontal disease; the response of the host to dental plaque, emphasizing immunological mechanisms, and the prevention of dental diseases by immunization and antimicrobial agents.

In the social science area, students consider the implications of applied sociological, psychological, economic, cognitive, and environmental concepts related to oral health. Selected readings relate societal values and structural elements of dental care delivery systems to oral health outcomes and explore the relationships of the individual, the family, and the community to oral health outcomes, both behavioral and physical. In addition, students learn how social science methodology can be utilized to study and evaluate aspects of the profession of dental hygiene and to oral health by developing a mini-research proposal and supporting the need for such research through a focused literature review.

Study in the educational field includes trends in dental hygiene with emphasis on dental hygiene education; elements of curriculum design; and the theory and application of didactic and clinical teaching in dental hygiene.

Although students may begin the program during the fall, spring, or summer session, enrollment at the beginning of the summer session is preferred, Applications, transcripts, and Graduate Record Examinations (GRE) Aptitude Test scores should be submitted by the early application deadline prior to the semester admission is desired. Most students should expect to take two academic years to complete degree requirements. Approximately 12 semester hours are assigned courses to advance knowledge.
Endodontics/DENTISTRY

Identification and treatment of oral infections and diseases is an essential part of dentistry. The specialty of endodontics focuses on the diagnosis and treatment of dental conditions affecting the pulp and surrounding tissues. Endodontic treatment aims to preserve the health of the tooth and maintain its function. This document provides information on the specialty, its requirements, and the role of endodontics in dental care.

Endodontics is the root canal treatment of teeth, which involves removing the pulp from a tooth and replacing it with a filling material. This procedure is necessary to avoid the spread of infection and maintain the integrity of the tooth. Endodontic treatment can be performed on teeth that have had a deep cavity or a fracture, or on teeth that have become infected due to a dental cavity or trauma. Endodontic treatment is performed under local anesthesia, and the patient may experience some discomfort during the procedure.

Endodontics is a highly specialized field that requires extensive training and education. To become a specialist in endodontics, candidates must complete a graduate program in endodontics. The program includes coursework in the diagnosis and treatment of endodontic conditions, as well as hands-on experience in endodontic surgery and root canal therapy. Candidates must also pass a national examination to become a board-certified endodontist.

The role of an endodontist is to diagnose and treat dental conditions that affect the pulp and surrounding tissues. Endodontists are responsible for performing root canal therapy, as well as treating dental injuries and infections that affect the teeth and gums. Endodontists also provide preventive care, such as educating patients on proper oral hygiene and the importance of regular dental check-ups.

Endodontics is an important field in dentistry that has a significant impact on the health and well-being of patients. It is a challenging area of study that requires a high degree of technical skill and knowledge. Endodontists are dedicated professionals who are committed to providing the best possible care for their patients.
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 for a career in dental education and research.

The department offers two types of graduate (post-0.D.D.S.) programs.

The Master of Science degree program requires a minimum of 40 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 calendar years, and only full-time students are admitted. Completion of the program requires satisfactory performance in a comprehensive written and/or oral examination which is of a functional character and does not duplicate semester examination.

These programs satisfy the training requirements for eligibility for the American Board of Endodontics.

The specific goals of these programs 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 process so that the student may function effectively as a dental educator; to recognize the value of the pursuit of academic advancement; and to develop the ability to plan, conduct, and report the results of research investigations.

Applicant for the graduate programs in endodontics must be a graduate of an accredited college of dentistry and must comply with the requirements for admission to 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 semester or summer session. Applications should be made no later than two semesters prior to the 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 is requested. [Text cut off]

Cash aid in the program may be received. A grade-point average of 3.0 is required for admission to the program. A student who fails this level will be allowed one semester to attain it. The circumstances creating the deficiency will receive careful consideration.

Students enrolled in the graduate programs in endodontics may not involve themselves in private practice enterprises outside the college. A student who does so will be asked to resign 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

General Endodontics (6 credit hours)

Lectures, seminars, and laboratory projects designed to familiarize the student with the broad principles, concepts, and techniques currently necessary for the practice of endodontics in general.

Clinical Endodontics Practice (9 credit hours)

Clinical emphasis on the diagnosis and treatment of endodontic problems in general dental practice. This course is valuable to students preparing for postgraduate training in endodontics.

45.70 Selected Topics in Endodontics (1-3 credit hours)

For students interested in teaching in general, emphasis on the development of a systematic approach to the comprehensive treatment of dental patients. The experience encompasses the student's first synthesis of academic experiences, the major goal is the integration of previously learned clinical skills into a well-organized and systematic clinical practice, and the development of a systematic approach to the comprehensive treatment of dental patients.
approximately three-fourths of the senior year. Students spend four and a half days a week in clinical settings, where they gain experience in total patient management and care. Their didactic coursework builds on the previous year's education. All areas of clinical and didactic instruction, patient awareness, and sensitivity to patients' needs are stressed.

The department's two practice management courses—one lecture, the other clinical—prepare the student to make practice location selections as well as manage the business aspects of a dental office.

Courses

110:185 Introduction to Hypnosis in Clinical Practice

Hypnosis as an aspect of behavioral science; emphasis is on historical background, a survey of current clinical cases, and practical, ethical implications of hypnosis. Prerequisite: consent of course director. Same as 111:185.

110:186 Practice Management Lecture

Discusses material aspects of management principles, personnel management, economics of team practice, marketing strategies, communication, and decision making, with discussions of developing a dental practice. All students are required to write a term paper on practice and efficient operation of a dental practice.

110:187 Clinical Practice Management

Applies principles of personnel management of a dental practice to the management of interrelated activities and dental facilities, and emphasizes the importance of efficiency and organization in delivering high-quality care to patients.

110:188 Family Dentistry Lecture

Syllabus, analysis, and evaluation of procedures required in knowledge and experience for an integrative and comprehensive system of dental health care management.

110:189 Family Dentistry Clinic

Clinical application of preventive, corrective, and restorative dentistry, care of the child, and satisfaction of the patient's needs.

110:282 Group Practice Seminar

Dynamic principles of a major dental group practice, the organization and functions of groups, the relationship of the individual to the group, and the ethical standards of behavior for members of the group.

110:283 Endodontics in General Practice

Dentists review the various aspects of endodontics, including current techniques and methods in their areas and future applications for the general practitioner. Information about selection of graduate programs.

110:284 Diagnosis and Treatment Planning Seminar

Students will complete a project in the development of a treatment plan and sequence for a patient with periodontal disease.

110:285 Seminar in Prosthodontics/DENTISTRY

Each student is required to submit a manuscript suitable for publication in a nationally recognized professional journal, based upon the student's research and/or thesis topic. Any student who is unable to maintain the minimum S.B. grade point average during the first year of the program, or who elects to terminate the program after one year, will be considered for a certificate of attendance.

Certificate Program

The department offers a certificate program which provides more clinical experience than the M.S. program, and does not require a research project and thesis. The certificate also satisfies the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Admission

The minimum requirements for admission into the program correspond to the minimum requirements for admission to the Graduate College, in addition, the student must hold a D.D.S. or D.M.D. degree in its equivalent.

Courses

81:120 Prosthodontics Materials Laboratory

The student learns to handle and manipulate denture materials through instruction and practice. Same as 81:130.

81:125 Materials and Mechanical Properties of Dental Materials

81:130 Oral Rehabilitation II

Introduction to concepts of occlusion and articulation.

81:140 Fixed Prosthodontic Techniques Seminar

Methods and materials, as well as techniques used in the construction of fixed prostheses.

81:150 Dentistry Lecture

Clinical problems related to the use of artificial dentures and partial dentures.

81:155 Dentistry Seminar

Seminar focusing on the preparation of a manuscript suitable for publication in a nationally recognized professional journal.
Operative Dentistry

Department head: W. W. Johnson
Faculty: professors X. D. Chan, D. R. Davey, J. James, J. G. Johnson

Predoctoral Program

Coursework 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 experience necessary to proceed independently in operative dentistry during the fourth 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 of Science degree or for a certificate in operative dentistry.

Requirements for the Master of Science degree include satisfactory completion of 48 semester hours of specified graduate-level courses; preparation of an acceptable thesis based on original research; and formal defense of the thesis and examination of the candidate by an examining committee.

The student should plan to furnish his or her own financial support for the research and thesis. An applicant for this program must be a graduate of a recognized school of dentistry and must comply with the requirements for admission to the Graduate College of the University. An interview with the applicant may be requested.

Courses

D.D.S. Program

D310 Operative Dentistry Laboratory for Pregraduates 3 h.

Dental study of dental materials and methods by which these materials are used in the restorative procedures of operative dentistry.

D311 Operative Dentistry I 3 h.

Lectures and studio courses in operative dentistry, including the anatomy, structure, and occlusion of human primary and permanent dentitions.

D312 Operative Dentistry Laboratory I 3 h.

Directed study of human teeth morphology and function utilizing wax replacement method and raven and plastic reline techniques.

D313 Operative Dentistry II 3 h.

Lectures and studio courses in operative dentistry, including the anatomy, structure, and occlusion of human primary and permanent dentitions.

D314 Operative Dentistry Laboratory II 3 h.

Directed study of human teeth morphology and function utilizing wax replacement method and raven and plastic reline techniques.

D315 Operative Dentistry III 3 h.


D316 Operative Dentistry IV 3 h.

Lectures and studio courses covering the principles and design of various restorations, the restoration of teeth, patient management, and control, and other aspects of clinical practice.

D317 Operative Dentistry II Class 3 h.

Clinical training in operative dentistry on patients in operative clinic. Second year.

D318 Operative Dentistry II Class 3 h.

Clinical training in operative dentistry on patients in operative clinic. Second year.

D319 Operative Dentistry II Class 3 h.

Clinical training in operative dentistry on patients in operative clinic. Second year.

D320 Operative Dentistry II Class 3 h.

Clinical training in operative dentistry on patients in operative clinic. Second year.

D321 Operative Dentistry III Class 3 h.

Clinical training in operative dentistry on patients in operative clinic. Second year.

D322 Operative Dentistry III Class 3 h.

Clinical training in operative dentistry on patients in operative clinic. Second year.

D323 Operative Dentistry III Class 3 h.

Clinical training in operative dentistry on patients in operative clinic. Second year.

D324 Operative Dentistry III Class 3 h.

Clinical training in operative dentistry on patients in operative clinic. Second year.
Oral Pathology and Diagnosis

The department’s primary objective is to provide instruction to dental students and other health-profession students in the etiology and natural history of diseases occurring in and about the oral cavity. Instruction includes the clinical, laboratory, radiographic, and microscopic features of these diseases and their management. Instruction is provided in the clinical evaluation of patients to identify systemic diseases and their influence on dental therapy, and the influence of dental treatment on systemic diseases.

Master of Science Program

Advanced instruction is available for graduate-level students in health sciences and related fields in preparation for specialty practice or careers in teaching and research.

Candidates for the Master of Science degree are expected to develop substantial ability for research into mechanisms of oral disease, and should anticipate that considerable effort will be devoted to the completion of an assigned research project and the thesis based on it. Minimum requirements for completion of this program are 45 semester hours of graduate credit and a thesis. The required courses are:

- 60:206 Problems in Biomedical Methods in 2 s.h.
- 69:201 General Pathology for Medical Students in 3 s.h.
- 69:202 Systemic Pathology for Medical Students in 7 s.h.
- 69:230 Research in Oral Pathology and Diagnosis in 2 s.h.
- 69:250 Pathologic Processes in 2 s.h.
- 69:255 Advanced Oral Pathology in 3 s.h.
- 92:216 Dental Sciences Research Methodology in 2 s.h.
- 68:199 Basic Oral Pathology in 4 s.h.
- 68:150 Topics in Oral Pathology in 1 s.h.
- 68:200 Oral Pathology and Diagnosis Literature Review in 2 s.h.

The tools for research are determined for each student after consultation with the major advisor. Since most graduates of advanced programs in oral pathology follow academic careers, students will participate in predoctoral teaching in the department as part of their education.

Certification Program

The program for certification in oral pathology combines academic studies with extensive laboratory practice of oral pathology under staff supervision, and requires a minimum of 24 months of full-time work for completion. Qualification for the certificate includes completion of all required courses with a passing grade, demonstration of competence in the practice of oral pathology, and a satisfactory grade in a final comprehensive examination before an examination committee composed of members of the graduate faculty in the Department of Oral Pathology and Diagnosis.

Required courses are:
- 68:200 Topics in Oral Pathology in 1 s.h.
- 68:220 Oral Pathology and Diagnosis Literature Review in 2 s.h.
- 68:225 Manifestations of Oral and Personal Disease in 1 s.h.
- 68:198 Basic Oral Pathology in 4 s.h.
- 68:206 Problems in Diagnosis in 2 s.h.
- 68:225 Physical, Laboratory, and Historical Features of Disease in 1 s.h.
- 68:201 General Pathology for Medical Students in 3 s.h.
- 68:241 Hospital Oral Pathology in 4 s.h.
- 68:250 Pathologic Processes in 2 s.h.

Additional requirements for certification include:
- A minimum cumulative grade-point average of 2.7 (4.0 scale), and
- Must pass satisfactory scores in the Graduate Record Examination (GRE) Aptitude Test. Acceptance of any applicant meeting the requirements for admission will rest with the departmental staff. Prospective applicants are encouraged to discuss program requirements with the head of the department prior to application.

Courses

- 68:20 Introduction to Oral Pathology in 1 s.h.
- 68:25 Oral Pathology for Dental Hygienists in 3 s.h.
- 68:20 Oral Pathology for Dental Hygienists in 1 s.h.
- 68:20 Oral Pathology for Dental Hygienists in 1 s.h.
- 68:20 Oral Pathology for Dental Hygienists in 1 s.h.
- 68:20 Oral Pathology for Dental Hygienists in 1 s.h.

Admission Requirements

Applicants must have completed an accredited program leading to the D.D.S. or D.M.D. degree or its foreign equivalent, with a minimum cumulative grade-point average of 2.7 (4.0 scale), and must pass satisfactory scores in the Graduate Record Examination (GRE) Aptitude Test. Acceptance of any applicant meeting the requirements for admission will rest with the departmental staff. Prospective applicants are encouraged to discuss program requirements with the head of the department prior to application.

Facilities

The laboratories of the department are equipped for training in hystopathology, immunocytochemistry, laboratory diagnosis, and experimental pathology. Laboratories are available with facilities for investigation of structure and function of both soft and hard tissues.
Graduate Courses

Oral Surgery

Predoctoral Program

Residency Program

The aim of the residency program in oral surgery is to provide preparation for specialty practice. The program is designed to combine clinical and didactic training on an individual basis. Every effort is made to adapt the program to the interests, abilities, and development of the individual student; however, it is essential to meet certain fundamental requirements.

The requirements of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Society of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been carefully considered in planning the structure and scope of training.

The residency period covers three years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of the principles of surgery, and familiarization with the various aspects of health services. Competence in clinical oral surgery requires knowledge of the basic medical sciences related to the specialty.

Therefore, in addition to hospital and clinical training, the resident takes advanced coursework in such subjects as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology, and reviews such closely-related disciplines as orthopedics, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for clinical and operating room experience are important aspects of residency training.

The resident gains clinical training in anesthesia under the direct supervision of an anesthesiologist assigned in the Department of Anesthesiology. Previous advanced training in physical diagnosis, pathology, physiology, and pathology now assume greater clinical significance. Increased responsibility in the operating room as first assistant and
surgery further develops surgical judgment and skills.

The development and implementation of a research protocol under staff supervision enhances the value of the residency.

The senior resident may be given responsibility for major oral surgical cases during rotations in the University Hospitals and Veteran's Administration Medical Center. Each third-year resident is assigned on a rotational basis as a clinical, and didactic coordinator, and assumes responsibility to qualify for examination by the American Board of Oral and Maxillofacial Surgeons.

Master of Science Degree

Requirements for the Master of Science degree may be completed during residency. The M.S. program comprises a three-year course of integrated didactic and clinical study, and includes a research project and the preparation of a thesis.

Admission

Admission is limited to July 1 of each year for a fall three-year program. The application deadline in oral surgery is September 1 for admission July 1 of the next year.

The Graduate Record Examination (GRE) Aptitude Test is required.

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 one-third of his or her graduating class.

Documents required include application for graduate oral surgery; applicant's prior training as defined by the accumulated experience of an oral maxillofacial surgeon in the United States; a statement of the research project and the preparation of a thesis.

Interviews are not required but are strongly recommended.

Applicants may be appointed any time after the application has been completed and the staff elects to take official action. All appointments should be rendered on or before January 1 prior to the July 1 effective date.

The graduate admission office will send an admission form to the applicant to be completed for the Graduate College by approximately March 1.

Facilities

The University Health Center has outstanding basic and clinical science departments which stimulate and support scholarly and superior clinical practice. The facilities of the University Hospitals, the Veteran's Administration Medical Center, and the college of Dentistry and Medicine provide an appropriate environment for residency training in oral surgery.

Hospital Organizations

The organizational structure at University Hospitals includes a Hospital Dentistry Clinical Service with divisions of Oral Surgery, Family Dentistry, Periodontics, Orthodontics, Periodontics, Craniofacial Anomalies, Prosthodontics, Endodontics, and Diagnostic and Oral Pathology. The oral surgery residency program and a one-year general practice residency are conducted under the auspices of the Division of Oral Surgery and Division of Family Dentistry.

Courses

Predoctoral

8.01 Anesthesia, Surgery

Principles and practice of anesthesia, anesthetic, and postoperative anesthesia techniques for oral surgery.

8.02 Dentistry and Oral Pathology

Principles and training in oral disease, including diagnosis, therapy, and complete and preventive diagnostic and therapeutic techniques.

8.03 Orthodontics

Principles and practice of orthodontics.

8.04 Periodontics

Principles and practice of periodontics.

8.05 Prosthodontics

Principles and practice of prosthodontics.

8.06 Endodontics

Principles and practice of endodontics.

8.07 Oral and Maxillofacial Surgery

Principles and practice of oral and maxillofacial surgery.

8.08 Hospital Dentistry

Principles and practice of hospital dentistry.

8.09 Diagnostic and Oral Pathology

Principles and practice of diagnostic and oral pathology.

8.10 Forensic Dentistry

Principles and practice of forensic dentistry.

8.11 Biostatistics

Principles and practice of biostatistics.

8.12 Medical and Dental Literature

Principles and practice of medical and dental literature.

8.13 Oral Surgery Research

Principles and practice of oral surgery research.

8.14 Oral Surgery Medicine

Principles and practice of oral surgery medicine.

8.15 Oral Surgery Surgery

Principles and practice of oral surgery surgery.

8.16 Oral Surgery Pediatrics

Principles and practice of oral surgery pediatrics.

8.17 Oral Surgery Geriatrics

Principles and practice of oral surgery geriatrics.

8.18 Oral Surgery Oncology

Principles and practice of oral surgery oncology.

8.19 Oral Surgery Psychology

Principles and practice of oral surgery psychology.

8.20 Oral Surgery Ethics

Principles and practice of oral surgery ethics.

8.21 Oral Surgery Administration

Principles and practice of oral surgery administration.

8.22 Oral Surgery Program Planning

Principles and practice of oral surgery program planning.

8.23 Oral Surgery Practice Management

Principles and practice of oral surgery practice management.

8.24 Oral Surgery Practice Law

Principles and practice of oral surgery practice law.

8.25 Oral Surgery Clinical Skills

Principles and practice of oral surgery clinical skills.

8.26 Oral Surgery Clinical Procedures

Principles and practice of oral surgery clinical procedures.

8.27 Oral Surgery Clinical Research

Principles and practice of oral surgery clinical research.

8.28 Oral Surgery Clinical Education

Principles and practice of oral surgery clinical education.

8.29 Oral Surgery Clinical Administration

Principles and practice of oral surgery clinical administration.

8.30 Oral Surgery Clinical Practice

Principles and practice of oral surgery clinical practice.

8.31 Oral Surgery Clinical Management

Principles and practice of oral surgery clinical management.

8.32 Oral Surgery Clinical Leadership

Principles and practice of oral surgery clinical leadership.

8.33 Oral Surgery Clinical Ethics

Principles and practice of oral surgery clinical ethics.

8.34 Oral Surgery Clinical Policy

Principles and practice of oral surgery clinical policy.

8.35 Oral Surgery Clinical Economics

Principles and practice of oral surgery clinical economics.

8.36 Oral Surgery Clinical Psychology

Principles and practice of oral surgery clinical psychology.

8.37 Oral Surgery Clinical Sociology

Principles and practice of oral surgery clinical sociology.

8.38 Oral Surgery Clinical Sociology

Principles and practice of oral surgery clinical sociology.

8.39 Oral Surgery Clinical Sociology

Principles and practice of oral surgery clinical sociology.

8.40 Oral Surgery Clinical Sociology

Principles and practice of oral surgery clinical sociology.

8.41 Oral Surgery Clinical Sociology

Principles and practice of oral surgery clinical sociology.
Orthodontics

Department Head: John S. Duster Faculty: associate George P. Anderson, Kenneth E. Duster, Robert W. Jackson, Charles K. Karr, assistant professor Robert R. Wimby Degree offered: M.S.

Predoctoral Program

The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, and treat with 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 malocclusions 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 23-month period of intensive study, including lecture courses, seminars, clinical practice, 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, ortho lisp and palate treatment, speech pathology, animal experimentation and human growth.

Admission

Admission requires the D.D.S. degree, or its equivalent, and satisfaction of Graduate College requirements. The application deadline is October 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

9110 Growth and Development 1.5 A.
Information about human growth and development, with emphasis on the craniofacial region.
9120 Orthodontic Diagnosis and its Biological Foundations 1.5 A.
Introduction to various concepts of craniofacial growth and orthodontic diagnosis and the relationship of orthodontics to other disciplines in the field. Topics include development of dentition, physiology of craniofacial structures, craniofacial considerations, growth and development, genotypic variability in the face and teeth, growth of the occlusion, and facial analysis.
9130 Orthodontic Laboratory 1.5 A.
Practical experience in taking and analyzing orthodontic diagnostic records, designing treatment, and fabricating orthodontic appliances.
9150 Orthodontic Treatment 1.5 A.
Ranges from patient management in the use of orthodontic appliances to correct some of the most severe cases of malocclusion presented to the general practitioner in his office.
9140 Delivery of Orthodontic Services by the General Practitioner 1.5 A.
Critical appraisal and development of laboratory instruments and supplies and equipment needed in the general practitioner's office. Treatment consists of selecting types of appliances which should be trained in the orthodontic office. Discussion of various classes of adult orthodontic need arising from other sources can be completed remotely or used as an appliance; classification of cases and a variety of techniques and aids. Equipping and testing of appliances not involving science much movement caused by intermaxillary mechanics is either segment of the mouth imparitons and evaluation of results for a stable result.
9170 Orthodontic Clinics 1.5 A.
Clinical experience in orthodontic diagnosis, treatment planning, and treatment; selected patients with malocclusions who are under treatment. Treatment: selected supervised diagnosis and treatment; student must follow patient from initial appointment through all phases of treatment; student must assume all patient responsibilities associated with the treatment program, which may include appointments during summer months.
9171 Advanced Orthodontic Concepts 1.5 A.
Preparation of advanced students in advanced treatment in department's graduate program. Periodic review of literature.
9172 Social Orthodontic Projects 1.5 A.
Undergraduate research project designed to give student an opportunity to learn scientific methodology in investigation of a particular orthodontic problem. By special arrangement with faculty.
Pedodontics

Department Head: Stephen H. Y. Wu
Faculty: professors: Clarence A. Ball, W. L. Kanepsen, Arthur J. Noad, Less M. Blinnetz, Stephen H. Y. Wu
associate professors: Brian H. Clark, Larry D. Wilcox
assistant professors: James J. O'Callahan, Stephen J. Groppel, James S. Weble

The Department of Pedodontics provides instruction for dentists and graduate students in the prevention and treatment of dental diseases in children. Interactive seminars, didactic, laboratory, and clinical experiences. It gives special emphasis to reviewing current literature and managing dental problems of handicapped children, and emphasizes efficient treatment through proper utilization of dental auxiliary personnel and record management.

The Graduate Program

Graduate 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 Pedodontics. It is accredited by the Council on Dental Education of the American Dental Association.

Students are trained in all phases of pedodontics, to permit their career choices in practice, education, or research. Approximately 50 percent of the graduates are devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 30 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.

Oval dental programs have been arranged with several other colleges. Close association with the Department of Pediatrics in the University of Medicine, and with the University Hospital and University Hospitals and Clinics, permits a focus on the rehabilitation under general anesthesia, instruction in physical diagnosis, and management of exceptional children.

Research Opportunities

Research carried out by graduate students in pedodontics has been selected regularly for national awards and journal 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 cariology, dentistry for handicapped persons, fluoride therapy, and child behavior management.

Quality of Faculty

Faculty members hold numerous national and state offices, committees, memberships, consultancies, and honors in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health scientists. Several members are Diplomates of the American Board of Pedodontics.

Financial Aid

Support is available to qualified students through grants from the Office of Maternal Child Health, Bureau of Community Health Services, Department of Health, Education, and Welfare.

Admission

Apply to your Graduate College.

Courses

05160 Pediatric Diagnosis and Treatment 2.65
Concepts of growth and development, behavior management, and preventive techniques for pediatric patients.
05150 Clinical Pedodontics Comprehensive clinical management of pediatric patients.
05156 Clinical Dentistry in Pedodontics Diagnosis of patterns of disease, basic histories, and treatment philosophies.

Primarily for Graduates

05210 Introduction to Advanced Clinical Pedodontics 2.65
For first-year graduate students emphasizing on growth and development, child management, and therapy.
05214 Microbiological and Ultrastructural Laboratory 1.65
Laboratory facilities of microscopic and ultrastructural approaches.
05215 Growth and Development Literature and Lab 2.65
Critical review and senior class discussion of growth and development of the child, with particular emphasis on principles and practice of integration-orthodontic laboratory. Laboratory demonstrates biochemistry in appliance fabrication and application.
05220 Advanced Microbiological Techniques 2.65
An advanced level of study in microbiology with an emphasis on modern techniques.
05225 Advanced Pediatric Dentistry 2.65
Discussions of problems of developmental, behavioral, and social management in children with special emphasis on techniques and materials for treatment of pedodontics.
05226 Pedodontics: Behavior Therapy 2.65
Discussion of effective orthodontic, behavior, therapy, team and nutrition guidance, aesthetics, pharmacology, and oral hygiene as related to pediatric patient.
05227 Pediatric Endodontics 2.65
Dentist management, preventive-restrictive techniques and hospital care for the handicapped child.
05228 Pediatric Dentistry Review IV 2.65
Community responsibilities and practice management, research specialties, and advanced procedures for pedodontic care.
05239 Dental Management of the Handicapped Child 2.65
Principles and techniques for managing various handicapping conditions of children in the dental office.
05320 Research in Pedodontics 2.65
Research design and the completion of an original research project in research. The results are to be presented in a written form.
05321 Thesis Preparation 2.65
Preparation of original research project and completion of dissertation.
05420 Advanced Clinical Pedodontics 2.65
Comprehensive clinical management of pediatric patients in areas of preventive care, operative therapy, endodontics, and behavior therapy.
Master of Science Program

The Master of Science program is designed primarily to provide training for teaching, research, and specialization in periodontology. The program meets all eligibility requirements for American Board of Periodontology certification. The program requires:

- Satisfactory completion of a minimum of at least 76 semester hours of required and elective coursework.
- Preparation and defense of an acceptable thesis based on original research requiring 11 semester hours of research and three semester hours of thesis preparation.
- Satisfactory completion of a comprehensive written and oral examination.

Completion of the program requires 20 calendar months of full-time study.

Ad Hoc Interdisciplinary Ph.D. Program

Under Graduate College regulations, proposals for interdisciplinary doctoral programs of study may be developed. The Graduate College grants final approval of such individual programs. The Department of Periodontics will assist in the development of individual doctoral programs designed to train dentists for careers in teaching and research in periodontal diseases. Such programs will be interdisciplinary with anatomy, biochemistry, microbiology, pharmacology, and physiology.

Certification

Designed to meet all the requirements of the American Board of Periodontology for eligibility for certification, the certification program provides a sound foundation for the clinical practice of periodontics.

Completion of the program requires 24 calendar months of full-time study, with:

- Satisfactory completion of a minimum of 80 semester hours of required and elective courses.

Satisfactory completion of a comprehensive written and oral examination;

And an acceptable literature review paper.

Opportunities are provided for experience in clinical and basic research.

The certification program may be combined with the Ph.D. program.

Facilities

The department has 20 modern and well-equipped operatories devoted exclusively to periodontics, and access to hospital experience in the adjacent University Hospitals and the Veterans Administration Medical Center. Research facilities include a departmental research lab, electron, and colloid laboratories in histology and histochemistry, microbiology and biochemistry, electron microscopy with EM and scan capabilities, and growth and development. The research facilities are in addition to those available by arrangement in the University Hospitals, the Veteran's Administration Medical Center, and in the basic science departments.

Financial Aid

The applicant must be financially prepared to undertake uninterrupted studies. Assistantships are offered depending upon available resources. The Ph.D. program is supported by a full research stipend.

Admission

Admission to graduate study in periodontics requires the O.D.S. degree or its equivalent, and satisfaction of Graduate College admission requirements. (See "Graduate College" section of the Catalog.) In some cases to the Ph.D. program, the department gives strong preference to applicants with the M.S. degree. Interviews are encouraged but not mandatory.
Courses

Predoctoral

0231 Introduction to Periodontology 3 a.h.
Fundamental concepts of periodontology for dental hygiene programs presented in lecture and seminar format by a slide-tape series.

0232 Advanced Periodontal Treatment 3 a.h.
Clinical treatment of periodontal disease. Students will develop a knowledge of various diagnostic, treatment methods, and patient education.

0234 Periodontal Disease 3 a.h.
Fundamental concepts of periodontology, presented in a lecture and seminar format by a slide-tape series.

0235 Periodontal Disease 3 a.h.
Comprehensive clinical management of the periodontal patient under the direct supervision of the instructor.

Graduate

0236 Advanced Periodontal Therapy 3 a.h.
Provides experiencely advanced graduate students with comprehensive review of periodontal therapy. Offered summer semester.

0237 Clinical Research in Periodontology 3 a.h.
Comprehensive management of periodontal patients, with emphasis on treatment planning and case documentation and preparation for comprehensive dental therapy. Content and duration will vary, required each fall and spring semester.

0238 Methods in Research in Periodontology 3 a.h.
Instructor selected.

0239 Periodontal Disease 3 a.h.
Examine advanced comprehensive treatment planning and case documentation and preparation for comprehensive dental therapy. Offered in fall semester.

0240 Preventive Dentistry 3 a.h.
Preventive dentistry in dentistry students' awareness of unmet health needs and to encourage them to expand and implement approaches to alleviate these needs.

Extramural programs provide students with opportunities to interact with health care teams and members of communities in Ohio. The department conducts five full-time extramural programs throughout the state.

Using the community as the classroom, students are able to observe and participate in a variety of activities intended to make them aware of the societal obligations they must assume in order to practice effectively.

Included in the department's resources are two mobile dental vans, one with five operators and a second smaller van designed for prevention programs. The vans are operated throughout the state, and given senior dental and dental hygiene students and graduate students an experience which closely simulates community dental practice.

Courses

Predoctoral

01118 Preventive Science 3 a.h.
Introduction to the field of dental hygiene includes lectures, laboratory, small-group discussions, and critical experiences. Students identify health and disease processes and learn to characterize methods of control. High patient care and academic expectations are based on success in controlling their own oral health.

01117 Preventive Science 3 a.h.
Specific data describing dental plaque and two related diseases processed dental plaque and periodontal disease; data given to support the use of preventive measures for the health and prevention of disease and periodontal disease.

01116 Preventive Science 3 a.h.
Fundamental description of instrumentation for detection and removal of plaque present with emphasis on their theoretical basis for oral hygiene. Emphasis on the role of basic sciences in the development of new methods of control high patient care and academic expectations are based on success in controlling their oral health.

01115 Preclinical Hygiene 1 a.h.
Cricie program to allow the student to provide a comprehensive preventive service to all categories of patients, using a comprehensive model. Students will develop a comprehensive approach to patient care, with emphasis on evaluation and control of plaque.

01116 Clinical Photography 1 a.h.
Research and laboratory sessions dealing with photography in general and specific concentration on biomedical photographic systems and related problems.
290 Community Dentistry

Introduction to community dentistry: involve study of a community’s dental health needs or community health planning. The goals of the community health dentist are to improve the oral health of the community and to educate the public about oral health. The community health dentist works closely with other health professionals and the community to identify oral health needs and to develop programs to address those needs. The community health dentist is responsible for the overall health of the community.

111.116 Introduction to Hypnosis in Clinical Practice

Hypnosis is a well-recognized method for the treatment of a variety of conditions, including pain management, stress reduction, and the treatment of phobias and addictions. Hypnosis can be used to enhance the effectiveness of dental treatment, reduce anxiety and pain during procedures, and improve the patient’s overall experience. The use of hypnosis in dental practice requires specialized training and expertise.

111.116 Community Environmental Experience

The Bachelor’s Health Education (Family Practice) Unit is designed for students who wish to pursue careers in community health, public health, and related fields. The program emphasizes the importance of community health education and the role of health education professionals in promoting healthy lifestyles and preventing disease. The program includes coursework in health education, health promotion, and community health interventions.

Graduate

111.120 Clinician Review in Preventive and Community Dentistry

The Clinician Review in Preventive and Community Dentistry is a program designed for professionals who are interested in advancing their knowledge and skills in preventive and community dentistry. The program provides a comprehensive review of the latest research and knowledge in the field, and offers opportunities for professional development and networking.

111.122 Research Seminar in Community Dentistry

The Research Seminar in Community Dentistry is designed for students who are interested in conducting research in the field of community dentistry. The seminar provides an opportunity for students to work with faculty members and other researchers to design and conduct research projects.

Removable Prosthodontics

Department head: Porretta A. Bumravett
Faculty: professors Ralph W. Appleyard, Ronald L. Gilmer, William E. Lechefsky
associate professors Thomas A. Miller, Porretta A. Bumravett
liaison: Lawrence R. Huber, James P. Kehs
adjunct professor Robert A. Bracy, John R. Thomsen
Degree offered: M.S.

Removable prosthodontics is the specialty of dentistry involving complete dentures and removable partial dentures.

The predoctoral program provides the student with the basic principles, practices, and concepts of removable prosthodontics required for the practice of general dentistry, through laboratory projects and treatment of patients with differing prosthodontic needs.

The Master of Science degree program prepares the specialist for a career in education and research. It also satisfies the formal training requirements for eligibility of the American Board of Prosthodontics examination.

The requirements are flexible, permitting the development of a plan of study which will fit the individual needs of each student. This is possible since normally not more than two students are accepted each year for advanced training in the department. Each student is required to prepare a thesis based on original research and pass an oral and/or written comprehensive examination. The student’s adviser serves as chair of the examining committee. The student is required to meet all the requirements for the master’s degree as outlined in the Manual of Rules and Regulations of the Graduate College.

Minimum requirements for admission to the program correspond to the requirements for admission to the Graduate College. In addition, the student must hold a D.O.B. or D.M.D. degree or its foreign equivalent.

Courses

B-110 Dentistry Laboratory

Theoretical and practical instruction in the use of basic laboratory materials. Six hours per week.

B-100 Removable Prosthodontic Techniques

Theoretical and practical instruction in the construction of complete and removable partial dentures.

B-101 Prosthetic Microwave Laboratory

Theoretical and practical instruction in the construction of complete and removable partial dentures.

B-112 Removable Complete Dentures

Theoretical and practical instruction in the construction of complete and removable partial dentures.

B-113 Removable Partial Dentures

Review of current research in principles, practices, and concepts of removable partial denture rehabilitation.

B-114 Removable Partial Dentures Seminar

Review of current research in principles, practices, and concepts of removable partial denture rehabilitation.

B-115 Removable Partial Dentures Seminar

Review of current research in principles, practices, and concepts of removable partial denture rehabilitation.

B-116 Removable Partial Dentures Seminar

Review of current research in principles, practices, and concepts of removable partial denture rehabilitation.

B-117 Removable Partial Dentures Seminar

Review of current research in principles, practices, and concepts of removable partial denture rehabilitation.

B-118 Removable Partial Dentures Seminar

Review of current research in principles, practices, and concepts of removable partial denture rehabilitation.

B-119 Removable Partial Dentures Seminar

Review of current research in principles, practices, and concepts of removable partial denture rehabilitation.

B-120 Removable Partial Dentures Seminar

Review of current research in principles, practices, and concepts of removable partial denture rehabilitation.
Removable Prosthodontics

1. A review of current literature in prosthodontics.
2. Discussion of assigned readings that are considered to be new areas in removable prosthodontics literature.
The nation's first university-level professional chair in education was established at The University of Iowa in 1872. The department became the School of Education in 1907, and the College of Education, structured in the basic pattern which governs it today, was founded in 1913. The growth of the college has corresponded to the growth of the University.

Faculty members have been leaders in a variety of educational fields. Particularly noteworthy are the early developments in educational testing and measurement, which helped lay the foundation for the present-day educational testing and measurement industry, thus making Iowa City one of the best known centers for this educational specialty.

The college has eight divisions: Post-Secondary and Continuing Education; Educational Administration; Early Childhood and Elementary Education; Educational Psychology, Measurement, and Statistics; Secondary Education; Counselor Education; Special Education; and Instructional Design and Technology. The college also has a Social Foundations of Education Unit.

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 exception of 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 or College of Business Administration and must complete the requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of General Studies, or Bachelor of Business Administration degrees as explained in those colleges' sections of the University Catalog.

Policies, rules, and regulations of these colleges apply to students in the T.E.P. Students seeking the B.S. degree should especially note that a maximum 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 major 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 Advising Office, 116 Sidraue Hall, and submit an Application for Admission to the Teacher Education Program to the Office of Admissions. IOT 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 practicums resources permit.

Although treatment is 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 15 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 coursework attempted and on all University of Iowa coursework 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 stations, it may be necessary to restrict enrollments in early childhood education, elementary education, and special education, and in social studies and English in secondary education. In the event that the number of T.E.P. applicants exceeds the capacity of a program, students will be selected by rank order on the criteria established by the faculty.

To be admitted to foundation courses in education, an undergraduate student must:

Have been admitted to The University of Iowa as a degree candidate;

Have completed the American College Tests;

Have attained sophomore standing (18th semester hour) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses;

Have achieved a 2.2 grade-point average on all college coursework attempted and coursework completed at The University of Iowa; and

Have submitted an Application for Admission to the Teacher Education Program (see date below).

Graduate students must:

Have been admitted to the Graduate College;

Have a cumulative grade-point average of not less than 2.8 (2.7 for M.A.T.) on undergraduate coursework; and

Have been admitted to a specific certification program (e.g., elementary education, special education, or secondary English).

Student Teaching

The final phase of the Teacher Education Program is the professional semester, devoted to student teaching and directed observation in a variety of classrooms. 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 16 semester hours during one academic session in residence at The University of Iowa;

Satisfactorily completed 7P:71 Educational Psychology and Measurement, 7K:61 Athletic Education for Instructors (Elementary), and 7E:100 Introduction: Elementary and Early Childhood Teaching or 7S:100 Introduction: Secondary School Teaching and 7E:91 Pre-Education Practicum or 7S:91 Pre-Education Practicum;

Satisfactorily completing the appropriate methods courses;

Maintained a cumulative grade-point average of not less than 2.2 if an undergraduate student, or 2.7 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 15 preceding the academic year during which student teaching is desired.

Waivers

Students who have completed practical teaching experiences or courses which they feel should be considered in lieu of requirements should consult with their advisers concerning waiver procedures.

The 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 midwestern institutions which place selected students in the Kansas City inner-city system. The program is open to any student who meets the requirements for student teaching.

Overseas Student Teaching

In cooperation with the University of Wisconsin-River Falls, a split student teaching assignment is available during 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-site coordinators. Students electing 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 7X:170 Human Relations for the Classroom Teacher.

Certification to teach in many states requires a course in U.S. history or in American government. An initial certificate may be obtained in Iowa without meeting this requirement. However, a certified teacher who has not previously met the requirement must complete a minimum of 2 semester hours of U.S. history or American government before his or her certificate can be renewed. Students are therefore encouraged to include such a course in their professional programs, key of the following courses will satisfy the requirement:

30:1 Introduction to American Government 4 a.h.
30:10 The American Political System 4 a.h.
Up to 4 semester hours may also be used toward social science core requirement of the College of Liberal Arts.
18:81 American History 3 a.h.
18:82 American History 3 a.h.
18:87 Principles 3 a.h.
18:161 The Colonial Period in America 3 a.h.
18:162 American Revolution Period 3 a.h.
18:163 United States in the Early Republic 3 a.h.
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>18:164 Civil War and Reconstruction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>18:167 The Contemporary United States 1920-1940</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>18:168 The Contemporary United States 1940-Present</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><strong>Minors</strong></td>
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<tr>
<td>All undergraduate minors in education for students in the College of Liberal Arts require a minimum of 18 semester hours of credit, or 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.</td>
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<tr>
<td><strong>General Undergraduate Minor</strong></td>
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<tr>
<td>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 that the student selects at least one course from each of the following six areas:</td>
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<tr>
<td><strong>Structure of Education</strong></td>
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<tr>
<td>7F:140 U.S. Educational System and Society</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7F:100 Education: Elementary and Early Childhood Teaching</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7H:110 Introduction to Continuing Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7H:100 Problems and Policies in Higher Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7S:100 Introduction: Secondary School: Teaching</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7S:151 Introduction to Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><strong>History, Philosophy, and Sociology of Education</strong></td>
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<tr>
<td>7F:102 History of American Education</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7F:107 History of Western Education</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7F:117 Philosophes of Education</td>
<td>p-3, 5 s.h.</td>
</tr>
<tr>
<td>7F:130 Educational Sociology</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7F:197 Philosophy of Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td><strong>Psychology of Education</strong></td>
<td></td>
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<tr>
<td>7F:134 Educational Psychology and Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7F:105 Child Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7F:107 Psychological Bases of Instructional Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7F:105 Socialization of the School-Age Child</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7F:101 Educational Psychology</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>7H:120 Exceptional Children</td>
<td>5 s.h.</td>
</tr>
<tr>
<td><strong>Curriculum Foundations</strong></td>
<td></td>
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<tr>
<td>7W:120 Introduction to Instructional Design and Technology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:105 Curriculum Foundations</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7/108 Curriculum Foundations</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td><strong>Cross-cultural Factors</strong></td>
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<tr>
<td>7H:130 The Culturally Different in Educational Settings</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7F:154 Education, Race, and Ethnicity</td>
<td>arr.</td>
</tr>
<tr>
<td>7C:105 Psychological Aspects of Black Behavior and Personality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:106 Multicultural Concepts and Educational Systems</td>
<td>3 s.h.</td>
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<tr>
<td><strong>Teaching Methodology</strong></td>
<td></td>
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<tr>
<td>7T:100 Methods: Elementary School Language Arts</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7S:110 Methods: Social Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7W:122 Choosing Instructional Strategies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7H:112 Teaching of Adults</td>
<td>3 s.h.</td>
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<tr>
<td><strong>Science</strong></td>
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<tr>
<td>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:</td>
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<tr>
<td>Any two of the following courses (for a total of 6 semester hours):</td>
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<tr>
<td>97:102 Societal and Educational Applications of Earth Science Concepts and Topics</td>
<td>arr.</td>
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<tr>
<td>97:103 Societal and Educational Applications of Biological Concepts</td>
<td>arr.</td>
</tr>
<tr>
<td>97:105 Societal and Educational Applications of Selected Concepts of Physics</td>
<td>arr.</td>
</tr>
<tr>
<td>97:106 Societal and Educational Applications of Chemical Concepts</td>
<td>arr.</td>
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<tr>
<td>All of the following:</td>
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<tr>
<td>97:140 Problems in Integrating the Teaching of Environmental Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:128 Meaning of Science</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>97:130 Science in Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:110 Seminar: selected Science and Education Topics</td>
<td>arr.</td>
</tr>
<tr>
<td>7S:181 New Activities for K-12 Science</td>
<td>2-3 s.h.</td>
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<tr>
<td><strong>Human Relations</strong></td>
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<tr>
<td>This minor which emphasizes human relations education is designed to acquaint individuals with several basic techniques and concerns of counseling. It offers individuals an opportunity to acquaint themselves with alternative opportunities within the counseling profession. Course requirements are as follows:</td>
<td></td>
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<tr>
<td>Each of the following:</td>
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<tr>
<td>7C:190 Testing Group Diagnosis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:199 Counseling for Related Professions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>At least 12 semester hours from the following:</td>
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<tr>
<td>7C:199 Introduction to Peer Counseling</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:110 Process of Change and the Counselor</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7C:112 Human Sexuality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:116 Human Relations for Service Professions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:133 The Culturally Different in Educational Settings</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:150 Psychological Aspects of Men's and Men's Roles</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>7C:155 Psychological Aspects of Black Behavior and Personality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:182 Workshop in Counselor Education</td>
<td>arr.</td>
</tr>
<tr>
<td>7C:185 The Drug Culture</td>
<td>p-3 s.h.</td>
</tr>
<tr>
<td>7C:187 Management and Motivation in Organizations and Activites</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>7C:183 Individual Instruction in Counselor Education: Undergraduate</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Master of Arts in Teaching
The M.A.T. program is a 28-semester-hour minimum nonthesis program designed for academically superior liberal arts graduates who included few or no professional education courses in their undergraduate programs. The program leads to a master's degree and certification as a secondary teacher in such fields as art, business, English, foreign languages, home economics, mathematics, science, and speech and drama. A grade-point average of at least 2.7 on undergraduate coursework is required for admission. At least 18 semester hours of graduate coursework in the student's proposed teaching field must be completed. A sufficient number of semester hours of graduate work in education (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 education. Of the minimum of 60 semester hours required for the degree, 28 are prescribed in the area of specialization; the remaining credit may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report. Other requirements and regulations applicable to the Ed.D. are the same as for the master's degree, except that 15 semester hours of relevant work on campus are required in one 12-month period or in two summer sessions, and coursework completed ten years prior to the final examination must be evaluated to determine the amount of credit that may be accepted toward fulfillment 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 research skills in coursework 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 taking limited coursework rather than a degree program. This program provides for minimal achievement and is appropriate for persons seeking salary credits, who are undecided about career plans, or whose applications 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 because of 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 admission requirements may be admitted under the classification, "certification only." With students in this program, the advisor plans the academic major and educational sequence expected 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 to graduate students to this program is as carefully reviewed as for degree programs. Persons who wish to meet certification requirements for positions other than a teacher (i.e., counselor, administrator, or curriculum specialist) and who meet basic requirements and need only a few courses to validate or update their certification should apply for professional improvement status. Admission to a certification only program requires a minimum undergraduate grade-point average of 2.5.

Bulletin
Prospective graduate students should write to the College of Education for the bulletin, Advanced Studies in Education which provides specific information about the various programs, admission procedures and requirements, and rules and regulations.
Support Units and Special Resources

The Center for Educational Experimentation, Development, and Evaluation develops proposals, conducts studies, publishes reports and monographs, and provides pre- and postdoctoral training. Its program relates to instructional technology, materials and systems design and development, research, demonstration and dissemination of research, and curricular products. It works in collaboration with federal, state, and private agencies, colleges, and cooperating school districts in design and conduct cooperative research, development, and evaluative projects.

The Computer-Based Education Laboratory offers hardware and consulting support for computer applications and instructional development related to ongoing instruction at the College of Education.

The Curriculum Laboratory provides materials primarily for students and faculty members interested in curriculum problems. It brings into a convenient central location approximately 10,000 elementary and secondary textbooks, reference books, courses of study, syllabuses, pamphlets, and non-print media such as films, slides, games, records, etc. The Laboratory also houses a 17,000-volume youth collection.

The Early Childhood Education Center provides practice, curriculum, and research opportunities for undergraduate and graduate students preparing to work with preschool-aged children. The center enrolls some 300 children—six to seven a day—from two months to five years. Both full-day and half-day programs are provided.

The Educational Media 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 videos, color slides, microfilms, super 8 films, thermals, transparencies and other materials related to instructional development.

The Educational Placement Office serves undergraduate teacher education students interested in teaching positions, as well as graduate students seeking other certificated 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, Erich microfilms, tests, and a reserved book room for students and faculty.

Instructional Activities for the Classroom Teacher is a cooperative program between the University of Iowa and the State Department of Public Instruction involving the whole state of Iowa. The purpose is to conduct an in-service program for all classroom teachers of the handicapped.

The Iowa Testing Programs staff develops standardized educational tests, such as the widely-used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research studies in educational measurement and evaluation, publishes brochures, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

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 19 NCA-member states. The NCA's primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels by self-evaluation of educational programs, visitation by evaluation teams and adherence to policies and standards for continued membership. The University of Iowa is a member, and the NCA supports the office of the NCA state commissioner.

The Reading Clinic makes possible investigation into the fundamental causes of reading deficiencies and experimentation with methods of overcoming these deficiencies. It provides opportunities for observation and practice in the diagnosis and teaching of severely retarded readers.

The University Hospital's Special 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 and directed by the College of Education. Opportunities are available for student teaching and practical experience in child 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 analysis of research.

University Counseling Services are facilities available to students in counseling psychology for research and practical purposes.

University Hospital School is a University-affiliated facility and, as such, it provides a viable balance of direct services to developmentally disabled students, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

The University Hospital School contains two unique, integrated service sections, a residential program for physically handicapped young students from throughout Iowa, and a day program for mentally retarded students 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 developmentally disabled youngsters, the University Hospital School has two other closely related functions—specialized training for workers and trainees in all areas concerned with handicapped children, and official research pertaining to causes and prevention of handicapping conditions.

The basic philosophy of the facility is to return children to their local community programs within the shortest possible time. This philosophy is reflected in the
Special Graduate Assistantships in Education

The Iowa Testing Programs and the Iowa Mesabi Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply provided they are United States or Canadian citizens. Assistantships are available for the academic year only, and, at the present, provide stipends similar to those for faculty assistants. Stipends are assigned to work under the direction of a faculty member in a research capacity, and must be enrolled for not less than 9 nor more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate) letters of recommendation, and an essay on the Graduate Record Examination (GRE) Aptitude Test. The application must be filed on or before March 15 of the year in which the student plans to enroll in the 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 at 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 advisees, colleagues, and other friends of Associate Dean Emerita L. A. Van Dyke in recognition of her significant contribution to education in the state and the nation, and is available to graduate students in secondary education with superior performance records as scholars and as teachers or administrators. For further information and application blanks, contact Professor J.E. McAdam, Division of Secondary Education, W104 Ever Hall, 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 McClanahan Award: To the outstanding candidate for an advanced degree in educational administration.

Paul C. Packer Award: To the outstanding candidate for the master’s degree in education.

Harvey H. Davis Award: An outstanding student in educational administration or higher education, particularly a student interested in the financing of education.

Pi Lambda Theta Graduate Award—M.A. and Ph.D.: To students interested in the professional areas of research, teaching or writing, and striking personal qualities.

Faculty

Nearly every percent of the members of the faculty with academic rank hold earned doctorates in their teaching fields, and 95 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 also hold academic rank in the College of Liberal Arts. A majority of the professors who teach secondary school methods have doctorates in their teaching disciplines, as well as preparation in education, and hold academic rank both in their academic disciplines and in education.
Counselor Education

Chair: E. Rhett Dunn
Faculty: professors: Ursula M. DeClements, E. Richard Douthit, Albert B. Hart, Leonard A. Miller
assistant professors: William L. Storer, David L. Stone
professor emeriti: C. Carl Fehlman
associate professor emeritus: L. Lynn Tate
Counseling: Norma Coggeshall, Robert Hanes, Philip Jones, Chris Langle, Carol R. Loggins, David M. Rossow
Admissions: Kathy Reasoner, Kishon Staley, Pearla D. Smith
Instructors: Erin Levoie, Wayne MacLevy, Julie Teasdale

Degrees offered: M.A., B.A., B.S.

The Division of Counselor Education is primarily involved in the training of practitioners and scholars at the graduate level, with degree programs in student development in postsecondary education, rehabilitation counseling, counseling and human development, counseling psychology, and substance abuse counseling. In addition, the division offers training in interviewing and interpersonal skills for students in other professional and graduate programs, as well as some basic courses in these areas for undergraduates.

Student Development in Postsecondary Education

Master of Arts

The M.A. program provides preparation for college positions in admissions, student activities, financial aids, student unions, career planning and placement, residence halls, foreign student services, community college counseling, adult continuing education, and external degree programs, and, with experience, as college teachers. Admissions require completion of a master's degree in counseling, student personnel work, or a closely related area, and a 3.0 grade-point average. Successful experience in college student personnel work or equivalent experience is desirable.

Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor-educator, researcher, associate dean or dean of students, or as director of admissions, student activities, financial aids, student unions, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education and external degree programs.
The M.A. thesis or its equivalent is not necessary for admission to the Ph.D. program, but to take the Ph.D. comprehensive examination, the student must offer an M.A. thesis or equivalent as evidence of ability to do research. Students whose credentials for admission are not entirely satisfactory may be admitted conditionally. Students admitted on a conditional basis usually are required to earn a 3.5 grade-point average to be admitted to regular status.

Counseling Psychology

Doctor of Philosophy

The program provides preparation in general psychology and research methods in order to help students become counseling psychologists who are competent both in the provision of a wide range of human services and in conducting research on a wide variety of psychological problems. Graduates teach courses in counseling, conduct their own research and direct that of their students, supervise counselor trainees, and consult with other student service personnel. Graduates occasionally take service positions in community mental health agencies or in private practice.

Frequently, applicants for admission to the program will have an undergraduate major or minor in psychology, or a major in some related field; a grade-point average of 3.0 or higher; Graduate Record Examination (GRE) Aptitude Test score of 1,200; and three letters of recommendation. A portfolio interview may be required before final evaluation. All application materials must have been received by January 1 of each year; students will be notified about March 15 concerning their applications. Very few students (four to eight) are admitted to the doctoral program each year.

Rehabilitation Counseling

Master of Arts

The M.A. program provides preparation for work in state rehabilitation agencies, sheltered workshops, rehabilitation centers, mental hospitals, prisons, and 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 highly desirable. Applications are reviewed March 1, for fall admission only.

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. Admissions 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.

Admission requirements for the M.A. program are a 2.5 minimum undergraduate grade-point average and completion by the applicant and his or her references of three forms supplied by the Office of Student Personnel, College of Education.

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.

Admission requirements are a master's degree or equivalent in counseling and experience as a counselor. A 3.0 minimum grade-point average on all graduate study, and the completion of forms supplied by the Office of Student Personnel, College of Education.

Doctor of Philosophy

The Ph.D. program provides preparation for teaching, leadership, and research positions in counseling.

Admission requirements are a 3.25 minimum graduate 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 is substance abuse counseling 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 some experience in the field is highly desirable.

Facilities

A wide variety of counselor education practicum experiences is 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 aid, graduate training fellowships may be available for students entering the rehabilitation counseling and drug counseling programs. Many other graduate students in the Division of Counselor Education hold a wide variety of graduate assistantships. For example, many of the University's student service units award part-time assistantships to graduate students in the college student personnel program. Applicants for assistantships should contact the coordinator of the particular counselor
Courses

For Undergraduates and Graduates

Counseling and Guidance

Counseling and Guidance

Counseling and Guidance

Counseling and Guidance

Counseling and Guidance

Counseling and Guidance

Counseling and Guidance

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Counseling and Guidance

Counseling and Guidance
successful teaching experience with a valid teaching certificate; have earned at least 20 semester hours of graduate credit in a planned program in general school administration at The University of Iowa; and have a master's degree.

In addition, each certificate has these requirements:

Elementary Principal (Endorsement 11): completion of the educational administration program with elementary school emphasis; Secondary Principal (Endorsement 22): completion of the educational administration program with secondary school emphasis; and Superintendent (Endorsement 11): 60 semester hours of graduate work in a planned program in general school administration.

M.A. in Educational Administration

The purpose of this program is to prepare individuals for appointments as elementary or secondary school principals, central staff, or a position with a state department of education or positions with area education agencies. The student may take the program with the 30 semester hour minimum or without (32 semester hours minimum).

Course Requirements

With the aid of his or her advisor, the student prepares a plan of study including these general requirements:

7F:117 Philosophies of Education 2-3 s.h.
7F:121 Educational Psychology 3-4 s.h.
7D:201 Foundations of School Administration 3 s.h.

The student must specialize in elementary, secondary, or central staff administration, by completing one of the programs outlined below. The candidate may choose options approved by his or her advisor in satisfy degree requirements.

Elementary School Administration

7F:180 Educational Measurement for the Classroom Teacher 2-3 s.h.
7D:261 Elementary School Principal 3 s.h.
7D:262 Elementary School Organization Patterns 3 s.h.
7E:100 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle School 3 s.h.
7D:304 Seminar: Elementary Supervision and Administration 2-3 s.h.
7D:383 Supervision of Instruction 2-3 s.h.

Two of the following:

7D:303 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
7D:301 Analysis and Appraisal of Curriculum 2-3 s.h.
7E:204 Analysis and Selection of Children's Literature to Develop Educational Environments 3 s.h.
7E:200 Supervision of Elementary School Language Arts 3 s.h.
7E:201 Supervision of Elementary School Social Studies 3 s.h.
7E:202 Advanced Techniques in Teaching Science in the Elementary School 3 s.h.
7E:293 Supervision of Elementary School Mathematics 2-3 s.h.
7E:294 Building Foundations for Reading: Preprimary and Primary 2-3 s.h.
7E:205 Supervision of Intermediate Grades Reading 3 s.h.
7E:287 Supervision and Curriculum Development in the Kindergarten and Early Primary 2-3 s.h.
or
7E:290 Supervision and Curriculum Development in Pre-Kindergarten Care and Education 3 s.h.
7E:280 Supervision of Student Teachers and Auxiliary Personnel 2-3 s.h.

Secondary School Administration

7D:200 Computer Applications in Education 2-3 s.h.
7D:290 Secondary School Principal 3 s.h.
7E:168 Curriculum Foundations 2-3 s.h.

Same as 7D:100

7D:280 Improving Instruction in the Secondary School 3 s.h.
7D:270 Issues and Trends in School Guidance 2-3 s.h.
7D:291 Secondary School Curriculum 2-3 s.h.
7P:143 Introduction to Statistical Methods 3 s.h.

Central Staff Administration

7P:143 Introduction to Statistical Methods 3 s.h.
7D:203 Computer Applications in Education 2-3 s.h.
7D:205 Financial Management of Local School Systems 3 s.h.

Thesis

A student selecting the M.A. program with thesis must take 7D:395 M.A. Thesis in Education Administration and pass an oral examination on the thesis.

Comprehensive Examinations

The student takes two three-hour examinations in areas of emphasis selected with the approval of his or her advisor.

Ed.5. in Educational Administration

This program is designed to enable educational personnel to meet original certification requirements or to upgrade their background and skills to prepare them for positions as principals, superintendents, and other administrative and supervisory positions in educational agencies. A student desiring certification plans a program approved by his or her advisor to meet state certification requirements.

Course Requirements

7P:131 Educational Psychology 5-4 s.h.
7F:117 Philosophies of Education 2-3 s.h.
7D:201 Foundations of School Administration 3 s.h.
7D:206 Theory in Administration 3 s.h.
Program Emphasis

Students must complete the balance of their minimum required hours (minus cognates and electives) from the following areas of emphasis. Courses specifically listed in each area of specialization are the required courses.

Elementary School Administration

7P: 150 Educational Measurement for the Classroom Teacher 2-3 s.h.
7D: 251 Elementary School Principal 3 s.h.
7D: 262 Elementary School Organization and Administration 3 s.h.
7E: 300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
7E: 303 Seminar: Administration and Coordination of Curriculum 3 s.h.
7D: 304 Seminar: Elementary Supervision and Administration 2-3 s.h.
7D: 381 Analysis and Appraisal of Curriculum 2-3 s.h.
7D: 383 Supervision of Instruction 2-3 s.h.

Secondary School Administration

7E: 186 Curriculum Foundations 2-3 s.h. (same as 7E: 186)
7P: 150 Educational Measurement for the Classroom Teacher 2-3 s.h.
7D: 203 Computer Applications in Education 2-3 s.h.
7D: 280 Secondary School Principal 3 s.h.
7D: 290 Improving Instruction in the Secondary School 3 s.h.
7E: 291 Secondary School Curriculum 2-3 s.h.
7C: 270 Issues and Trends in School Guidance 2-3 s.h.
7P: 143 Introduction to Statistical Methods 3 s.h.

General School Administration

7E: 300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
or
7E: 391 Secondary School Curriculum 2-3 s.h.
7D: 203 Computer Applications in Education 2-3 s.h.
7D: 201 Administration of Professional Personnel 2-3 s.h.
7D: 206 Financial Management of Local School Systems 3 s.h.
7D: 208 Legal Aspects of School Personnel 2-3 s.h.
or
7D: 209 Legal Aspects of School Administration 2-3 s.h.
7P: 143 Introduction to Statistical Methods 3 s.h.

Cognates

The student must complete a minimum of 8 semester hours bearing a cognate relationship to educational administration, subject to the advisor's approval.

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 systems.

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 instruction.

Comprehensive Examination

The comprehensive examination for the Ed.S. degree comprises one three-hour examination in educational administration and one three-hour examination in a specialized area either in educational administration or in a related or cognate field.

Ph.D. in Educational Administration

The purpose of this program is to prepare students for positions at all levels of school administration, to do research in 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 to best equip the individuals for their career objectives. As a general guideline, the student is expected to have a general background in professional education, educational administration, and an area 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, moral aspects, theory, and school personnel. Students specializing in general and secondary administration must complete a 10-semester-hour cognate outline the College of Education. Proficiency is two tool research areas must be demonstrated.

Comprehensive Examinations

Each doctoral student must complete satisfactorily three three-hour examinations in areas approved by the student's advisor and the division chair. One of these examinations will be based on the general field of educational administration. The other two examinations will be based on 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 educational administration advisor 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 either doctoral students provided they meet the necessary prerequisites for
specific course registration. The student must complete approximately 12 semester hours in one area of specialization below requesting a comprehensive examination. If the student decides to seek a field of educational administration as a related comprehensive area, the student should plan to complete approximately 18 semester hours of diversified coursework in educational administration.

Research
Dissertation Prospectus
The student must write a formal dissertation prospectus and submit it to the doctoral committee for approval. The student and advisor determine the time for completing the prospectus. Final evaluation of the prospectus is made in a meeting of the committee.

Completion of the Dissertation and Final Examination
The student must accumulate 10 semester hours of credit in research for the dissertation. Work for the doctorate culminates in a final oral examination toward the dissertation. The student usually takes the examination within a month of his or her anticipated time of graduation. The student must be registered at the University during the semester in which he or she graduates.

Admission
Applicants must satisfy minimum requirements of the Graduate College. Candidates are selected through faculty review. Factors considered include grade-point average, Graduate Record Examination (GRE) Academic Test scores, and other evidence of academic ability and professional promise.

Courses
Educational Administration
70:989 The Teacher and the Law 3 s.h.
70:981 Foundations of School Administration 3 s.h.
70:983 The Nature of Educational Administration 3 s.h.
70:985 Educational Management 3 s.h.
70:987 Financial Administration and Management 3 s.h.
70:988 Personnel Administration 3 s.h.
70:989 Guidance and Counseling 3 s.h.
70:990 Educational Leadership 3 s.h.
70:991 Administration and Leadership of Elementary Schools 3 s.h.
70:992 Administration and Leadership of Secondary Schools 3 s.h.
70:993 Administration and Leadership of Higher Education 3 s.h.
70:994 School Law 3 s.h.
70:995 School Finance 3 s.h.
70:996 School Personnel Administration 3 s.h.
70:997 School Public Relations 3 s.h.
70:998 School Safety and Security 3 s.h.
70:999 Special Topics in Educational Administration 3 s.h.

Research
Dissertation Prospectus
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Completion of the Dissertation and Final Examination
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Courses
Educational Administration
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70:981 Foundations of School Administration 3 s.h.
70:983 The Nature of Educational Administration 3 s.h.
70:985 Educational Management 3 s.h.
70:987 Financial Administration and Management 3 s.h.
70:988 Personnel Administration 3 s.h.
70:989 Guidance and Counseling 3 s.h.
70:990 Educational Leadership 3 s.h.
70:991 Administration and Leadership of Elementary Schools 3 s.h.
70:992 Administration and Leadership of Secondary Schools 3 s.h.
70:993 Administration and Leadership of Higher Education 3 s.h.
Early Childhood and Elementary Education/education

730:365 Educational Specialist Research in Educational Administration
Supervisor of the design, research, and writing of a research project of significant quality for upper-level classes which promotes an individual instruction training. 1 cr. Prerequisite: consent of instructor.

730:482 P.R. Teaching in Educational Administration
Supervisor of the research, design, and writing of a thesis at the P.R. level provided in an individual instruction format. Prerequisite: consent of instructor.

Early Childhood and Elementary Education
Chair: Jerry N. Kahn

The division's programs are designed to prepare graduates for employment in specific positional roles in public schools and institutions of higher learning. All of its programs have been approved by the Iowa Department of Public Instruction and the National Council for Accreditation of Teacher Education Approval standards.

Undergraduate Programs in Early Childhood Education
Students pursuing a major in early childhood education may elect to meet requirements for either the B.A. or the B.S. degrees. The B.A. degree requires four years of study or the equivalent in one foreign language. The B.S. degree requires two semesters of study or the equivalent in one foreign language. In all other respects the B.A. and B.S. degree requirements are identical.

Preparation for early childhood teaching involves study of child development, parent-child relationships, and organization and administration of child care centers, in addition to curriculum and methodology appropriate for young children. The program involves wide reading, creative planning, and application of knowledge in working with groups of young children in public or private early childhood centers or classrooms. The early childhood education program is designed specifically to prepare students to teach children in an interdisciplinary setting, in classes for three-, four-, and five-year-old children, and in kindergartens, and meets the requirements of the Iowa Endorsement 53 for early childhood-kindergarten teachers. Students interested in dual certification at the prekindergarten-kindergarten level and the kindergarten/elementary level should elect the elementary education major as described in a subsequent section and in early childhood education area of specialization. A student successfully completing this combination is eligible for Iowa teaching certificate endorsements 10 (K-8) and 53.

Students majoring in early childhood education must complete the science/mathematics foundation designated for them as a prerequisite to enrolling in TE 182 Methods: Elementary School Sciences and TE 183 Methods: Elementary School Mathematics. This prerequisite may be satisfied in one of three ways:

Satisfactory completion of 67:55-58 Science Foundations I-II, and 22M:60 Theory of Arithmetic; or
Satisfactory completion of equivalent courses offered by a year approved college or university; or
Completion of eight semester hours of other science and mathematics courses which satisfy the College of Liberal Arts natural science core requirement, and the passing of special tests administered by the University's Examinations and Examination Service administered with the content of 67:55-58 and 22M:60.

Students not passing the science examination must register for 77:104 Science Foundations I, Students not passing the mathematics examination must register for 22M:30 Theory of Arithmetic.

Undergraduate students should complete these required foundation courses in their sophomore year.
Students seeking Iowa Department of Public Instruction approval to teach preschool handicapped children should refer to the "Special Education" section of the Catalog.

Copies of the requirements for each area of specialization are available in the College of Education office and at the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass/fail if they are offered on the pass/fail option.

Student Teaching
Students should submit student teaching applications to the College of Education by March 1 of the preceding academic year during which they plan to do their student teaching. Students register for student teaching under 7E:158 Supervised Teaching in an Early Childhood Center. The student teaching period is one full semester for 16 semester hours of credit. This is considered a full load, and a student must have special approval from the division chair to register for any additional coursework.

Undergraduate Programs in Elementary Education

Students pursuing a major in elementary education may elect to meet requirements for either the B.A. or the B.S. degree. The B.A. degree requires four semesters of study or the equivalent in one foreign language. The B.S. degree requires four semesters of study or the equivalent in one foreign language. In all other respects the B.A. and B.S. degree requirements are identical.

Elementary teachers serve in a variety of school organizational patterns, including self-contained rooms wherein the teacher assumes responsibility for most of the curricular areas, departmental positions wherein their responsibilities are concentrated in one or two subject areas, and team-teaching arrangements wherein two or more teachers assume shared responsibility for the total instructional endeavor. Preparation for elementary teaching involves the acquisition of a broad general education background. In-depth study of at least one elementary curriculum subject area. And professional study of the learning process, of the instruction and structure of curricular materials suitable for school age children, and of the methological procedures most appropriate for presenting these materials. Study in the program is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is designed specifically to prepare students to teach kindergartners through sixth grade. Special sequences are also available for students seeking the prekindergarten/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 science-mathematics core requirement is the same for this program as for the early childhood education program.

Undergraduates should complete these fundamentals requirements in the sophomore year:

7E:91 Pre-education Practicum 2 s.h.
7E:100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
7P:75 Educational Psychology and Measurement 3 s.h.

Graduate students may elect equivalent graduate-level courses with the approval of their advisors.

The student must complete their elementary methods sequence to be eligible for student teaching:

7E:160 Methods: Elementary School Language Arts 3 s.h.
7E:161 Methods: Elementary School Social Studies 3 s.h.
Early Childhood and Elementary Education/EDUCATION

7E:183 Methods: Elementary School Science 2 s.h.
7E:183 Methods: Elementary School Mathematics 2 s.h.
7E:184 Methods: Elementary School Reading 3 s.h.

Areas of Specialization
An area of specialization is required in a teaching field. The areas of specialization offered are: elementary art, the arts in early childhood and elementary education, bilingual education, early childhood, health education, elementary language arts, elementary mathematics, multicultural education, elementary music, elementary reading, elementary physical education, elementary sciences, elementary social science, special education, and elementary guidance.

The student should consult with his or her adviser concerning courses which will serve to strengthen preparation for teaching in a subject area and meet the specific requirements for that area. Copies of the requirements for each area of specialization are available in the College of Education office and at the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass/fail if they are offered with the pass/fail option.

Student Teaching
Regardless of the area of specialization selected, students must complete a minimum of 15 semester hours of credit in student teaching. Students should apply to the College of Education by March 15 preceding the academic year during which they plan to do their student teaching. No more than two assignments will be made in any one semester.

Most students in this program will register in 7E:191 Supervised Teaching in the Elementary School: Interactive Phase for 6 semester hours and 7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase for 7 semester hours. This is considered a total load, and a student must have specific approval from the division chair to register for any additional coursework.

In certain areas of specialization, other registration patterns are required. The most common of these are:

7E:191 Supervised Teaching in the Elementary School: Interactive Phase 4 s.h.
7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 4 s.h.
7E:195 Supervised Teaching in an Early Childhood Center 7 s.h.
7E:191 Supervised Teaching in the Elementary School: Interactive Phase 7 s.h.
7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 6 s.h.
7E:192 Laboratory Practice in Elementary School 2 s.h.
7E:191 Supervised Teaching in the Elementary School: Interactive Phase 4 s.h.
7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 4 s.h.
7E:191 Supervised Teaching with Physically Handicapped 7 s.h.
7E:191 Supervised Teaching in the Elementary School: Interactive Phase 4 s.h.
7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 4 s.h.
7E:192 Supervised Teaching with Mentally Retarded 7 s.h.

Students should consult with their advisers concerning the appropriate registration pattern.

Master of Arts in Elementary Education
This degree program, which may be taken with thesis (30 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 12.

Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in either early childhood or elementary education.

Only one course, 7E:200 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools, is specifically required of all candidates, but each candidate must elect at least one course in each of these areas: social foundations, educational psychology and measurement, and supervision. In addition, each candidate must complete an area of specialization and selected coursework in advanced methodology.

Graduate students who have not completed an undergraduate program in elementary education may be admitted as "certification only" candidates.

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. The program may be taken with thesis (30 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.

Four courses are required of all candidates:
7E:242 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
7E:202 The Science Curriculum in the Elementary School 2-3 s.h.
7S:350 Seminar: Science Education 1 s.h.
7E:282 Current Readings in Science Education 2 s.h.

In addition, all candidates must complete a total of 16 to 20 semester hours of coursework in two sciences areas, including a minimum of 10 semester hours in the major science area. Candidates' advisers must approve courses they select in the two areas and all electives.
Master of Arts in Developmental Reading

This degree program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1-12. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist, Iowa Endorsement 54. The program is offered with thesis (30 semester hours minimum) and without thesis (32 semester hours minimum). The following are required of all candidates:

TE:171 Reading Clinic: Teaching Techniques 2-3 s.h.
TE:172 Reading Clinic: Teaching Practice 2-3 s.h.
TE:254 Building Foundations for Reading: Pre-Primary and Primary 2-3 s.h.
TE:265 Supervision of Intermediate Grade Reading 3 s.h.
TE:354 Methods: High School Reading 2-3 s.h.
TE:364 Seminar: Elementary Reading 2-3 s.h.
or
TE:294 Seminar: Secondary Reading 2-3 s.h.

In addition, candidates must complete one or more courses each in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the advisor's approval.

Doctor of Philosophy in Elementary Education

The purpose of this program is to provide candidates for college and university teaching and research positions in elementary education and for research, curriculum, supervisory, and administrative positions in public school systems and governmental agencies.

The program requires a minimum of 80 semester hours, including hours earned for the dissertation. Each student prepares an individual plan of study in consultation with an advisor. The final plan must be approved by the advisor and the division chair.

As a general guideline, each student is expected to have a strong 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 concentration. The external-fund may be a professional specialization, such as educational psychology and measurement, special education, or parental school administration, or it may be a subject field, such as English. In addition, all students must demonstrate competency with respect to appropriate research tools, most commonly statistical analyses and data processing.

Assistantships

A number of teaching assistantships are available for graduate students pursuing advanced programs in early childhood and elementary education. Specific assignments vary. Some assistantships involve teaching in a Good Child Learning Center. Some involve the supervision of undergraduate majors enrolled in TE:351 Pre-Education Practicum; and some involve the teaching of selected sections of undergraduate methods courses and the supervision of student teachers. Most assistantships are classified as assistantships. This classification permits students to register for a maximum of 12 semester hours of credit per semester. Holders of 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 be in standing regular status of 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

TE:111 Growth and Motor Development 2 s.h.
Theoretical bases for elementary physical education, safety, and activities for children of elementary and secondary school ages. The physical education major only.

TE:130 Methods and Materials: Elementary School Physical Education 2 s.h.
Practical considerations and curricular offerings for prospective teachers of elementary school physical education. For physical education majors only. Offered spring semester. Prerequisites: TE:111, 251, or consent of instructor. Same as 251.

TE:250 Nutrition and Nutrition Practice 3 s.h.
dietetic students spend 6 hours per week working with children and teachers in elementary schools and/or early childhood centers. Prerequisites: TE:250, TC:151, or TE:251.

TE:252 Instruction: Elementary and Early Childhood Teaching 3 s.h.
Overview of elementary and early childhood education including general professional learning, principal responsibilities, administrative functions, and introduction to education, and general school organization, and common terminology.

TE:253 Introduction to Education 3 s.h.
Basic examination in the role of education: considerations of the purposes, functions, institutions, and procedures, and contemporary problems in both elementary and secondary levels. Same as 321, 326.

TE:255 Nonfiction Writing with Children 3 s.h.
Critical reading and manuscript techniques currently used in fiction education of children. Prerequisites: 17:41 or consent of instructor. Same as 17:101.

TE:265 Remedial Methods in Speech and Hearing 3 s.h.
Emphasis on elementary methods, curricula, and techniques used in consultation with TE:150, which provides supervised 75-clock-hour supervised clinical practice in elementary schools. Prerequisite: speech pathology and audiology major. Prerequisite: consent of instructor.

TE:256 Workshop in Elementary Science Study Program in Elementary Science 3 s.h.
Familiarization with the concept, resources, and techniques required for the science teaching curriculum. Teaching units. Teachers may select units to construct a course of their best local needs.

TE:257 Introduction to Environmental Studies for E:60 3 s.h.
an introduction to materials and activities available for introductory environmental studies in the K-6 classroom as a course sequence and means of supplementing existing curricula. Same as 356.

TE:258 Implementation of Environmental Studies for E:60 3 s.h.
Program planning, preparation of seasonal activities in the area of environmental issues, contacts with community implementation or implementation. Same as 357.

TE:259 Continuation of Environmental Studies for E:60 3 s.h.
Coursework on the above.

TE:260 Workshop: Introduction to the Science: A Process Approach 3 s.h.
Familiarization with the process, relationships and methodology of science. A Process Approach (SPA), an elementary science program initially developed at the University of Iowa, is used.

TE:261 Workshop: Introduction to the Science Curriculum Improvement Study Program in Elementary Science 3 s.h.
Focus is on activities which support science curriculum development grade 4-6. Place special emphasis on organization, content, and relevance of SCSIP program.
Minor

The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division adviser selected 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.

Master of Arts in Educational Psychology

This program provides an overview of educational psychology as an area of scholarly inquiry. It includes coursework in human development, principles of learning and teaching, educational measurement, and research methods. The program does not prepare the student for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds.

Students may take this degree with or without thesis. The degree without thesis requires a minimum of 32 semester hours of coursework. The degree with thesis requires a minimum of 28 semester hours of coursework 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 advisers, choosing courses from the following four areas: teaching and learning, developmental approaches, measurement and research, and social foundations of education. Students must take at least one course in each of these areas and a concentration (three courses) in at least two areas. The faculty encourages degree candidates to enroll in at least two courses outside the division. Courses in elementary or secondary curriculum supervision, special education, counseling, and psychology are commonly used to meet this requirement.

The program culminates in six hours of comprehensive examinations over the student's areas of concentration. The adviser develops the plan for these examinations in consultation with the student and the other members of the student's committee.

The admission requirements are the same as those established by the Graduate College. Teaching experience is desirable but not required. The faculty reviews applications as they are received.

Master of Arts in Educational Measurement and Statistics

A master's degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and data analysis. Such positions occur in research centers, testing organizations, large school systems, and state educational agencies. The program is also appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development.

The degree may be taken without thesis (30 semester hours minimum) or with thesis (minimum of 28 semester hours of coursework plus 2 to 4 semester hours of thesis credit). All students must complete a core of courses totaling 18 to 20 semester hours. Included in 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 three-hour examinations in educational measurement and in applied statistics (classical or Bayesian). With the approval of the M.A. committee, the student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations require a minimum of three courses in the area; two-hour examinations assume a minimum of two courses 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 other compelling evidence of superior ability, the faculty may approve acceptance on a conditional basis. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable. The faculty reviews applications as they are received.

Master of Arts in Reading Disability

This program provides training in the diagnosis of reading disabilities and the prescriptive teaching of reading. Graduates of the "remedial program can qualify for certification as reading specialists. They typically return to classroom teaching or take positions as reading clinicians, supplementary reading teachers, or reading consultants. Graduates 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:170 Introduction to Psychology of Reading 3 s.h.
7P:173 Survey of Diagnostic/Prescriptive Approaches to Reading Instruction in Grades K-12 4 s.h.
Doctor of Philosophy in Educational Psychology

This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practices. Such careers include professorships at the university and college level, and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concentration in the area of reading disabilities prepares students for careers as reading consultants, directors of reading clinics, and professors who train diagnostic and prescriptive reading specialists.

The program includes emphases in three substantive areas—teaching and learning, motivation and cognitive processes, and human development. In addition, students take considerable coursework in measurement, statistical analysis, and research methodology.

All students must meet the following minimum course requirements or approved equivalents in the first 24 semester hours following admission to the program:

- 7P-142 Introduction to Statistical Methods
- 7P-243 Intermediate Statistical Methods
- 7P-270 Advanced Psychology of Reading
- 7P-273 Reading Clinic: Diagnostic Practice
- 103-100 Introduction to Linguistics

Students must complete the major portion of their coursework within the field. Students are encouraged to follow a reading consultant 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. When the applicant's total score on the verbal and quantitative parts of the Graduate Record Examination (GRE) Aptitude Test is below 1000, and no entering 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 when they are received.

Group A

- 7P-105 Learner Characteristics
- 7P-106 Child Development
- 7P-108 Personality and Mental Hygiene

Group B

- 7P-131 Educational Psychology
- 7P-181 Introduction to Theories of Learning
- 7P-183 Cognitive Development in Children: An Introduction to Piaget
- 7P-200 Individual Differences and Teaching
- 7P-208 Advanced Child Development

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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 colleges and universities, state departments of education, large public and private school systems, testing agencies, and research centers.

Every student must complete the following core courses or their equivalents:

- **7P:131 Educational Psychology** 
  3 s.h.
- **7P:243 Intermediate Statistical Methods** 
  4 s.h.
- **7P:148 Bayesian Statistics** 
  3 s.h.
- **7P:255 Construction and Use of Evaluation Instruments** 
  3 s.h.
- **7P:257 Educational Measurement and Evaluation** 
  3 s.h.
- **7P:244 Correlation Methods** 
  3 s.h.
- **7P:245 Design of Experiments** 
  4 s.h.
- **7P:280 Educational Research Methodology** 
  3 s.h.

The student’s advisor will suggest additional coursework in areas appropriate to the student’s interests and vocational objectives. These courses typically include additional work in educational measurement, applied statistical methods, scaling of measures, and educational psychology.

Students who concentrate in the area of statistics, with the intention of teaching on the college level, will be required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education. All students must develop familiarity with computer programming techniques and processing equipment.

Quantitative work in the program will be completed as a M.A. thesis; the student will be required to complete a substantive project approved by three members of the division faculty. The project must be completed before the writing of a doctoral comprehensive examinations. A minimum of 90 semester hours is required for the degree, including 12 to 18 semester hours of thesis credit.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division faculty will consider course grades, evidence of critical and analytical skills, development during the previous year, and promises for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied will be dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, those consist of three three-hour written examinations over the fields of applied statistics, educational measurement, and educational psychology or an approved substantive area. A substitute area will generally be one in which the candidate has at least 9 semester hours of coursework. In lieu of one written examination, the student’s committee may assign a project involving analytical, evaluative skills, or research creativity. The written examinations are followed by an oral examination in which the candidate’s committee members may seek further evidence of the candidate’s command of the three fields. A single decision is rendered on all aspects of the comprehensive examinations.

Applicants for admission to the program must hold an M.A. degree from an accredited institution. The grade-point-average requirement is the same as that required by the Graduate College. III. If an applicant’s scores on the verbal and quantitative sections of the Graduate Record Examination (GRE) Aptitude Test total less than 1000, and there is no satisfying evidence of superior ability, the applicant will be rejected. The student who expects to concentrate in the area of statistics should have training in college mathematics through differential and integral calculus. The absence of such training is a deficiency which must be made up during the first year of residence. At least one year of professional experience in teaching, research, or a related field is highly desirable. The faculty reviews applications as they are received.

Doctor of Philosophy in Educational Psychology with Concentration in Reading Disability

This program prepares graduates for careers as college teachers, as directors of research or 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 elective courses, however, will include those pertinent to the area of reading and relevant 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.
Financial Aids
The division normally employs two graduate students as teaching assistants in educational psychology and two in educational statistics. These are 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. These positions are generally awarded to experienced doctoral students in either educational psychology or educational measurement and statistics. Possible candidates may 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 tests programs cited above. Inquiries should be directed to the program directors.

Courses
79-112.G1 Introducing the Social Development of Children 15 s.h.
79-121.02 Factors Influencing Social Behavior of Children 15 s.h.
79-124.03 Industrial Psychology and Personnel Management 15 s.h.
79-125.04 Personality and Social Psychology 15 s.h.
79-126.05 Social Psychology, Group Dynamics and Community Organization 15 s.h.
79-127.06 Socio-cultural Development of Children 15 s.h.
79-128.07 Development of Educational Programs and Policies 15 s.h.
79-129.08 Cultural and Educational Dimensions of Human Behavior 15 s.h.
79-130.09 Development of Educational Programs and Policies 15 s.h.
79-131.10 Social Psychology, Group Dynamics, and Community Organization 15 s.h.
79-132.11 Industrial Psychology and Personnel Management 15 s.h.
79-133.12 Factors Influencing Social Behavior of Children 15 s.h.
79-134.13 Introducing the Social Development of Children 15 s.h.
79-135.14 Industrial Psychology and Personnel Management 15 s.h.
79-136.15 Personality and Social Psychology 15 s.h.
79-137.16 Socio-cultural Development of Children 15 s.h.
79-138.17 Development of Educational Programs and Policies 15 s.h.
79-139.18 Cultural and Educational Dimensions of Human Behavior 15 s.h.
79-140.19 Development of Educational Programs and Policies 15 s.h.
79-141.20 Social Psychology, Group Dynamics, and Community Organization 15 s.h.
79-142.21 Industrial Psychology and Personnel Management 15 s.h.
with GSE scores of less than 1000 and/or grade-point averages below 2.5 may be admitted conditionally. Teaching or relevant work experience may be helpful.

Educational Specialist

The general purpose of the Ed.S. program is to provide specialized training in instructional design and technology beyond that attained in the M.A. program. The program requires a minimum total of 90 semester hours. Admission requirements are the same as for the M.A., except that a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission.

Doctor of Philosophy

The general purpose of the Ph.D. program is to provide a broad background for students interested in teaching, research, and leadership positions in instructional design and technology. There is relatively heavy emphasis in this program on helping the student acquire the research-based knowledge and skills necessary to expand his or her understanding of learning and instruction and of the factors which influence them. The program requires a minimum total of 90 semester hours. Admission requirements are the same as for the M.A., except that a minimum grade-point average of 3.2 on all previous graduate work is required for regular admission.

Courses

**71017 Psychoanalyses of Instructional Design** 3 hrs.

Basic research on instructional design models, instructional design, instructional development and evaluation, approaches to instructional design, and techniques used in instructional design.

**71017 Communicate Through Models** 3 hrs.

Basic theory and practice for planning, organizing, and evaluating communication processes, including the planning and evaluation of instructional models and the development and evaluation of instructional designs.

**71040 Communication and Media Management** 3 hrs.

Introduction to media and mass communication, including the principles of interpersonal, group, and mass communication, as well as the role of media in society and the mass media industry.

**71105 Instructional Design and Technology** 3 hrs.

Introduction to instructional design and technology, including theory, methods, and applications. Focuses on the design and development of instruction and technology for various educational settings.

**71130 Introduction to Instructional Development** 3 hrs.

Introduction to instructional design and technology, emphasizing the role of the instructional designer in the development of educational programs.

**71140 Descriptive Techniques** 3 hrs.

Descriptive techniques for evaluating educational systems and programs, including qualitative and quantitative methods.

**71150 Pharmacology for Instructional Design** 3 hrs.

Pharmacology as it relates to teaching, learning, and instructional design, including the use of technology in educational settings.

**71160 Psychology of Instructional Design** 3 hrs.

Psychological principles as they relate to teaching, learning, and instructional design, including the use of technology in educational settings.

**71180 Special Topics in Instructional Design and Technology** 3 hrs.

Special topics in instructional design and technology, with emphasis on current research and trends.

**71180 Independent Study Undergrad and Grad** 3 hrs.

Independent study in an area of special interest under the supervision of a faculty member.

**71200 Designing Instruction for Computer Applications** 3 hrs.

Designing instruction for computer applications, including the use of technology in educational settings.

**71230 Advanced Technological Design and Development** 3 hrs.

Advanced technological design and development, with emphasis on the use of technology in educational settings.

**71250 Advanced Studies in Educational Media** 3 hrs.

Advanced studies in educational media, focusing on the role of technology in educational settings.

**71260 Instructional Design and Technology** 3 hrs.

Instructional design and technology, with emphasis on the use of technology in educational settings.

**71270 Instructional Design and Technology** 3 hrs.

Instructional design and technology, with emphasis on the use of technology in educational settings.

**71270 Instructional Design and Technology** 3 hrs.

Instructional design and technology, with emphasis on the use of technology in educational settings.

**71270 Instructional Design and Technology** 3 hrs.

Instructional design and technology, with emphasis on the use of technology in educational settings.

**71270 Instructional Design and Technology** 3 hrs.

Instructional design and technology, with emphasis on the use of technology in educational 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 core requirements in the College of Liberal Arts, students will complete courses in professional education and additional coursework in the health occupations education specialty field(s) and supporting areas.

Students making application to this program must currently hold appropriate certification, licensure, or residency appropriate to the area of health occupations education in which they wish to teach, e.g., dental assisting, medical office assisting, respiratory therapy, and the like. The health occupations education major is planned upon this base, and provides work in professional education and the liberal studies appropriate to teachers who wish to acquire a baccalaureate degree.

Applicants to this program must satisfy criteria for admission to the Teacher Education Program (T.E.P.) of the College of Education.

Program requirements:
Coursework in Professional Education
7P: 131 Educational Psychology 3-4 s.h.
7P: 150 Educational Measurement for the Classroom Teacher 2-3 s.h.
Appropriate coursework in social foundations

Curriculum and Teaching Procedures
One course from each group:
7W: 120 Introduction to Instructional Design and Technology 3 s.h.
or
7W: 121 Designing and Developing Instructional Materials 3 s.h.
or
7W: 122 Choosing Instructional Strategies 3 s.h.
or
7H: 112 Teaching of Adults 3 s.h.
Specialist in Education

The Ed.S. program in postsecondary education provides preparation for undergraduate-level teaching in two- and four-year colleges, and for administrative positions in higher education who are not planning to continue for a doctorate.

The Ed.S. degree may be awarded upon completion of a joint program totaling at least 80 semester hours of graduate work in higher education and an academic field, or upon completion of a higher education sequence following a master’s degree program. In either case, the candidate must fulfill these degree requirements:

- Completion of 18 semester hours, including a structured internship, in professional education and related fields appropriate for college teaching or administration;
- Completion of a minimum of 28 semester hours in the candidate’s area of specialization (teaching field or administration);
- Completion of 10 semester hours of electives approved by the candidate’s advisor;
- Completion of a 4-semester-hour research project in 9H365 Educational Specialist Research in Higher Education; and
- Comprehensive examinations.

Comprehensive examinations for the college teaching track are as follows:

7H:271 The Community College 2-3 s.h.
7H:230 Intern Seminar 3 s.h.
7H:330 College Teaching Internship 9 s.h.
7H:175 Post-High School Staff Development Workshop 1-2 s.h.
7W:81 Audiovisual Equipment for Instruction 1 s.h.
7P:131 Educational Psychology 3 s.h.
7X:170 Human Relations for the Classroom Teacher 1-3 s.h.
An approved American history or government course 2 s.h.

Course requirements for the administrative track are determined by the student in consultation with his or her advisor.

The comprehensive examinations include a three-hour written examination on the candidate’s area of concentration (college teaching or administration), a three-hour written examination covering the candidate’s area of specialization within the area of concentration; and an oral examination covering both the area of concentration and the area of specialization.

Students majoring in higher education with a college teaching concentration may write a second examination in their teaching field, or in one of the examinations on the area of specialization.

Students majoring in another field and desiring to complete a research field in higher education should consult with an adviser in higher education early in their studies. In consultation with the student, the adviser will develop a plan of study individually for the student.

Teaching Internship

Program participants teach half-time for a full semester at cooperating community colleges under the supervision of an experienced faculty member in that community college, 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 internship.

Participants must be willing to travel to a community college and reside there for the one-semester program. Some interns are accommodated at nearby community colleges, but preference will be given to those willing to travel for that experience.

Admission

Applicants for admission to the Ed.S. program in higher education must satisfy the general requirements for admission to the Graduate College. Candidates are expected to have completed one year of graduate work, with a grade-point average of at least 3.00, and promise for professional growth. Those who do not have GRE scores, and those letters of recommendations are required and recommended. An interview is encouraged.

Doctor of Philosophy (Ed.D.)

The Ph.D. program continues to attract persons who are likely to serve as top-level administrators, specialists, researchers, or 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).

The program requires a minimum of 90 semester hours beyond the bachelor’s degree.

The candidate chooses one area of concentration and must earn 16 to 24 semester hours of credit in that area. Ordinarily the candidate chooses a minor (12 to 30 semester hours) that complements the area of concentration. The dissertation research (10 to 15 semester hours) is expected to deal with a specific problem in the area of concentration. These three components—concentration, minor, and dissertation research—comprise a major part of the typical doctoral program, and give the student the opportunity to specialize.

While the doctoral program places heavy emphasis on administration at both the theoretical and applied levels, the student is expected to take coursework outside the division, using the flexibility of the program to develop expertise in basic and applied research in such areas as instructional analysis, teaching-learning theory, and curricular and the nature of knowledge.

Comprehensive examination is for the doctorate cover the general area of higher education and the candidate’s area of the major, minor, and dissertation.

Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be required to have a total of grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth. Those who do not have GRE scores, and those letters of recommendation are required. An interview is recommended.
Secondary Education/EDUCATION

Preparatory education courses in higher education.

Prerequisites: consent of instructor.

EA395 Student Teaching/Teaching in Higher Education

Prerequisites: consent of instructor.

Graduate Program

The Division of Secondary Education offers these advanced degree programs:

Secondary School Curriculum: M.A., Ph.D.
Art Education: M.A., M.A.T., Ph.D.
Business Education: M.A., M.A.T., Ph.D.
English Education: M.A., M.T., Ph.D.
Mathematics Education: M.A., M.T., Ph.D.
Music Education: M.A., M.A.T., Ph.D.
Physical Education: M.A., M.T., Ph.D.
Science Education: M.A., M.A.T., M.S., Ed.S., Ph.D.
Social Studies Education: M.A., M.T., Ph.D.
Speech Education: M.A.

The Department of Business Education will be terminated effective May, 1981.

No new applicants to the Business Education programs are being accepted.

*Minimum grade-point average for admission is 3.0.

The M.A.T. programs are intended for students with superior academic records who did not complete work for teacher certification at the undergraduate level.

Programs leading to the M.A. or M.S. and Ed.S. degrees usually combine advanced work in the academic disciplines and professional education, and are designed for the preparation of master teachers, department heads, supervisors, curriculum consultants, directors, and coordinators for secondary schools and community colleges.

More extensive interdisciplinary programs leading to the Ph.D. degree also prepare individuals to serve as college or university instructors in their respective fields of specialization in colleges of education or in the academic department of their major field. Some of the interdisciplinary programs are administered jointly by the College of Education and other academic units of the University.
Programs leading to the M.A., Ed.S., and Ph.D. provide for the preparation of administrative and supervisory personnel who may assume positions of leadership in the field of secondary education, including college and university instruction in this area.

Admission

Generally, the minimum requirements pertaining to admission, registration, academic standing, residency, etc., of students in advanced degree programs in secondary education do not exceed the requirements outlined in the "Manual of Rules and Regulations of the Graduate College." With this major exception that admission to most degree programs in this division requires a year or more of successful teaching experience, and in the cases noted above, the minimum grade-point requirement exceeds the Graduate College minimum for admission.

The bulletin, published by the College of Education, entitled Advanced Studies in Education, contains more specific information about admission requirements and procedures, required and elective courses, test requirements, and comprehensive examinations in the advanced degree programs.

Assistantships

A limited number of half-time assistantships is available for students pursuing Ph.D. degrees in secondary education. Holders of such assistantships may register for no more than 12 hours per semester, and except with special permission, must register for at least 6 hours per semester. Assistant's assignments vary, some involve teaching undergraduate courses or supervision of practicum experiences and others primarily involve research activities.

Courses

7851: Pre-education Practicum 12 h. involves clearing and assisting students and teachers in performing daily tasks in secondary schools, under the supervision of the instructor throughout the year. Off-campus arrangements made with school authorities.

7910: Introduction to Secondary School Teaching 3 h. Observes, identifies, and evaluates the nature and scope of the school environment, and the role of the school and its relationship to other educational organizations and community of education, educational personnel. Term: Fall 75-76.

7911: Introduction to Education 3 h. Basic orientation in field of education; consideration of administrative organizations, operations, procedures, and contemporary problems at both elementary and secondary levels. Same as TE 101.

7915: English, American Culture 3 h. Planning, organizing, and evaluating foreign language programs at the secondary level; and the establishment of cooperative foreign language programs, serving as a consultant to teachers. Same as TE 102.

7916: Making Decisions for Consumers 3 h. Application of problem solving in such areas as consumer goods and services, education on credit, consumer credit, and consumer protection. Same as TE 103.

7918: Principles of Basic Business 3 h. Integration of principles of business structure and finance with fundamental principles of economics and personal finances; ethical and legal principles; consumption, production, and marketing. Same as TE 105.

7919: Advanced Methods in Art 3 h. Theory and methods of art—relation to elementary and secondary art. Art criticism, art, and aesthetic value, art education, art education, and art education in the classroom. Same as MA 500.

7920: Introduction to Environmental Studies for E-12 Programs 3 h. Materials and activities available for introducing environmental education in E-12 curriculums: its place in a course of studies and/or as a basis of supplementary material. Same as TE 107.

7921: Implementation of Environmental Studies for E-12 Programs 3 h. Implementation of E-12 curriculums in environmental education. Same as TE 107.

7922: Methods: Business Education 3 h. Organizing, using, and evaluating the use of teaching business materials, devices offered in the business course room, and business education laboratory, teaching business subjects, teaching business subjects. Same as MA 500.

7923: Methods: Social Science 3 h. Learning the methods of social science, social science education, secondary schools, social science instruction, teaching social science. Same as MA 500.

7924: Methods: Science Education 3 h. Teaching techniques in secondary schools with stress on methods of teaching; teachers involved in selecting student publications and teaching techniques in the production of student publications. Same as MA 500.

7925: Methods: English 3 h. Teaching of language, techniques, methods, and materials for teaching English. Same as MA 500.

7926: Methods: Foreign Language 3 h. Techniques involved in teaching foreign languages in secondary schools, methods and techniques for teaching foreign languages, and demonstration of teaching techniques, and foreign language teaching. Same as MA 500.

7971: Workshop: Introduction to Intermediate Science Curriculum (Curriculum Unit) for Junior High Science 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

7972: Implementation of Intermediate Science Curriculum Study: Junior High School Science 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

7973: Implementation of Intermediate Science Curriculum Study: Junior High School Science 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

9310: Data in Education 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1101: Elementary Mathematics and Methods for Family Life 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1102: Philosophy, methodology, and methods in home economics. Required for home economics, attendance and vocational approval. Same as MA 500.

1103: Education of the Modern Family and Methods in Family Life 3 h. Methods, philosophy, and methodology of teaching the subject of family life. Same as MA 500.

1104: Education of the Modern Family and Methods in Family Life 3 h. Studies the subject of family life. Same as MA 500.

1105: Methods: Language-Laboratory Equipment 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1106: Methods: Language-Laboratory Equipment 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1107: Technology-People-Environment 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1108: Technology-People-Environment 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1201: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1202: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1203: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1204: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1205: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1206: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1207: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1208: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1209: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1210: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

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1213: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1214: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1215: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1216: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1217: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.

1218: Workshops for Secondary School Journalists 3 h. Reviews currently available science programs and resources development specifically for the junior high school; particular emphasis on the ICBS program.
70/141 Seminar: Contemporary Issues in Music Education
Art: Current developments in music and education with emphasis on music and education in the community. Seminar meets two times per week.

70/142 Methods and Materials: Secondary School General Music
Art: Techniques in conducting, music appreciation, music theory, music history, music literature, music education methods, and the use of technology in music education. Seminar meets two times per week.

70/143 Instrumental Techniques
Art: String orchestra techniques, woodwind techniques, brass techniques, and percussion techniques. Seminar meets two times per week.

70/144 Psychology of Music I
Art: Principles of music, perception, cognitive response, motor skills of children, and music learning. Seminar meets two times per week.

70/145 Methods: Secondary School Products Creative Education
Art: Techniques in the preparation of handbooks, lesson plans, and instructional materials, including planning, research, planning, music education, music education methods, and the effects of music in culture and society. Seminar meets two times per week.

70/146 Method and Administration: Physical Education
Art: Principles and practices in teaching and learning, administrative practices in physical education and recreation. Seminar meets two times per week.

70/147 Clinical Methods and Conducting
Art: Seminar meets two times per week.

70/148 Clinical Literature and Conducting
Art: Prerequisite: 70/147. Seminar meets two times per week.

70/149 Laboratory Psychology of Music
Art: Seminar meets two times per week.

70/150 Solfeggio and Accompaniment
Art: Seminar meets two times per week.

70/151 Singing Methods and Materials
Art: Seminar meets two times per week.

70/152 Science Methods (Individual Instruction in Science)
Art: Seminar meets two times per week.

70/153 Science Methods (Individual Instruction in Science)
Art: Seminar meets two times per week.

70/154 Current issues, Approaches and Materials in Foreign Language Education
Art: Seminar meets two times per week.

70/155 Technical and Language Skills
Art: Seminar meets two times per week.

70/156 Reference Materials
Art: Seminar meets two times per week.

70/157 Substance Abuse
Art: Seminar meets two times per week.

70/159 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/160 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/164 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/165 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/166 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/167 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/168 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/169 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/170 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/171 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

70/172 Teaching Special Topics in Music Education
Art: Seminar meets two times per week.

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Social Foundations of Education

Doctor of Philosophy

The Ph.D. program requires a minimum of 60 semester hours 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 additional fields. In addition, the student must take at least 12 semester hours in related courses in the College of Education, of which must be in one area of concentration. Each student's program is devoted to coursework in depth from at least one other program in the University, such as history, philosophy, political science, sociology, etc. These sequences are individually planned by the student with the advice of his or her advisor and suggestions from the appropriate department and/or university.

Research topics are selected and are selected from the following alternatives in accordance with the individual candidate's research interests and program: two courses in a graduate level statistics and methodology of science and philosophy of science and philosophy of social science; and language proficiency exams. In addition, all students are required to successfully complete the course (510 Seminar: Alternative Research Strategies. Dissertation research is normally taken for 12 to 14 semester hours of credit.

Courses

Social Foundations and Comparative Education

- History of American Education
- Philosophy of Education
- Political Economy of Education
- Comparative Education
- Educational Psychology
- Sociology of Education
- Educational Administration

Doctoral Studies in Educational Leadership

- Educational Leadership
- Educational Administration
- Educational Policy
- Educational Evaluation
- Educational Research

Doctoral Studies in Educational Technology

- Educational Technology
- Computer Science
- Educational Communications
- Educational Psychology
- Educational Sociology

Doctoral Studies in Social Foundations

- Social Foundations
- Political Science
- Economics
- Sociology

Doctoral Studies in Comparative Education

- Comparative Education
- Political Economy
- International Relations
- International Studies

Doctoral Studies in Educational Psychology

- Educational Psychology
- Developmental Psychology
- Social Psychology
- Cognitive Psychology
Special Education

Faculty: professors John Heath, Clifford G. Howe, Paul M. Peterson, and Linda R. Brown; associate professors Alan B. Frank, Kathy C. Sarkin, and John Frumolt; instructors Dinku Attah, J. Michael Beale, and Bonnie J. Miller.

Undergraduate Programs

The Division of Special Education offers its graduates courses designed to provide students with an understanding of the nature of exceptionalities, the characteristics of exceptional children, the educational programs provided for exceptional children, and the practical experience of working with exceptional children.

Program Requirements

Elementary Mental Retardation

First Year

71-300 Introduction to Special Education
71-130 Exceptional Children
71-135 Mental Retardation

Second Year

71-31 Teaching Mildly Mentally Retarded Elementary
71-35 Praxis with Mildly Handicapped
71-135 Teaching Moderately Mentally Retarded
71-34 Praxis with Moderately Handicapped

Third Year

71-193 Visual and Hearing Handicapped

Elementary Physically Handicapped

First Year

71-300 Introduction to Special Education
71-130 Exceptional Children
71-128 Orientation to Rehabilitation of Physically Handicapped Child
7-315 Introduction to Speech and Hearing Process and Disorders

Second Year

71-138 Methods of Teaching Physically Handicapped
71-34 Praxis with Moderately Handicapped

Third Year

71-138 Supervised Physically Teaching with Physically Handicapped
Students completing this program are recommended for State of Iowa Approval 84 (Physical Disabilities K-8). Sophomore and juniors in the physically handicapped program are eligible to apply for the Janet R. Zober Memorial Tuition Stipend which will be awarded to the recipient during the junior or senior year. The recipient of this one-semester stipend is chosen on the basis of financial need, demonstrated scholastic ability, judgment, and promise of success in a professional teaching career in special education.

Secondary Mental Retardation First Year
7U:30 Introduction to Special Education 2 s.h.
7U:130 Exceptional Children 3 s.h.
7U:135 Mental Retardation 3 s.h.
7S:100 Introduction: Secondary School Teaching 2 s.h.
7S:19 Pre-education Practicum (optional) 2 s.h.
7S:76 Educational Psychology and Measurement 3 s.h.
7W:9 Audiovisual Equipment for Instruction 1 s.h.
34:1 Introduction to Sociology: Principles 4 s.h.
34:2 Introduction to Sociology: Problems 4 s.h.

Second Year
7U:32 Teaching Mildly Mentally Retarded: Secondary 3 s.h.
7U:29 Practicum with Mildly Handicapped 2 s.h.
7U:136 Teaching Moderately Mentally Retarded 2 s.h.
7U:24 Practicum with Moderately Handicapped 2 s.h.
7U:133 The Culturally Different in Education Settings 3 s.h.
7X:103 Facilitating Career Development in Schools 4 s.h.
7P:170 Introduction to Psychology of Reading 3 s.h.
7W:103 Selection and Use of Media for Instruction 3 s.h.
34:140 Juvenile Delinquency 3 s.h.
34:140 Criminology 3 s.h.

Third Year
7U:192 Supervised Teaching With Mentally Retarded 15 s.h.
Students completing this program are recommended for State of Iowa Endorsement 16 (Secondary Teaching) and Approval 41 (Mental Disabilities 7-12).

Preschool Handicapped First Year
7U:130 Exceptional Children 3 s.h.
7U:135 Mental Retardation 3 s.h.
7U:136 Orientation to Rehabilitation of Physically Handicapped Child 3 s.h.
2:18 Introduction to Speech and Hearing Processes and Disorders 3 s.h.

Second Year
7U:120 Methods of Teaching Preschool Handicapped 3 s.h.
7U:126 Teaching Moderately Mentally Retarded 2 s.h.

Third Year
7U:103 Supervised Teaching with Preschool Handicapped 7 s.h.
Students completing this program will be recommended for State of Iowa Endorsement in Preschool Handicapped, pending program approval by Iowa Department of Public Instruction.

Severely/Prolongely Handicapped First Year
None

Second Year
7U:136 Teaching Severely/Prolongely Handicapped 3 s.h.
7U:35 Practicum with Severely/Prolongely Handicapped 2 s.h.

Third Year
7U:124 Supervised Teaching With Severely/Prolongely Handicapped 1 s.h.
Students completing this program will be recommended for State of Iowa Endorsement in Severely/Prolongely Handicapped, pending program approval by Iowa Department of Public Instruction.

Undergraduate Admission
Sixty-five students who have completed at least one year of college coursework are admitted to special education each year. Admission decisions are based on cumulative college grade-point average and experience with the handicapped. Examples of acceptable volunteer or paid experience with handicapped persons are: counseling in a summer camp program for the handicapped, work with the handicapped sponsored by community or religious organizations, extensive child-care experience with handicapped children, and teacher aide experience in classes for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 10.

Graduate Programs
The purpose of the graduate programs in special education is to train new personnel and to retain existing staff so that both groups can better provide appropriate levels of service to handicapped children. Most applicants to the graduate program have undergraduate preparation as teachers either in regular or special education. Applications from students without valid teaching certificates will be reviewed by the division admissions committee. Graduate programs are offered for certification only, and at the M.A., Ed.S., and Ph.D. degree levels. Individual certificates or additions to present certificates are available at the graduate level in elementary and secondary learning or emotional disabilities, school psychology, work-study coordination, administration of special education and teacher education.

Master of Arts
Most students admitted to the M.A. program in special education are seeking to add an approval to teach either emotionally disturbed or the learning disabled.
The M.A. program prepares students to function as teachers in resource, integrated, and self-contained classrooms. The program requires a minimum total of 38 semester hours. A list of required courses is available in 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 purpose of the program is 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 60 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 equivalent; preparation and certification in special education; and 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 advanced 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 46) and also qualifies the person for Gitsa of Iowa Endorsement 61) certification in general school administration. Graduates are certifiable and employable as administrators of special education generally throughout the Midwest and the nation. The program requires a minimum total of 100 semester hours.

Admission to the program is limited on the basis of resources available. From 15 to 20 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 excepted children, and classroom experience as a teacher.

Educational Specialist in School Psychology

The purpose of this program is to provide coursework 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 endorsement 42). 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 3.5 grade-point average on previous coursework.

Doctor of Philosophy

The purpose of the Ph.D. program in special education is to prepare students as consultants, school psychologists, directors of special education, and university teacher trainers. The program permits students to study and practice more extensively in their 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 with exceptional children except the school psychology program. The admissions committee gives preference to those with training in science.

Special Facilities

Special facilities available to students in special education include the University Hospital School (for mentally and physically disabled) and the University Psychiatric Hospital/Child Psychiatry 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 Janis Zabor Memorial Tuition Stipend is available to at least one student in the training program for teachers of the physically handicapped.

General Admission Requirements

Graduates 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 1100 or above are preferred); and

Documentation of having worked successfully with children and youth.

Courses

7010 Introduction to Special Education 3 s.h.
General education application, course work required of undergraduate majors in special education; discussion of assessment process, identification, developmental, social/emotional, and educational implications of special education.

7022 Teaching Methodology Endorsed 3 s.h.
Methods of assessing and teaching skills in math, language arts, social learning, and science. Prerequisites: TUE 320, TUE 325, and TUE 125.

7023 Teaching Methodology Endorsed 3 s.h.
Methods of assessing and teaching skills in academic and social/emotional areas; classroom management; instruction from secondary school to work. Prerequisites: TU 30, TUE 125, and TUE 125.
721042: Integration of Assessment Information  3 s.h.
Supervised practice in the integration of educational, psychological, social, and medical information to formulate a comprehensive plan of educational services for exceptional children and adolescents to obtain the above information and present complete case studies in class. Prerequisites: 714206, 714246, 732911, 793275, and consent of instructor.
721050: California Theory and Practice  5 s.h.
Same as 721051, 741050.
721051: Advanced Laboratory Practice with Exceptional Children  3 s.h.
Observation, experimentation, and individual interaction pertaining to problems of teaching, learning, and administration; evaluation, supervisory, and administrative application of curricula materials for exceptional children. Prerequisite: consent of instructor.
721110: Individual Inclusion in Special Education  3 s.h.
Prerequisite: consent of instructor.
721121: Intervarsich School Psychological Services  3 s.h.
For Ed.D. and Ph.D. students in school psychology. Supervised internship is preclinical evaluation, consultation, and counseling in school and clinical psychology settings. Prerequisite: 714206, 714246, 732911, 714289, and consent of instructor. Prerequisites for Ph.D. students vary by course as do Ed.D. or requirements.
721130: Seminar: Current Issues in School Psychology  3 s.h.
Readings and discussion of the current issues in school psychology such as ethical and legal standards, certification, testing, etc. For advanced students in school psychology. Prerequisite: consent of instructor.
721140: Seminar: Research in Special Education  3 s.h.
Section 1 (theoretical) reviews major studies in the field intended to help in preparation for Ph.D. comprehensive examinations. Section 2 (research) continues with more advanced readings. Students are expected to present experiences in research facilities on campus, assist students in writing research questions, writing research proposals and procedures, and researching critical issues. Prerequisite: consent of instructor.
721150: Seminar: Current Issues in Special Education Administration  3 s.h.
Reviews new developments in administration. Major current trends are highlighted. May be repeated. Prerequisites: 743620, 743621 consent of instructor.
721160: Practicum in College Teaching  3 s.h.
Prerequisites: satisfactory performance in teaching methods course, successful completion of professional internship required for doctoral students requiring in-teachership. Prerequisite: consent of instructor.
721170: Seminar: School Psychology Practice Seminar  3 s.h.
Doctoral students gain experience supervising school psychology programs or internship programs. Prerequisite: consent of instructor.
721180: Field Service Project in Special Education Internship  3 s.h.
Provides part-time or full-time experiences for interns in school districts or area education agencies. Develops skills in supervision and administration of special education. Prerequisite: consent of instructor.
721190: Thesis in Special Education  3 s.h.
Prerequisite: consent of instructor.
721240: Educational Specialist Research Practicum involving data analysis, and writing and reviewing proposals or reports to the Ed.D. committee. Prerequisite: consent of instructor.
721250: Ph.D. Thesis in Special Education  3 s.h.
Prerequisite: consent of instructor.
721260: Ph.D. Thesis in Special Psychology  3 s.h.
Prerequisite: consent of instructor.
College of Engineering

Engineering is the profession in which a knowledge of the mathematical and natural sciences is applied to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. The major aim of engineering is the creation of a new process, product, material, or system that is useful to our society. This activity demands a high degree of creativity, coupled with broad knowledge, 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, management, and consulting. Engineers are employed in industrial organizations, governmental agencies, and in private practice.

The College of Engineering has two major responsibilities. The first is the responsibility for the undergraduate engineering curricula, laboratories, counseling, and other aspects of the undergraduate educational programs. The second responsibility is the graduate programs leading to Master of Science and Doctor of Philosophy degrees in modern areas of engineering. Education at the graduate level includes extensive activities in creative research and design in laboratories of the college, by faculty members and graduate students.

Programs Offered

The College of Engineering offers programs leading to the Bachelor of Science degree in the professional fields of chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. Programs leading to the Master of Science and Doctor in 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.

The college also offers an undergraduate program leading to the Bachelor of Science in engineering degree for students whose career objectives cannot be met by the professional programs. The biomedical engineering program is an option within this degree structure.

Any of the undergraduate programs offered by the College of Engineering may be combined, in a five-year option, with a program leading to the Bachelor of Arts degree in the College of Liberal Arts.

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 (ECtPD).

Undergraduate Programs

Degree Requirements

The engineering Bachelor of Science degree requires a minimum of 126 semester hours of credit including satisfaction of the specific requirements of the major program as described in the following sections. The candidate for a baccalaureate degree must be enrolled in the College of Engineering for at least the last 30 semester hours or 45 of the last 60 semester hours and must have at least 3.0 grade-point average of 2.0 on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa.
Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an applicant must have:

- Completed the American College Testing 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 unit of trigonometry.
- Ranked in the upper one-half of his or her high school graduating class.
- High school physics and chemistry are recommended for all applicants.
- Transfer applicants must submit a formal application and an official transcript of college work undertaken at other institutions. Each applicant should have completed at least one semester of calculus or its equivalent, and maintained a cumulative grade-point average of at least 2.5, based on a 4-point marking system.
- A maximum of 64 semester hours (or the equivalent) from a junior college will be accepted toward a baccalaureate degree.

After reviewing the records of either a freshman or transfer student applicant who does not meet minimum admission requirements, the director of admissions may admit the applicant unconditionally, admit on probation, require a summer session trial enrollment, or deny admission. Applicants who do not meet all of the criteria for admission to the College of Engineering are automatically considered for admission to the preengineering program in the College of Liberal Arts.

Curricular Structure

The undergraduate curricular programs in engineering are designed to assure an adequate foundation in mathematics and science, the humanities and the social sciences, engineering science, and engineering methods. Added to this base is preparation in engineering specialization appropriate to the challenge presented by today's complex and difficult technological problems. The overall objective of the curricular programs is to provide an integrated educational experience directed toward the development of the ability to apply pertinent knowledge to the identification and solution of practical problems in each of the designated areas of engineering specialization. The specific objective of the curriculum is to prepare students for the practice of engineering.

The curriculum is structured into four parallel stems extending through the entire four years of undergraduate study. The stems are mathematics, basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences, and 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 thrms. The course sequence in this stem begins with 560:1 Introduction to Engineering, in the first semester of the freshman year and terminates with senior-level design courses during the final year.

Approximately one-half of the courses in the four stems are common to 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 taken during 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 any program major, transfer between majors, or not declare a major during this period, with only minor adjustments in scheduling. This gives students ample 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 elective 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 adviser. These courses allow the student to develop additional depth in areas of special interest that are ordinarily taken at the senior level.

The curriculum for the freshman year in

First Semester

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<th>Course Code</th>
<th>Course Title</th>
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<td>10:1 Rhetoric</td>
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<td>10:3 Rhetoric</td>
<td>4 s.h.</td>
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<tr>
<td>22M:30 Engineering Calculus I</td>
<td>4 s.h.</td>
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<tr>
<td>560:1 Introduction to Engineering</td>
<td>2 s.h.</td>
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<tr>
<td>560:3 Engineering Graphics</td>
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Second Semester

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<tbody>
<tr>
<td>4:16 Elementary Chemistry Laboratory</td>
<td>2 s.h.</td>
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<tr>
<td>10:2 Rhetoric</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>Free elective</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>22M:38 Engineering Calculus II</td>
<td>4 s.h.</td>
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<td>530:4 Engineering Computations</td>
<td>3 s.h.</td>
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<tr>
<td>190:7 Statics</td>
<td>2 s.h.</td>
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<td><strong>14 or 15 s.h.</strong></td>
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A maximum of 7 semester hours is allocated for substitution of the rhetoric requirement. Students who qualify for 10:3 will be allowed 3 semester hours of free elective, while those taking the 8-semester-hour sequence of 10:1 may apply only 7 semester hours towards their engineering program.

The courses listed above are required of all students in engineering; 4:16 Principles of Chemistry II is recommended during the second semester for students who are biomedial or chemical engineering majors.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences 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 adviser's approval, a minimum of 18 semester hours of
humanities and social science electives, which is to include at least 6 semester hours of coursework in the humanities and at least 6 semester hours in the social sciences.

The humanities elective will consist of College of Liberal Arts core courses in the historical-cultural area and/or appropriate courses from any of the following departments and schools: American Civilizaton; Art and Art History; Classics; Asian Languages and Literature; Communication and Theatre Arts; English; History; Literature; Science, and the Arts; Music; Religion; Linguistics, or other departments approved by the College of Engineering faculty. Students may select courses from departments not included above with the approval of the assistant to the dean. Students shall select a minimum of 3 semester hours of advanced (100-level) coursework in humanities to secure sufficient depth of knowledge in an elected subject of study. The assigned coursework will build on a previously completed elementary course. Language courses will not satisfy any of the humanities requirements unless the course is at or beyond the second-year level. Studio courses in art and music will not fulfill the requirement.

The social science electives shall consist of appropriate courses from the following departments: Anthropology; Economics; Geology; Political Science, Psychology, Sociology, Journalism, and Mass Communication, and Social Work, or other departments approved by the College of Engineering faculty. Students may select courses from departments not included above with the approval of the assistant to the dean. To assure an adequate depth of knowledge in a chosen area of study, students shall select a minimum of 3 semester hours of advanced (100-level) coursework. This material will logically build on the background previously acquired in an elementary course.

Combined Engineering-Liberal Arts Program

For students who wish to combine an engineering program with humanities, social sciences, and languages, the University offers a combined program leading to the Bachelor of Arts degree in the College of Liberal Arts and the Bachelor of Science degree in the College of Engineering. By proper scheduling of coursework, students may complete both programs in a total of 4 years. This combined program is normally completed in 4 years at the earliest.

Cooperative Education Program

Cooperative education involves the inspiration 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 maintaining student interest and ability to do the work involved.

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, with a corresponding improvement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many nonelectrical 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 at least one full year of work experience. The program is an option available to qualified students on a voluntary basis.

Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center helps 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 specialized major. For help in choosing a program, students are assigned an adviser from the Career Center rather than from a specific department. These students are assigned frequently and regularly with their assigned adviser for help with various academic matters. These students range from students to seniors in residence halls. For more information, contact the Director, Undergraduate Academic Advising Center, Burge Hall, The University of Iowa.

Academic Standards

Semester Load Limit

A normal academic load is about 15 semester hours of coursework for a semester, 8 for a summer session. No student may register for more than 16 semester hours in the 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—less than 20 semester hours
- Sophomore—20 to 35 semester hours
- Junior—36 to 50 semester hours
- Senior—51 or more semester hours

Marking System

The college uses the 4-point marking system, in which grade points are awarded on a scale descending from A=4. For a full description see
Credit by Examination

Students who have acquired knowledge in subjects other areas from sources other than college registrations may be granted the opportunity to obtain credit toward graduation by examination. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to exercise this opportunity should apply to the assistant in the dean.

Advanced Placement

Under the Advanced Placement Program of the College Entrance Examination Board, a high school senior may take comprehensive achievement examinations in chemistry and in analytical geometry and calculus. The College of Engineering grants college credit and advanced placement of students who achieve satisfactory standards in these examinations. For information, write to the College Entrance Examination Board, 475 Riverside Drive, New York, N.Y. 10027.

Pass-Fail Option

A maximum of two courses taken on a pass-fail basis may be applied toward full-time equivalent of the humanities and social sciences requirements. The pass-fail option may not be used for courses taken to satisfy the metric requirement.

Second-Grade-Only Option

A student may elect to repeat a course with only the new grade being counted in his or her grade point average. This option can only be elected prior to the time of completing a course for which the repeated course is a prerequisite. The option may be applied to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option as a pre-registered basis. For example, a student transferring no more than 45 semester hours of applicable engineering coursework may use this option for a maximum of three courses, while a student with between 42 and 86 semester hours of credit may use this option for no more than two courses, and students with 86 or more semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant in the dean.

Satisfactory-Fail Courses

The noncredit professional evening courses, which are required in each of the professional programs, 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 (incomplete) or O (no report) which is not replaced by a final grade prior to the announced deadline within the student's next regular semester of registration will be replaced by a final grade of F (failure), 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 highest distinction" to students in the highest 2 percent of the graduating class, "with high distinction" to students in the next highest 5 percent, and "with distinction" to students in the next highest 5 percent. Ranking is based on outstanding academic achievement and on an overall college-level study undertaken to their final registration.

To be eligible for this form of recognition, the students must take his or her final 80 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.

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 a's or O'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's student body is organized as the Associated Students of Engineering. This organization provides a mechanism for planning and carrying out activities involving the entire college. Such as the annual open house, noCCA Week, and the student-faculty reception for new students. Other college-wide matters of general student interest are also handled through the association.

Engineering students publish their own student journal, the Newkeye Engineer. All positions are staffed by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the American Institute of Industrial Engineers, the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the Institute of Electrical and Electronics Engineers are active at the University of Iowa.

The UI chapter of Tau Beta Pi, a national 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 fraternity; Chi Epilson, honorary civil engineering fraternity; Eta Kappa Nu, honorary electrical engineering fraternity; and Pi Tau Sigma, honorary mechanical engineering fraternity. The society recognizes the work of outstanding students in their respective fields.

Student organizations dedicated to providing support and assistance in the development of more equitable enrollments of women and minorities in the college are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Omicron Tau, a national professional engineering fraternity, is active in service to the college and draws its membership from students throughout the college.

Professional Registration

Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience.

In Iowa the agency that controls and monitors the licensing procedure is the Iowa Board of Engineering Examiners. The first step in the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given at the University near the time of graduation. 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 registered "Professional Engineer."

Graduate Programs

The general rules and regulations for the graduate programs are set forth 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 those 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

The Engineering Library

The Engineering Library is a center of college activity, its collection includes 50,000 books and 800 periodicals. It is equipped with microfilm and microfiche readers, and provides study spaces for 130 library users.

Computer Based Education (CBE) Laboratory

The Computer Based Education Laboratory provides interactive computer capabilities with the University's 370-165, PDP 750, and VAX-2000 computer systems via video display and typewriter terminals. The laboratory also contains line printers for work by students and faculty for high volume printed output as well as video equipment for instructional demonstrations.

Computer Services

Services of the Weeg Computing Center are used extensively by students and faculty of the college under the auspices of the college computer committees. The center maintains remote terminals and printers for access to the University computer systems in the CBE Laboratory. In addition, a number of supercomputers and microcomputers are available within the college for specialized use by students and faculty.

Employment Placement Services

Students and alumni can avail themselves of the placement services provided by the College of Engineering. Interview rooms and a graduate library of informational material are located in the Engineering Building. Assistance is available for arranging interviews and obtaining information on job opportunities.

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 imparting to the traditional pattern of the organizational structure of engineering colleges. It has organized its faculty and functions into different types of college sub-units—academic
Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IHR) is the third basic unit of the College. The institute is widely acknowledged to be one of the world's leading organizations in the areas of basic and applied fluidics research.

The institute co-sponsors programs of fundamental research and advanced design and analysis in the areas of environmental pollution, bioengineering, naval hydrodynamics, river mechanics, ice 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 is the fourth basic unit of the college. It was founded on the philosophy that technology of the future require the integration of a variety of disciplines in order to transcend traditional methods of research and development.

The center is especially 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, and bone and joint biomechanics.

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.

Course Numbering System

The titles of each course offered by the College of Engineering is preceded by a 3-digit prefix and a 3-digit suffix separated by a colon. The first digit of the prefix is 5, which identifies the course 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:

52—Engineering Science
54—Information Engineering
55—Materials Engineering
58—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 curriculum programs as shown below:

0—Engineering Core
1—Biomedical Engineering
2—Chemical and Materials Engineering
3—Civil and Environmental Engineering
5—Electrical and Computer Engineering
6—Industrial and Management Engineering
7—Division Specialty Programs
8—Mechanical Engineering

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 200 and above designate courses primarily for graduates. The tables below provide further means of conveying information on the level and type of courses:

- 001-099—Freshman core courses
- 100-199—Sophomore core courses
- 200-299—Junior core courses
- 300-999—Required courses in undergraduate programs
Biomedical Engineering

701-054 Undergraduate professional program seminar 100
705-287 Contemporary topics course for undergraduates 150
908 Individual investigation courses for undergraduates 200
110-159 Courses for which little or no engineering, science, or mathematics background is required 250
110-168 Undergraduate elective or lower level graduate course 300
190 Readings courses for non-engineering majors 350
191-194 Seminars for undergraduates and graduates 400
185-197 Contemporary topics courses for undergraduates and graduates 450
198 Individual investigations for graduates 500
199 M.S. thesis research 550
210-289 Upper level graduate courses 600
291-294 Seminars for graduates 650
295-297 Contemporary topics courses for graduates 700
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 listed in terms of courses at this university. Equivalent academic background may have been obtained by a student through previous coursework at other colleges or universities. The student should consult with the course instructor if there is any question 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 primarily on the mathematics, science, and engineering course background of the student and that background is considered necessary to satisfactorily undertake the course work.

Biomedical Engineering

Eugene O. Bassett, Jr. and Jan E. Sabatini

The past two decades have seen a tremendous growth of technological activity in biology and medicine. As engineers have become increasingly involved with projects in the life and health sciences, there has been a greater need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the life sciences and engineering—the biomedical engineering profession. The undergraduate biomedical engineering program is a curriculum offer within the Bachelor of Science program in engineering.

Students who complete this program may pursue career opportunities in industry (the design and development of biomedical instrumentation, diagnostic aids, life support systems, prothesis and orthotic devices, man-machine systems, etc.), in government (Veterans Administration, Environmental Protection Agency, Food and Drug Administration, etc.), or they may elect to pursue their formal education in the engineering, medical, or legal professions.

Many engineering college faculty members have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Courses which have been designed primarily for the biomedical engineering program are identified by the digit 1 in the third position of the course number prefix. Course descriptions are in the Catalog of the sections devoted to the Divisions of Information and Materials Engineering.

The curriculum outlined below is built on the foundation provided by the College of Engineering core curriculum, and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been carefully designed to enable the student to satisfy the entrance requirements of the Graduate College and the colleges of Medicine, Dentistry, and Law.

Curriculum

Sophomore Year

First Semester
222-137 Engineering Calculus III 4.0 h 620-18 Thermodynamics I 4.0 h
540-11 Introduction to Electrical Science 3.0 h
560-15 Materials Science I 3.0 h
560-19 Dynamics 3.0 h
Total 17.0 h

Second Semester
222-338 Differential Equations and Linear Algebra 4.0 h
31-0 Principles of Animal Biology 5.0 h
540-12 Linear Systems Analysis 3.0 h
560-19 Mechanics of Deformable Bodies 3.0 h
Total 15.0 h

Junior Year

First Semester
560-23 Probability and Statistics for Engineering and Physical Sciences 3.0 h
560-21 Principles of Design I 3.0 h
540-10 Principles of Electronic Instrumentation 4.0 h
561-81 Elementary Bio-engineering 3.0 h
592-20 Mechanics of Fluids and Transfer Processes 3.0 h
561-91 Professional Seminar 0.0 h
Total 17.0 h

Second Semester
29-82 Physics of Waves and Optics 3.0 h
4-121 Organic Chemistry I 3.0 h
560-22 Principles of Design II 3.0 h
*Technical electives 3.0 h
Humanities or social science electives 4.0 h
581:91 Professional Seminar 0 s.h.
Total 16 s.h.

Senior Year
First Semester
581:83 Biomedical Engineering Design I 3 s.h.
"Technical elective" 5 s.h.
Humainties and social science electives 6 s.h.
581:91 Professional Seminar 0 s.h.
Total 16 s.h.

Second Semester
581:84 Biomedical Engineering Design II 3 s.h.
"Technical electives" 6 s.h.
Humainties and social science electives 6 s.h.
581:91 Professional Seminar 0 s.h.
Total 16 s.h.

"Each student must take at least three of the five courses listed below, plus six additional semester hours in appropriate adviser-approved engineering, biological, and/or health science related courses.

581:148 Biomedical Processes 3 s.h.
581:165 Biophysical Systems Analysis 3 s.h.
581:186 Biomedical Measurements 3-4 s.h.
581:154 Biomechanics 3 s.h.
591:176 Biometrics 3 s.h.

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

Bachelor of Science

The Bachelor of Science in Chemical Engineering degree program prepares the student for work in design, supervision, development, or sales. The curriculum includes extensive training in chemistry on the same level as chemistry majors. A sequence of mathematics courses together with the common engineering core courses provides a strong foundation. Undergraduate students have the opportunity to work with faculty members and graduate students on current research topics.

Curriculum

Sophomore Year
First Semester
22M:37 Engineering Calculus II 4 s.h.
550:10 Dynamics 3 s.h.
540:11 Introduction to Electrical Science 3 s.h.
550:15 Materials Science I 3 s.h.
Humansities or social science elective 3 s.h.
Total 16 s.h.

Second Semester
22M:38 Differential Equations and Linear Algebra 4 s.h.
540:12 Linear Systems Analysis 3 s.h.
540:15 Principles of Electronic Instrumentation 4 s.h.
520:20 Mechanics of Fluids and Transfer Processes 4 s.h.
582:42 Process Calculations 3 s.h.
Total 18 s.h.

Junior Year
First Semester
4:151 Physical Chemistry I 3 s.h.
29:82 Physics of Waves and Optics 3 s.h.
560:21 Principles of Design I 3 s.h.
552:43 Design for Energy and Momentum Transfer 4 s.h.
Technical elective 3 s.h.
582:91 Professional Seminar 0 s.h.
Total 16 s.h.

Second Semester
4:132 Physical Chemistry II 3 s.h.
4:143 Advanced Chemistry Laboratory I 3 s.h.
582:41 Chemical Engineering Thermodynamics 3 s.h.
582:44 Mass Transfer Operations 3 s.h.
Humansities or social science elective 3 s.h.
582:91 Professional Seminar 0 s.h.
Total 15 s.h.

Senior Year
First Semester
4:121 Organic Chemistry I 3 s.h.
562:45 Chemical Reaction Kinetics 3 s.h.
582:45 Economics in Design 3 s.h.
582:47 Unit Operations Lab I Humanities or social science elective 3 s.h.
582:91 Professional Seminar 0 s.h.
Total 14 s.h.

Second Semester
4:122 Organic Chemistry II 3 s.h.
4:141 Intermediate Chemistry Laboratory I 2 s.h.
582:49 Unit Operations Lab II 2 s.h.
582:48 Chemical Engineering Process Design 3 s.h.

Chemical and Materials Engineering

Program chair: Sun-Tak Hong
Professor, professor Keith Bodner, Sun-Tak Hong, James O. Dulin
Professor, professor Karl Kammermeyer, associate professor Edward Manis, Arthur P.
Professor, professor Gregory H. Cregg
Chair, department chairman: B.R.O. E., Ph.D.

Chemicals and materials engineering is the art and science of engineering applied to industrial processes in which raw materials are changed and separated into useful products. Chemical and materials engineers develop, design, and engineer the complete process as well as the equipment used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically. They are employed by basic industries such as heavy chemicals, petroleum, coal, and solvents as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and synthetic fibers. They are engaged in research, process and product development, process and plant design, actual production operation, and sales. Many experienced engineers become managers or administrators.

Courses which have been designed primarily for the chemical and materials engineering program are identified by the digit 5 in the third position of the course number prefix. Course descriptions are provided in this catalog primarily within the section devoted to the Division of Materials Engineering.

Second Semester

520:37 Differential Equations and Linear Algebra 4 s.h.
540:12 Linear Systems Analysis 3 s.h.
540:15 Principles of Electronic Instrumentation 4 s.h.
520:20 Mechanics of Fluids and Transfer Processes 4 s.h.
582:42 Process Calculations 3 s.h.
Total 18 s.h.

Junior Year

First Semester
4:151 Physical Chemistry I 3 s.h.
29:82 Physics of Waves and Optics 3 s.h.
560:21 Principles of Design I 3 s.h.
552:43 Design for Energy and Momentum Transfer 4 s.h.
Technical elective 3 s.h.
582:91 Professional Seminar 0 s.h.
Total 16 s.h.

Second Semester
4:132 Physical Chemistry II 3 s.h.
4:143 Advanced Chemistry Laboratory I 3 s.h.
582:41 Chemical Engineering Thermodynamics 3 s.h.
582:44 Mass Transfer Operations 3 s.h.
Humansities or social science elective 3 s.h.
582:91 Professional Seminar 0 s.h.
Total 15 s.h.

Senior Year

First Semester
4:121 Organic Chemistry I 3 s.h.
562:45 Chemical Reaction Kinetics 3 s.h.
582:45 Economics in Design 3 s.h.
582:47 Unit Operations Lab I Humanities or social science elective 3 s.h.
582:91 Professional Seminar 0 s.h.
Total 14 s.h.

Second Semester
4:122 Organic Chemistry II 3 s.h.
4:141 Intermediate Chemistry Laboratory I 2 s.h.
582:49 Unit Operations Lab II 2 s.h.
582:48 Chemical Engineering Process Design 3 s.h.
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 those principles to contemporary problems such as energy, environment, and materials. The emphasis is on research since most of the opportunities for graduates are in industrial research and development. About one-third of the program is devoted to a research project, and a thesis is required for each degree.

All candidates in advanced degree programs are required to assist faculty members in teaching or research as part of the graduate teaching and research assignments.

Research is currently being carried out in air pollution, chemomechanics, diffusion, flow through porous media, macromolecular separations, fire particles, reaction kinetics, and transport phenomena. Many research projects are funded by external agencies such as the 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 and combined mass transfer systems is ongoing. This research may help assess regional pollution control and energy utilization strategies.

**Fine Particles**
A group of professors and graduate students is engaged in research on materials in finely divided form such as dust, powders, and aerosols. The goals of this group are to describe mathematically the particles size and shape and then to relate these to the origin of the particles and their behavior. Potential applications include atmospheric pollution phenomena, chemical reactions, crushing and grinding, crystallization, grain dust explosions, storage and flow of granular solids, and analysis of machine wear.

**Flow through Porous Media**
Kluisen flow and surface diffusion through various micro-scale media are being studied. Practical applications are in gas separations, catalysis, and solar refrigeration. Currently, a solar energy application is being investigated.

**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 process. 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 microscopy and metallographic analyses are being used to relate the characteristic features of the fracture surface and the microstructure to experimentally measured bulk mechanical properties. Research on such features as 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 this University. Work completed in summer or other classes as residence credit may not exceed 3 semester hours. However, 6 semester hours may be completed in residence at another recognized graduate college or by correspondence study at The University of Iowa. The minimum coursework requirement is 24 semester hours (about eight courses), and the remainder of the 30 semester hours may be devoted to research. To be eligible for the M.S. degree, the student is expected to maintain a minimum grade-point average of 3.0. Each M.S. degree candidate must defend his or her thesis at the final oral examination. Although it is possible to obtain an M.S. degree within one year, many students spend three or four semesters to complete the requirements.

**Doctor of Philosophy**
The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, the candidate is normally expected to have completed three academic years of residence, or two years if he already holds a recognized master's degree. In any case, the degree candidate is required to have completed at least 72 semester hours of graduate credit.

A Ph.D. candidate is expected to maintain a minimum grade-point average of 3.5. All doctorate students are required to pass a written and oral comprehensive examination prior to candidacy for the degree. The Ph.D. comprehensive examination may be a special design project, or at the discretion of the examining committee, may consist of a written examination covering graduate work. These examinations are arranged by members of the examining committee. The examinations may be repeated. The rules for the comprehensive examination may be found in the manual of the Graduate College. There is no foreign language requirement. A final examination, which is a defense of the thesis, culminates 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
Civil and Environmental Engineering

Program chair: Harold Kane

Civil and Environmental Engineering is the oldest and one of the three largest fields of engineering. It has been traditionally concerned with facilities which are both large-scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, seaports, and even spaceports; large-scale structures and office buildings to provide enclosed working and living spaces; environmental and hydraulic systems to provide clean water and air, including filtration plants and distribution systems for municipal and industrial water supplies, waste water treatment plants, dams, levees, and irrigation systems.

Civil engineering is the oldest and one of the three largest fields of engineering. It has been traditionally concerned with facilities which are both large-scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, seaports, and even spaceports; large-scale structures and office buildings to provide enclosed working and living spaces; environmental and hydraulic systems to provide clean water and air, including filtration plants and distribution systems for municipal and industrial water supplies, waste water treatment plants, dams, levees, and irrigation systems.

In fact, if something is one of a kind, large, and important in the daily lives of a great many people, chances are it was planned, designed, and constructed by civil engineers.

The continuing need for these and similar projects accounts for the steady demand for civil engineers through both good and bad economic times, and the variety of tasks that the individual civil engineer is qualified to perform ensures his or her career flexibility and the capacity to adjust to shifting demands.

In planning and design, the civil and environmental engineers work with architects, landscape architects, planners, economists, financiers, sociologists, lawyers, and other specialists as members of the design team. Some civil engineers work in engineering offices; others may be called upon to construct or supervise the projects they have designed. These field assignments, many of which are in remote and fascinating parts of the world, are particularly appealing to many civil engineers.

Undergraduate Program

Civil engineering courses built around 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
226.37 Engineering Calculus III 4 a.h.
560.10 Dynamics 3 a.h.
540.11 Introduction to Electrical Science 3 a.h.
686.15 Materials Science I 3 a.h.
500.10 Thermodynamics I 4 a.h.
Total 17 a.h.

Second Semester
226.58 Differential Equations and Linear Algebra 4 a.h.
540.12 Linear Systems Analysis 3 a.h.
560.15 Mechanics of Deformable Bodies 3 a.h.
520.20 Mechanics of Fluids and Transfer Processes 4 a.h.
Humantities and social science elective 3 a.h.
Total 17 a.h.
Junior Year
First Semester
540:18 Principles of Electronic Instrumentation 4 s.h.
560:21 Principles of Design I 3 s.h.
580:39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
583:31 Structural Analysis I 4 s.h.
583:56 Soil Mechanics 3 s.h.
583:91 Professional Seminar 0 s.h.
Total 17 s.h.
Second Semester
29:62 Physics of Waves and Optics 3 s.h.
560:22 Principles of Design II 3 s.h.
583:35 Structural Design I 3 s.h.
583:60 Principles of Hydraulics 4 s.h.
583:91 Professional Seminar 0 s.h.
Humanities and social science elective 4 s.h.
Total 17 s.h.

Senior Year
First Semester
583:38 Structural Design II 3 s.h.
583:73 Transportation Systems Engineering 3 s.h.
523:84 Hydraulics Design 3 s.h.
583:91 Professional Seminar 0 s.h.
523:150 Principles of Environmental Engineering 3 s.h.
Humanities and social science elective 3 s.h.
Total 15 s.h.

Second Semester
583:74 Transportation Systems Design 3 s.h.
583:91 Professional Seminar 0 s.h.
583:97 Sector Project 1 s.h.
"Technical electives" 6 s.h.
Humanities and social science electives 6 s.h.
Total 16 s.h.

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, hydraulics, structural mechanics and materials, structural and geotechnical engineering, transportation, and water resources.

Hydraulics and Water Resources
The hydraulics and water resources curricula are associated with the Iowa Institute of Hydraulic Research, whose laboratory is world-renowned. The senior staff members of the institute are professors in the program and 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 areas, one engineering and the other applied science. This curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Institute of Hydraulic Research, the Institute of Agricultural Medicine and Environmental Health, the Institute of Urban and Regional Planning, and the college of Business, Law, and Liberal Arts. Coursework and research present a general program of study or specialization in one of three areas: water quality management, air quality management, or solid wastes management. Environmental engineering and science courses are described in the "Division of Energy Engineering" section of the Catalog.

Structural and Geotechnical Engineering and Structural Mechanics and Materials
The structural and geotechnical engineering and structural 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, soil behavior, and constitutive theory. Coursework and research in structural analysis, structural design, soil mechanics and foundations, optimal design, and 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.

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 areas or aspects of the student's choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue full graduate study. Current and projected demand for M.S. graduates is excellent.
In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours credit, with not more than 6 semester hours of credit...
allowed for the thesis. An additional 6 semester hours are required in the
topical environmental engineering
curriculum.

Each student, with the approval of his or
her adviser, develops a plan of study
which satisfies special requirements of
the curriculum chosen by the student.

All candidates for the degree are
expected to have a minimum grade-point
average near 3.0 and are required to
pass written and oral examinations.

Doctor of Philosophy

The doctoral degree is granted primarily
on the basis of achievement, rather than
on a prescribed course of study.
Requirements as to semester hours of
coursework vary somewhat among the
various areas of specialty. The
candidate will normally need at least
three years of full-time work beyond the
baccalaureate degree, one year of
which is devoted to the preparation of a
dissertation which contributes to
knowledge in the field. In some specialty
areas, a qualifying examination is
required during the second semester for
students who have not earned an M.S. in
one of the University of Iowa graduate
programs in engineering.

All doctoral students are required to
pass a written and oral comprehensive
examination prior to formal admission to candidacy for the degree. This
examination is normally taken when
substantially all of the student’s
coursework has been completed.

The program culminates in a final
examination, in which the candidate
must successfully defend his or her
dissertation.

Doctoral candidates are expected to
maintain a grade-point average of 3.2
throughout the doctoral program.

The program also cooperates in
interdisciplinary doctoral programs with
the program in Applied Mathematical
Sciences of the "Division of Mathematical Sciences" section in
"Liberal Arts".

Admission

Each curriculum of the program is quite
flexible, and students may be admitted
from all disciplines of engineering as
well as the mathematical and basic
sciences.

An applicant for the master’s degree
program is expected to have a
cumulative undergraduate grade-point
average of 2.5 (4.0 = 1.0); usually, 3.0 is
expected. For admission to candidacy for
the doctorate, the minimum grade-
point average is 3.2 based upon
previous graduate work. Applicants
whose grade-point averages are slightly
lower are invited to correspond
regarding admission possibility.

All applicants must meet the general
admission requirements of the Graduate
College (see "Graduate College").

Financial Aid

A significant number of research
assistships are available on a variety of
research projects, as are a limited
number of teaching assistantships and
fellowships. Selection of recipients
usually is based on scholastic
achievement and research interest.

Electrical and Computer
Engineering

Program chair: Robert C. Antoniuk

Faculty members: Robert C. Antoniuk, David H.
Chung, Earl F. Donar, Anilawares Kandela, Karl E.
Collins, Richard K. Muth, Babara M. Webb, Stuart F.
Robinson, Lawrence A. Hess, Alan M. Nagy. The
associate professor of James A. Hohen, Hasher T.
Moss, and the associate professor of Stephen J.
Robinson, and the associate professor of

Electrical Engineering is concerned with
the generation, measurement,
transmission, processing, and control of
electric energy and its distribution 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.
*Professional Seminar must be taken at least once in the junior year and once in the senior year.

**Science core electives:**
520.20 Mechanics of Fluids and Transfer Processes 4 s.h.
580.10 Mechanics of Deformable Bodies 3 s.h.
580.37 Engineering Management Science 3 s.h.

Biological science course

The humanities and social sciences electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

**Graduate Program**

The electrical and computer engineering program offers courses leading to the Master of Science and Doctor of Philosophy degrees. Thesis and nonthesis M.S. programs are available, and other may precede Ph.D. studies.

Excellence in scholarship and research is stressed through close contact with the faculty throughout the period of graduate study and through programs tailored to 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 the 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 the 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 this has required 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-established and funded research laboratories exist in the following areas:

**Voces and Materials**

Plasma physics, electro-optics, and acoustics investigations utilize specialized laboratories in both the Engineering Building and Physics Research Building. Typical projects involve nonlinear wave interaction, plasma instabilities, laser optics, acoustic wave behavior, and ultrasound.

**Engineering in Biology and Medicine**

Computer-assisted electrophysiology, cardiac arrhythmia analysis, automated drug infusion, and image processing and speech recognition utilize a laboratory with its own real-time computer system. Some of these projects involve close collaboration with colleagues in the College of Medicine.

**Controls and Systems**

In cooperation with outside agencies, several projects applying modern control theory are in progress. These include stability considerations, time delay, and digital implementation. In the controls laboratory, investigation of real-time digital control, nonlinear system theory, and digital estimation utilize mini- and micro-computers. Other topics include applications of stochastic processes to problems in control and communication systems, current investigations emphasize estimation, identification, and control for stochastic dynamical systems having parameters modeled as jump processes.

**Computer Systems**

Fault-tolerant subsystem design and reliable system 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 adviser and the graduate committee. This must include at least 12 semester hours of coursework in electrical and computer engineering, not including courses required for electrical engineering undergraduates, and at least nine semester hours of coursework outside of electrical and computer engineering, ordinarily from mathematics and physics. With thesis, up to eight semester hours of the 30 semester hours may be research credit. Without thesis, at least 3 semester hours of 547:198 individual investigations are required in addition to the 12 semester hours in electrical and computer engineering. This independent study is to be a small project completed under the supervision of the student's program adviser. 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 materials in 547:198 Individual Investigations, for nonthesis candidates.

Doctor of Philosophy
Requirements are:
Becoming a program adviser and filling of a tentative plan of study with the program during the first year;
At least 72 semester hours of credit in a program acceptable to the adviser and approved by the graduate committee, with at least 45 semester hours of credit earned in formal courses, including 30 semester hours in courses numbered 545;
Successful completion of the Ph.D. qualifying examination;
Successful completion of the Ph.D. comprehensive examination;
Successful completion of a research program; and
Successful completion of a final oral defense of the thesis.

Graduate Admission
The normal requirement for admission to the graduate program is at least a 2.7 grade-point average on all courses in electrical and computer engineering, mathematics, and physics for M.S. students, 3.0 for Ph.D. students. An M.S. student with a grade-point average less than 2.7 but better than 2.3 on 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 sciences) may be admitted. In such cases, additional coursework without graduate credit may be required. Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the normal standards.

Financial Aid
A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Engineering
Program chair: George Li, Lurbo Faculty: Katherine Shi, T-Quang Phan, Adrianus Kurniawan, William Fullerton, Anna Cremers, James Cullen, associate professor James Andrews, R.B. Chandra, assistant professor Charles Sandridge Degree offered: B.S.E.

The increasing emphasis on interdisciplinary and collaborative career objectives in engineering emphasizes the desirability of having available a degree program which combines a strong background in engineering fundamentals with the flexibility of choosing a major elective sequence to achieve specific educational goals of individual students. The primary objective of the Bachelor of Science in 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 B.S.E. degree program is to provide the opportunity for each student to develop an individually-tailored program. 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 builds from background acquired in the engineering core courses. In consultation with an advisor, 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. The committee is also responsible for monitoring the progress of all students in the program and offering suggestions and advice as required.

Curriculum
Sophomore Year
First Semester
234:37 Engineering Calculus III 4 s.h.
530:16 Thermodynamics I 4 s.h.
540:11 Introduction to Electrical Science 3 s.h.
560:15 Materials Science I 3 s.h.
560:10 Dynamics 3 s.h.
Total 17 s.h.

Second Semester
234:38 Differential Equations and Linear Algebra 4 s.h.
540:12 Linear Systems Analysis 3 s.h.
540:16 Mechanics of Deformable Bodies 3 s.h.
540:18 Principles of Electronic Instrumentation 4 s.h.
"Humanities or social science elective 3 s.h.
Total 17 s.h.
### Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>S60:39 Probability and Statistics for Engineering and Physical Sciences</td>
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<tr>
<td>5.0 s.h.</td>
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<tr>
<td>29:82 Physics of Waves and Optics</td>
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<tr>
<td>3.0 s.h.</td>
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<tr>
<td>520:20 Mechanics of Fluids and Transfer Processes</td>
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<td>4.0 s.h.</td>
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<td>560:21 Principles of Design I</td>
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<td><em>Humanities or social science elective</em></td>
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<td>16.0 s.h.</td>
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<th>Second Semester</th>
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<tr>
<td>29:83 Modern Physics</td>
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<td>3.0 s.h.</td>
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<tr>
<td>560:22 Principles of Design II</td>
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<tr>
<td>3.0 s.h.</td>
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<tr>
<td>580:27 Engineering Management Science</td>
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<td>3.0 s.h.</td>
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<tr>
<td>Technical elective</td>
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<td>3.0 s.h.</td>
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<tr>
<td><em>Humanities or social science elective</em></td>
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<td>4.0 s.h.</td>
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<td><strong>Total</strong></td>
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<th>Senior Year</th>
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<td>First Semester</td>
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<tr>
<td>Design course</td>
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<td>3.0 s.h.</td>
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<tr>
<td>Technical electives</td>
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<tr>
<td>15.0 s.h.</td>
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<tr>
<td><em>Humanities or social science elective</em></td>
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<td>3.0 s.h.</td>
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<td><strong>Total</strong></td>
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<tr>
<td>18.0 s.h.</td>
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<th>Second Semester</th>
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<tr>
<td>Design course</td>
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<td>3.0 s.h.</td>
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<td>Technical electives</td>
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<tr>
<td><em>Humanities or social science elective</em></td>
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<td><strong>Total</strong></td>
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<td>15.0 s.h.</td>
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*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.*

### Industrial and Management Engineering

Program chair: J.M. Libichwiger
Degree offered: B.S.E.E., M.S., Ph.D.

The industrial and management engineer 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 advisor to management, or be in a line-wrth participating directly in management decisions. Representative job titles include industrial engineer, systems analyst or engineer, operations research analyst, intern consultant, supervisor, or manager. The industrial and management engineer may 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 design, interpretation and implementation of systems involving the optimal use of systems—human, material, and financial. The systems involved may range from small subsystems to extremely large systems. In order to accomplish these various activities, the industrial and management engineer is skilled in mathematics, physics, sciences, management, and human relations, as well as in computer systems, economics, optimization, and systems analysis and design. Both the undergraduate program in industrial engineering and 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 designed primarily for students in industrial engineering and management engineering are identified by the digit 6 in the third position of the course number prefix. Most such courses are described in this catalog in the section devoted to the Division of Systems Engineering (568 numbers) while a few courses pertaining to materials science or processing may be found in the section pertaining to the Division of Materials Engineering (566 numbers).

## Undergraduate Program

The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering sciences, mathematics, design, social sciences, and humanities. Advanced courses include specialty courses in management science, production, operations research, quality control, human engineering, and information systems.

## Curriculum

### Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
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<tr>
<td>560:10 Dynamics</td>
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<td>3.0 s.h.</td>
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<tr>
<td>540:11 Introduction to Electrical Science</td>
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<tr>
<td>3.0 s.h.</td>
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<tr>
<td>560:15 Materials Science I</td>
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<tr>
<td>3.0 s.h.</td>
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<tr>
<td>560:27 Engineering Management Science</td>
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<td>2.0 s.h.</td>
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<td>15.0 s.h.</td>
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<tr>
<th>Second Semester</th>
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<tr>
<td>562:12 Linear Systems Analysis</td>
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<tr>
<td>3.0 s.h.</td>
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<tr>
<td>520:18 Thermodynamics I</td>
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<td>4.0 s.h.</td>
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<tr>
<td>22M:03 Differential Equations and Linear Algebra</td>
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<tr>
<td>2.0 s.h.</td>
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<tr>
<td>580:70 Materials Science II</td>
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<tr>
<td>3.0 s.h.</td>
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<tr>
<td>Economics elective</td>
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<td>17.0 s.h.</td>
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### Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
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<tr>
<td>&quot;31:1 Elementary Psychology</td>
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<tr>
<td>4.0 s.h.</td>
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<tr>
<td>540:12 Principles of Electronic Instrumentation</td>
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<tr>
<td>4.0 s.h.</td>
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<tr>
<td>560:21 Principles of Design I</td>
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<tr>
<td>3.0 s.h.</td>
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<tr>
<td>580:39 Probability and Statistics for Engineering and Physical Sciences</td>
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<tr>
<td>3.0 s.h.</td>
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<tr>
<td>560:71 Materials Processing I</td>
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<td>3.0 s.h.</td>
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</tbody>
</table>
Industrial and Management Engineering/ENGINEERING

586:91 Professional Seminar 0 s.h.
Total 17 s.h.

Second Semester
582:22 Principles of Design II 3 s.h.
28:82 Physics of Waves and Optics 3 s.h.
586:91 Professional Seminar 0 s.h.
586:121 Design of Work Methods 3 s.h.
586:140 Operations Research I 3 s.h.
586:165 Human Engineering ** 3 s.h.
**Technical elective 3 s.h.
Total 16 s.h.

Senior Year
First Semester
586:91 Professional Seminar 0 s.h.
586:122 Information Systems Design 3 s.h.
*3:1156 Psychology in Management 3 s.h.
**Humanities elective 3 s.h.
***Technical electives 6 s.h.
Total 15 s.h.

Second Semester
586:91 Professional Seminar 1 s.h.
586:124 Operational Systems Design 3 s.h.
586:125 Quality Control, Reliability and Engineering Statistics 3 s.h.
**Humanities elective (100-level) 3 s.h.
Science core elective 3 s.h.
***Technical elective 3 s.h.
Total 16 s.h.

The economics elective may be selected from:
65:100 Prices, Employment, and Production Theory 3 s.h.
66:103 Microeconomics 3 s.h.
66:111 Labor Economics 3 s.h.
65:172 Managerial Economics 3 s.h.

The science core elective may be selected from:
580:9 Mechanics of Deformable Bodies 3 s.h.
52320 Mechanic of Fluids and Transfer Processes 4 s.h.
28:83 Modern Physics 3 s.h.
A biological science course 3 s.h.

**Strongly recommended social sciences electives.

**The humanities and social science courses must be selected to satisfy the requirements and social sciences courses of the College of Engineering.

**Technical electives. At least 9 of 12 hours are to be selected from the following list: The last course 23rd semester hour is to be chosen with the approval of the academic advisor.
587:101 Communication in Industry 3 s.h.
587:128 Engineering Administration I 3 s.h.
586:141 Operations Research II 3 s.h.
586:142 Production-Inventory Models 3 s.h.
586:143 Quantitative Investment Analysis 3 s.h.
586:149 Digital Systems Simulation I 3 s.h.
586:157 Advanced Managerial Psychology 3 s.h.
586:165 Advanced Human Engineering 3 s.h.
587:98 Individual Investigations 3 s.h.

Graduate Program

The goal of the industrial and management engineering graduate program at both the M.S. and Ph.D. levels is to provide a modern, highly flexible curriculum of graduate studies. Each student’s course of study will be based on the student’s background, career objectives, and sound academic practice. Program faculty have research interests in areas related to engineering management and human factors: operations research, computing, and engineering statistics; materials processing; and transportation.

Student programs emphasizing operations research or engineering management and human factors may be developed from Division of Systems Engineering courses offered mainly in industrial and management engineering program faculty. M.S. students desiring a more general program may combine these two emphases at the M.S. level, while those desiring some specialization in engineering statistics, computing, or materials processing may accommodate these preferences through the combination of industrial and management engineering program courses and appropriate electives from other programs and departments of the university. Ph.D. programs center either in the area of operations research and engineering statistics or engineering management and human factors.

Graduate students with an interest in transportation may participate in a program which is jointly administered with the Program in Urban Transportation.

Program faculty will periodically offer evening classes on campus or graduate extension classes off-campus.

Master of Science

The M.S. program requires a minimum of 30 semester hours of coursework and research. Students may choose either a thesis or a non-thesis program, although research assistants may be required to write M.S. theses as a condition of their support. All students, however, are encouraged to obtain the master’s degree with thesis. Students desiring eventual admittance to Ph.D. study are encouraged to advise the thesis option. 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 program chair and by the Graduate College dean.

Entering students in all programs will find some background in computer programming and probability and statistics helpful. Engineering management and human factors students will find elementary psychology and engineering economics useful preparation. Compressing coursework may be required for students with nonengineering backgrounds.

The student is required to maintain a minimum grade-point average of 2.75 on a minimum of 30 semester hours of graduate work to be eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee and may be a written examination or an oral examination. 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 contain at least 90 hours of study including research for the dissertation. Part-time Ph.D. study is discouraged, because it is no foreign language requirement.

Admission to degree candidacy will require a minimum grade-point average of 3.25 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 his or her adviser and examining committees, 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 comprehensive committee can evaluate the student’s academic preparation in the light of the research to be performed. Upon having satisfactorily completed 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 accredited baccalaureate curricular engineering discipline or in the mathematical or physical sciences with a minimum grade-point average of 3.0 and/or an acceptable GRE score (typically, at least 500 verbal, 700 quantitative). Students may also be admitted from business or social science programs on an individual basis. B.S. degrees are usually first 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

Program chair: Venkata C. Patel

Research specialties: Turbomachinery, heat transfer, heat and mass transfer, steam power generation, nuclear engineering.

Admission to the Ph.D. program is 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.

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 elective courses in both the technical and the humanities and social science areas. In consultation with his or her adviser, a student can develop capabilities to meet individual goals within the framework of the curriculum. All upperclass students are strongly encouraged to undertake projects of either an experimental or analytical design solution to a current problem.

Curriculum

Sophomore Year

First Semester

223:37 Engineering Calculus III

580:12 Dynamics

540:11 Introduction to Electrical Science

560:15 Materials Science I

560:18 Thermodynamics I

Total

17

Second Semester

224:38 Differential Equations and Linear Algebra

540:12 Linear Systems Analysis

540:18 Principles of Electronic Instrumentation

560:19 Mechanics of Deformable Bodies

18
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 desiring a more general program may combine these emphases, while those desiring some specialization may accommodate these preferences through the combination of program courses 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 coursework and research topic.

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 2.75 of 4.0, are eligible for being 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 coursework and research. Students may choose either a thesis or non-thesis program, but the latter must involve at least 8 hours of 200-level courses. To earn the M.S. degree, the student is required to attain a minimum grade-point average of 3.0 of 4.0 on a minimum of 30 semester hours of graduate work and 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 and physical sciences may be admitted as Ph.D. students if they have a minimum undergraduate grade-point average of 3.0 of 4.0. Reference letters, scores on the Graduate Record Examination (GRE) Aptitude Test, student research interests, 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 90 semester hours of credit, including research for the dissertation, beyond the baccalaureate degree. There is an foreign language requirement. Part-time students with a valid license 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 proceeding 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 in this examination is adequate for admission as a Ph.D. student shall be made by the student's committee and the program Ph.D. study is discouraged where the student is admitted, a Ph.D. committee is selected by the student and his or her advisor, subject to their willingness to serve, and approved by the program chair and the graduate dean. The Committee shall include at least five faculty members.
two from outside the program with 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. Upon completion of the coursework specified in the plan of study and upon the advisor’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 introductory, 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.

Having satisfactorily completed 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 aid 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 Manufacturing Engineering, the Iowa Institute of Hydraulic Research, and the College of Medicine. These awards are made on a semester, academic year, or calendar year basis. Awards and expectations are competitive and are based upon the student’s potential contribution to the research and teaching goals of the program. Students who fulfill their assistantship 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.

Division of Energy Engineering

Chair: Yoseph A. Casari

Assistant professor: Matthew J. McQuain


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 its teaching and scholarly activities, while remaining responsive to the changing engineering needs of society and its demands upon the engineering profession. The applications of the fundamental principles of 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 protection of the environment; and to the ever-increasing interaction between engineering and health sciences are conveyed to the undergraduate student through a series of integrated courses at various levels. In addition to serving students in all engineering curricula through the core program, the division offers specialized courses for students majoring in biomedical, chemical, civil, and mechanical engineering, and campus-wide general courses highlighting the complex interaction between engineering and other fields of learning concerning problems of energy and environment.

At the graduate level, the division offers courses in thermal sciences, environmental engineering, fluid mechanics, hydraulic engineering, and water resources for students pursuing advanced degrees in the civil and environmental engineering and mechanical engineering programs. The division offers courses and research opportunities in the following major disciplinary areas:

Fluid Mechanics

Dispersion and diffusion of passive and reactive contaminants in rivers and lakes; experimental and theoretical studies of turbulent boundary layers, wakes, jets, and plumes; unsteady turbulent and transitional flows; analytical and numerical solutions of problems in ship hydrodynamics; physiological flow phenomena in cardiovascular and intestinal systems; wind loads on structures; detection and removal of airborne particles; laser- and hot-wire anemometry; real-time acquisition and processing of data.

Thermal Sciences

Biological heat transfer; dynamics of aerocollidial suspensions; radiant heat transfer through real gases; radiative properties of rough surfaces; remote heat-diss measurement; design, performance, and heat transfer studies of solar-energy collectors and thermal storage systems; heat transfer in energy systems; plasma nonequilibrium; power-plant cooling systems; economics of power production.

Hydraulic Engineering

Design, modeling, and scale testing of intake and outfall structures; river management; thermal discharges into natural water bodies; cooling tower performance; sediment transport, formation of ice covers and ice jams; strength of ice; force on structures.
Water Quality
Mathematical modeling of water quality in streams and lakes; optimal allocation of resources to control water pollution; removal of trace organics in water treatment; kinetics of nitritiation in streams; sludge stabilization in wastewater treatment; disposal of sludge from water and wastewater treatment; anaerobic treatment of pyrolysis gas scrubber wastewater; biological reduction for the removal of sulfates from groundwater; anaerobic treatment of high-strength thermal sludge conditioning wastes; pilot-scale evaluation of microcoagulation for sludge dewatering.

Water Resources
Economics of water usage; management of reservoirs; stochastic hydrology; systems analysis; watershed modeling; water utilization by waste heat management.

Special Laboratories and Facilities
Undergraduate Instruction
The laboratory for undergraduate instruction in fluid and thermal sciences is located in the Engineering Building and contains a small wind tunnel, 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 Water Plant and the W.P. Morgan Sanitary Engineering Laboratory.

Fluids and Hydraulics
Laboratories
Since most members of the senior research staff of the Institute of Hydraulics Research hold professional 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 related to diffusion and dispersal of waste heat in water.

The Institute houses some of the most modern research facilities in the world, including a 320-ft long towing tank, several hydraulic flumes and wind tunnels, a dispersion tunnel, a wave tank, a special low-temperature fluid flow facility for investigation of ice phenomena, and an environmental hydraulic flume for modeling of atmospheric flows. A new ice flume/towing tank is nearing completion. The Institute is also equipped with two computer-based data acquisition and control systems for on-line recording, storage, and processing of experimental data gathered at various points in the laboratory.

Thermal Engineering Laboratories
Experimental research is conducted in the solar energy, thermal radiation, turbulence, and heat transfer laboratories in the Engineering Building. They have been renovated and expanded recently and are served by a central computer and computer-aided engineering complex with modern terminals and a computer-based data acquisition system with direct communication links to the University computer center.

Specialized equipment consists of a supercollector test stand with provision for simultaneous evaluation of several collectors; solar energy thermal storage facility; electric and acoustical aerofoil/aerodynamic apparatus, an air plasma facility with spectroscopic and diagnostic equipment; a spectral bidirectional reflectometer for radiant property measurements; and two-channel hot-wire and laser anemometers.

Environmental Engineering Laboratories
Research in environmental engineering is conducted in the Division's Philip P. Morgan Sanitary Engineering Research Laboratory at the Iowa City Municipal Wastewater Treatment 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 wet chemistry laboratory and space for bench and pilot studies of the physical, chemical, and biological processes 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 anaerobic treatment of wastes from a variety of sources, including the analysis of urban refuse, the thermal conditioning of sludges, and the processing of sludge.

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-gallons-per-day water plant is especially designed to enable the isolation of treatment questions 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 chemical and limological research. The water plant laboratory has been remodeled to accommodate an expanded level of research activity.

Courses

Environmental Engineering

Basic principles of classical thermodynamics, including first and second laws; renewable and non-renewable energy resources; solar energy systems; space and building air conditioning; environmental problems and applications. Prerequisites: E&IE 202M, 202N. 520/530 Hydrology of Water and Wastewater Processes 4.5. Laws governing fluid flow and associated transport processes; ideal fluid flow; friction, and turbulence flow phenomena; heat and mass transfer in fluid measurement of flow properties; includes scheduled laboratory experiments. Prerequisites: 220/221, 320/321, 330/331, 332/333, or 45/46 and consent of instructor. 525/535 Laboratory Techniques in Chemical Engineering (Majors only).
Special Program

300.00 Cooperative Education Taking Assignment
Mechanical Engineering

Mechanical engineering students participating in the Cooperative Education Program register in this course during work assignment periods. Registration provides a record of participation in the program on the student's permanent record card. Prerequisites: admission to the Cooperative Education Program and one semester's experience in mechanical engineering.

302.00 Experimental Engineering
Principles of physical measurement; standards, calibration, evaluation of error, errors and data reductions. Also, practical laboratory experiments and experience planning experiments. Prerequisites: junior standing in engineering. Same as 300.00.

312.00 Elementary Bio-Engineering
Conduct of basic bioengineering, emphasis on problems to problems in engineering. Prerequisites: 327.00. Same as 651.01.

322.00 Mechanical Engineering Design Project
Primary effort devoted to completion of an available design project. Course will be of 3-5 semester hours. Prerequisites: 326.00. Same as 468.02.

General

321.00 Energy in Contemporary Society

Social, legal, economic, and political issues and social issues on cross-disciplinary implications of energy systems. Prerequisites: junior, senior, preparation, or graduate standing in the University. Same as 44:192, 621.06-11.

327.00 Technology of Environmental Pollution
Factors of economic and engineering principles in the control of the release of pollutants in the air, water, and soil into the water and other natural systems. Prerequisites: standing in the University.

327.01 Environmental Planning and Management

Policy and assessment of the environmental impacts of human-made systems. Includes economic and engineering principles in the control. Prerequisites: 327.00 or graduate standing in the University.

328.00 Environmental Engineering
Development of analytical methods for the protection and assessment of the environment. Prerequisites: 327.00 or graduate standing in the University.

332.00 Environmental Engineering
Principles of methodology for environmental engineering principles in science and technology applications. E.g., soil and water quality, specialized treatment of pollutants in industrial processes, and special treatment of water and waste. Prerequisites: 330.00 or equivalent. Same as 610.02.

333.00 Engineering Mathematics

Principles of mathematical methods of technology and science important in engineering. E.g., series, differential equations, special functions, integral equations, complex variables, numerical methods, and nonlinear methods. Prerequisites: junior, senior, or graduate standing in engineering. Same as 610.11-10.

333.00c Mathematical Methods in Engineering I
Vector spaces, norms, quadratic forms, linear operators, Fourier analysis, multi-variable integration, and applications in signal and image processing. Prerequisites: junior, senior, or graduate standing in engineering. Same as 610.02.

333.00b Mathematical Methods in Engineering II
Fourier and Laplace transforms, special functions, complex variables, difference equations and applications, orthogonal polynomials, and linear algebra. Prerequisites: 333.00a. Same as 610.03.

333.00a Mathematical Methods in Engineering III
Mathematical concepts useful in the sciences and engineering, including vector analysis and complex variable. Prerequisites: 333.00b. Same as 610.04.

333.00c Mathematical Methods in Engineering IV
Mathematical concepts useful in the sciences and engineering, including vector analysis and complex variable. Prerequisites: 333.00b. Same as 610.02.

327.110 Analog and Digital Techniques for Data Reduction

Topics in computer-oriented experimentation utilizing digital computers for data reduction and data analysis for solving engineering problems. Prerequisites: no special mathematical background is required. Same as 610.00.

327.111 Advanced Numerical Analysis

Topics in the numerical solution of differential equations, finite elements, and interpolation. Prerequisites: I-B 141-5 and 607.00.

327.112 Advanced Engineering Analysis

Modelling of micro-fluid dynamics problems by mathematical equations. Applications to elliptic, parabolic, and hyperbolic partial differential equations. Prerequisites: 327.111 or equivalent. Same as 241.17.

327.113 Advanced Statistical Mechanics
Introduction to statistical thermodynamics. Prerequisites: 327.112 or equivalent. Same as 632.02.

Thermal Sciences and Energy Conversion

320.00 Thermal Sciences

First and second laws of thermodynamics, thermodynamics of gases, thermodynamics of liquids, and applications to thermoelectric generation, refrigeration, and heat pumps. Prerequisites: 230.00 or equivalent.

320.109 Heat Transfer

Introduction to the principles of heat transfer by conduction, convection, and radiation. Prerequisites: 320.00 or equivalent.

320.120 Intermediate Thermodynamics
Thermodynamic properties of gaseous and other common substances in the natural environment. Prerequisites: 220.00.

320.221 Direct Energy Conversion
Introduction to thermoelectric, photovoltaic, thermal, and fuel cells. Prerequisites: 320.00 or equivalent.

320.222 Intermediate Heat Transfer
Basic and advanced concepts, forced and natural convection, surface and passage radiation. Prerequisites: 320.00 or equivalent.

320.223 Heat Transfer Processes
Application of heat transfer processes to industrial and environmental engineering. Prerequisites: 320.00 or equivalent.

320.224 Solar Energy Applications
Solar radiation, earth's surface, and the atmosphere. Prerequisites: 320.00 or seven semesters of credit. Prerequisites: 320.109 or consent of instructor.

320.030 Kinetic Theory of Gases
Fundamental treatment of kinetic theory of gases. Topics include: kinetic theory fundamentals, Boltzmann equation, collision integral, Maxwellian distribution, thermal equilibrium, and applications to gases in the atmosphere. Prerequisites: 320.00 or equivalent.

324.030 Conductive Heat Transfer
Analysis of conduction in solids, including boundary conditions. Prerequisites: 320.00 or equivalent.

324.031 Convection Heat Transfer
Analysis of convection in fluids, including boundary conditions. Prerequisites: 320.00 or equivalent.

324.032 Radiation Heat Transfer
Analysis of radiation in gases and in blackbodies. Prerequisites: 320.00 or equivalent.

Environmental Sciences

322.00 Physical and Environmental Engineering
Physical, chemical, and biological principles of water and wastewater systems, air pollution control, and solid waste management. Prerequisite or graduate standing in engineering.

322.00b Environmental Chemistry
Principles of aerodynamics, structure, and function of the physical, chemical, and biological environment. Analysis of water, wastewater, and air pollution. Prerequisite: 322.00.

322.00g Environmental Microbiology
Fundamentals of microbiology with applications in environmental systems. Prerequisites: 322.00 or equivalent.

322.00m Environmental Oecology
Physical, chemical, and biological characteristics of natural water bodies and their relationships to the surrounding environment. Prerequisites: 322.00 or equivalent.

322.00l Environmental Hydrology
Principles of hydrology with emphasis on the hydrological cycle and its interaction with atmospheric conditions. Prerequisites: 322.00 or equivalent.

322.00s Environmental Chemistry and Engineering
Principles of the design and operation of water and wastewater treatment processes. Prerequisites: 322.00 or equivalent.

322.00t Environmental Chemistry and Engineering
Principles of the design and operation of water and wastewater treatment processes. Prerequisites: 322.00 or equivalent.

322.00c Environmental Engineering
Principles of the design and operation of water and wastewater treatment processes. Prerequisites: 322.00 or equivalent.

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Division of Information Engineering

Chair: Robert C. Antsaklis

The Division of Information Engineering coordinates laboratories in the electrical and computer engineering program with the core courses in electrical science, linear systems and instrumentation. The division is responsible for the teaching of the core courses and the courses in the electrical and computer engineering program.

Research is encouraged in the appropriate programs as well as interdisciplinary areas of current interest. Well established and funded research laboratories exist in the following special areas:

Waves and Materials

Plasma physics, electro-optics, and acoustic investigations utilize specialized laboratories in both the Engineering Building and Physics Research Building. Typical projects involve nonlinear wave interaction, plasma instabilities, laser optics, acoustic wave behavior, and ultrasonics.

Engineering in Biology and Medicine

Computer-assisted electrophysiology, heart arrhythmia analysis, automated a-v video infusion, image processing and speech recognition utilize a laboratory with its own real-time computer system. Some of these projects involve close collaboration with colleagues in the College of Medicine.

Control and Systems

In cooperation with outside agencies, several projects applying modern control theory are in progress. These include stability considerations, time delay, and digital implementation in the controls laboratory, investigation of real-time digital control, nonlinear system theory, and the computer utilization of minicomputers and microcomputers.

Computer Systems

Fault-tolerant subsystem design and reliable system configurations are typical project areas. Other topics include data security, data communications, networks, and fault-checking systems.

Facilities

The Computer Engineering Laboratory supports undergraduate and graduate teaching and research in the area of real-time computer systems. Included are dual PDP 11/34 minicomputers with magnetic tape, disk storage, multiple terminals, a line printer, and a graphics terminal. Other peripherals include A/D converters, D/A converters, real-time clocks, and digital input/output interfaces. This laboratory also supports our research and teaching efforts in image processing and includes a VAX 11/780 computer with a graphics display and graphics terminal, and a digitizing graphics tablet.

The Medical Engineering and Computation Laboratory is a research laboratory devoted to the application of technology to the solution of basic and clinical cardiovascular problems. It includes a PDP 11/45 minicomputer with disk storage, magneto-tape, line printer, graphics terminal, and A/D and D/A converters. The laboratory also includes extensive instrumentation facilities including an eight-channel strip chart recorder with general purpose amplifiers, two instrumentation tape recorders, a stimulator, tunable filters, electrocardiographs, and several other general purpose electronic instruments.

The Microprocessor Laboratory supports teaching applications in microprocessors and their applications. The laboratory has a broad range of commercially available equipment.
Special Program

541-60 Computer Education Training Judgment

Electrical Engineering

Electrical engineering students participating in the Comprehensive Examination Program will develop proficiency in the broad discipline during their work assignment periods. Registration provides a record of participation in the program and the student's permanent record must be approved by the student's faculty adviser.

510-50 Principles of Electrical Engineering Design I

Design problems using basic electrical devices and equipment: emphasis on application of discrete devices, e.g., transistors, transformers, and small signal integrated circuits. Prerequisites: MATH 115 and 116.

510-51 Principles of Electrical Engineering Design II

Design problems in linear integrated circuits, digital integrated circuits, control systems, microprocessors, plasma physics, solid-state physics, and electromagnetism theory. Prerequisites: 510-50 and senior standing.

510-52 Principles of Electrical Engineering Design III

Preliminary course: individual project of student's own choice; requires examination of the completed project. Prerequisites: 510-51 and senior standing.

510-53 Biological Systems Analysis

Applications of principles of control theory to examine impact of small system under the influence of computer control systems. Emphasis is on dynamic response of biological physiologic systems. Prerequisites: BMTH 250 or BMTH 250A or BMTH 250B or BMTH 250D. Same as BMTH 153.

510-54 Medical Measurement

Design, development, and utilization of contemporary electronic instrumentation for measuring biomedical variables of clinical and research interest: introduction to electromechanical principles and electronic circuits. Special project report required. Prerequisites: 510-50 and senior standing. These same courses are available, Prerequisites: BMTH 153 or 250 or 250B or 250D.

510-55 Biomedical Electronics

Introduction to the basic principles of electrical engineering with emphasis on applications to the discipline. Prerequisites: MATH 115 and 116.

510-56 Digital Signal Processing

Introduction to computer implementation; digital signal processing systems; digital input and output signals; transforms; Fourier theory; Z-transforms; and finite impulse response digital filters; subroutines for digital signal processing. Prerequisites: MATH 115 and 116.

510-57 Image Processing

An introduction to the basic principles of image processing and its applications in medical imaging, computer vision, and other areas. Prerequisites: MATH 115 and 116.

510-58 Computer Organization

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-59 Computer Architecture

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-60 Computer Networks

An introduction to computer networks, including network design, communication protocols, network security, and network management. Prerequisites: MATH 115 and 116.

510-61 Machine Organization

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-62 Machine Architecture

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-63 Machine Learning

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-64 Machine Vision

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-65 Machine Graphics

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-66 Machine Simulation

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-67 Machine Software

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-68 Machine Hardware

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-69 Machine Systems

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-70 Machine Systems

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

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An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-98 Machine Systems

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.

510-99 Machine Systems

An introduction to computer organization, instruction set design, memory systems, computer architecture, and computer organization. Prerequisites: MATH 115 and 116.
processes, and mechanics and mechanical systems. The division supports research activity by the faculty and students in the division and assists in the recruitment of qualified graduate students. Research in the division encompasses: experimentation in and mathematical modeling of the thermomechanical behavior of materials at the microstructural level as well as molecular level; basic study of transport processes with particular emphasis as mechanisms of dissolution and surface phenomena; modern optimization theories as they relate to the analysis and design of complex structural and mechanical systems; failure of materials through experimentation and better understanding of failure mechanisms; application of the principles of continuum and theoretical mechanics to the analysis of biomedical systems and the design of prosthetic devices; study of the properties of granular media, including powders and soils, and the effect of particle shape on physical properties; and the implementation of laws of behavior of concrete and composite building materials in the design of large structures.

Biomechanics Laboratory

The laboratory is equipped for research in stress analysis and modeling associated with biomechanical systems. Equipment includes a photoelastic bench with 12-inch monochromatic polariscope, photo-electric oven, fringe multiplier, contour projector, photo-stress meter, and recording equipment.

Chemical Engineering Laboratory

Located in the Chemistry-Botany Building, the laboratory includes pilot-plant equipment for the study of industrial evaporation, distillation, drying, fluid flow, and heat transfer. In addition, there is a 14-foot nuclear reactor and facilities for bio-materials research and investigation of plastics and other materials. Facilities available to individual research by graduate students include chromatographs, analog computers, and other instrumentation. A small shop is available for students to use under the supervision of a technician.

Electron Microscope Laboratory

This instructional and research facility is equipped with an RAC EMU-3F electron transmission microscope and necessary specimen preparation equipment to permit examination of specimens by the use of thin foil and replica microscopy and diffraction area diffraction. This facility complements the adjacent facility involving the mechanical behavior of materials, such phenomena as the following may be studied by use of this foil technique: the behavior and distribution of dislocations as a result of plastic deformation, cracking in ferrite, subgrain boundary formation, redetion damage, electron fractography and the study of surfaces may be done by use of the replica technique, and phase transformation may be studied by use of selected area diffraction.

Materials Processing Laboratories

This facility consists of metal casting and welding, metal cutting, and heat treatment and metallographic laboratories, all equipped for instruction and research involving primarily the liquid and solid state of metallic materials. The laboratories are equipped with such items as melting and heat-treating furnaces, a variety of welding equipment, foundry sand testing and molding equipment, pyrometers, nondestructive testers, machine tools and tool face dynamometers, metal-forming equipment, metallographic specimen-mounting presses and polishers, a variety of metallurgical microscopes, and a darkroom.

Materials Testing Laboratory

This laboratory is equipped for the determination of physical and mechanical properties of materials of engineering interest, such as metals, polyurea, and biomaterials. It includes a compression testing machine, an axial testing machine, and a universal testing machine with mechanical and sophisticated multichannel electronic instrumentation for measuring deformation and stress. It also includes an XRF machine for the investigation of failure analysis of metals. An additional facility in the form of a random function generator for the study of fracture is being added. In addition, the laboratory contains a modern creep testing capability with a high-temperature chamber for the study of experiments at high temperature. A pulse generator equipment has been acquired more recently for the dynamic response of metals in the high frequency range.

Mechanical Engineering Laboratories

The mechanical engineering laboratories are equipped to give students a wide variety of experience in using modern methods of measurement and analysis, including computers, a variety of strain gauges, a photo-electric laboratory, and other conventional instrumentation. Particular areas include study of material behavior with emphasis on the mechanics of dynamic systems and mechanisms of failure under both static and cyclic loading.

Powders and Particles Laboratory

This laboratory is equipped with sampling devices; devices for characterizing bulk properties of powders; various mixers, grinders, and forming equipment; optical microscopes; thin-film furnaces; and mounting and polishing equipment. In addition, there is access to a scanning electron microscope Quanta 720 system, computer center, and specialized engineering and chemistry library facilities and laboratories.

Structural Testing Laboratory

This laboratory is equipped for the determination of physical properties of materials in engineering construction, such as soils, aggregates, concrete, metals, timber, and plastics. Included are a compression testing machine, a universal testing machine, and an axial testing machine, along with mechanical and electronic instrumentation for the
accurate measurement of deformations under load. The laboratory also contains a photograph box and frame, permitting construction of precast concrete structural members. A soils laboratory contains consolidation and triaxial testing equipment of the latest design.

Courses

Engineering Core

592.01 Introduction to Engineering
Survey of engineering branches of engineering: mechanical, electrical, civil, and chemical. Prerequisite: high school mathematics, including algebra and geometry. 1 Cr. Arranged.

592.11 Engineering Dynamics
Study of motion concepts necessary for engineering, including kinematics, dynamics, stress analysis, and vibrations. Prerequisites: Math 214, OAE 206, and OAE 207. 3 Cr. Arranged.

592.11 Mechanics
Vector quantities, forces, equilibrium and statics, and simple systems. Newton’s laws, kinetics, equilibrium of systems of particles and simple bodies in plane and solid applications. Computer: ENME 240.

592.11 Statics
Vector quantities, Newton’s laws, dynamics of particle motion, multibody systems, and rigid bodies in plane and solid applications. Prerequisites: Math 205 and ENME 240.

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Materials Phenomenology and
Science

MIS.7.1 Materials Science I

MIS.7.2 Materials Science II

MIS.7.3 Materials Science III

MIS.7.4 Materials Science IV

Physical and geometrical properties of materials, density and related phenomena. Applications in civil and mechanical engineering. 9 hours. 6 credits.

MIS.7.5 Materials Science V

MIS.7.6 Materials Science VI

MIS.7.7 Materials Science VII

MIS.7.8 Materials Science VIII

MIS.7.9 Materials Science IX

MIS.7.10 Materials Science X

MIS.7.11 Materials Science XI

MIS.7.12 Materials Science XII

MIS.7.13 Materials Science XIII

MIS.7.14 Materials Science XIV

MIS.7.15 Materials Science XV

MIS.7.16 Materials Science XVI

MIS.7.17 Materials Science XVII

MIS.7.18 Materials Science XVIII

MIS.7.19 Materials Science XIX

MIS.7.20 Materials Science XX

MIS.7.21 Materials Science XXI

MIS.7.22 Materials Science XXII

MIS.7.23 Materials Science XXIII

MIS.7.24 Materials Science XXIV

MIS.7.25 Materials Science XXV

MIS.7.26 Materials Science XXVI

MIS.7.27 Materials Science XXVII

MIS.7.28 Materials Science XXVIII

MIS.7.29 Materials Science XXIX

MIS.7.30 Materials Science XXX

MIS.7.31 Materials Science XXXI

MIS.7.32 Materials Science XXXII

MIS.7.33 Materials Science XXXIII

MIS.7.34 Materials Science XXXIV

MIS.7.35 Materials Science XXXV

MIS.7.36 Materials Science XXXVI

MIS.7.37 Materials Science XXXVII

MIS.7.38 Materials Science XXXVIII

MIS.7.39 Materials Science XXXIX

MIS.7.40 Materials Science XL

MIS.7.41 Materials Science XLI

MIS.7.42 Materials Science XLII

MIS.7.43 Materials Science XLIII

MIS.7.44 Materials Science XLIV

MIS.7.45 Materials Science XLV

MIS.7.46 Materials Science XLVI

MIS.7.47 Materials Science XLVII

MIS.7.48 Materials Science XLVIII

MIS.7.49 Materials Science XLIX

MIS.7.50 Materials Science L

MIS.7.51 Materials Science LI

MIS.7.52 Materials Science LII

MIS.7.53 Materials Science LIII

MIS.7.54 Materials Science LIV

MIS.7.55 Materials Science LV

MIS.7.56 Materials Science LVII

MIS.7.57 Materials Science LVI

MIS.7.58 Materials Science LVIII

MIS.7.59 Materials Science LIX

MIS.7.60 Materials Science LX

MIS.7.61 Materials Science LXI

MIS.7.62 Materials Science LXII

MIS.7.63 Materials Science LXIII

MIS.7.64 Materials Science LXIV

MIS.7.65 Materials Science LXV

MIS.7.66 Materials Science LXVI

MIS.7.67 Materials Science LXVII

MIS.7.68 Materials Science LXVIII

MIS.7.69 Materials Science LXIX

MIS.7.70 Materials Science LX

MIS.7.71 Materials Science LXI

MIS.7.72 Materials Science LXII

MIS.7.73 Materials Science LXIII

MIS.7.74 Materials Science LXIV

MIS.7.75 Materials Science LXV

MIS.7.76 Materials Science LXVI

MIS.7.77 Materials Science LXVII

MIS.7.78 Materials Science LXVIII

MIS.7.79 Materials Science LXIX

MIS.7.80 Materials Science LX

MIS.7.81 Materials Science LXI

MIS.7.82 Materials Science LXII

MIS.7.83 Materials Science LXIII

MIS.7.84 Materials Science LXIV

MIS.7.85 Materials Science LXV

MIS.7.86 Materials Science LXVI

MIS.7.87 Materials Science LXVII

MIS.7.88 Materials Science LXVIII

MIS.7.89 Materials Science LXIX

MIS.7.90 Materials Science LX

MIS.7.91 Materials Science LXI

MIS.7.92 Materials Science LXII

MIS.7.93 Materials Science LXIII

MIS.7.94 Materials Science LXIV

MIS.7.95 Materials Science LXV

MIS.7.96 Materials Science LXVI

MIS.7.97 Materials Science LXVII

MIS.7.98 Materials Science LXVIII

MIS.7.99 Materials Science LXIX

MIS.800 Materials Engineering I

MIS.801 Materials Engineering II

MIS.802 Materials Engineering III

MIS.803 Materials Engineering IV

MIS.804 Materials Engineering V

MIS.805 Materials Engineering VI

MIS.806 Materials Engineering VII

MIS.807 Materials Engineering VIII

MIS.808 Materials Engineering IX

MIS.809 Materials Engineering X

MIS.810 Materials Engineering XI

MIS.811 Materials Engineering XII

MIS.812 Materials Engineering XIII

MIS.813 Materials Engineering XIV

MIS.814 Materials Engineering XV

MIS.815 Materials Engineering XVI

MIS.816 Materials Engineering XVII

MIS.817 Materials Engineering XVIII

MIS.818 Materials Engineering XIX

MIS.819 Materials Engineering XX

MIS.820 Materials Engineering XXI

MIS.821 Materials Engineering XXII

MIS.822 Materials Engineering XXIII

MIS.823 Materials Engineering XXIV

MIS.824 Materials Engineering XXV

MIS.825 Materials Engineering XXVI

MIS.826 Materials Engineering XXVII

MIS.827 Materials Engineering XXVIII

MIS.828 Materials Engineering XXIX

MIS.829 Materials Engineering XXX

MIS.830 Materials Engineering XXXI

MIS.831 Materials Engineering XXXII

MIS.832 Materials Engineering XXXIII

MIS.833 Materials Engineering XXXIV

MIS.834 Materials Engineering XXXV

MIS.835 Materials Engineering XXXVI

MIS.836 Materials Engineering XXXVII

MIS.837 Materials Engineering XXXVIII

MIS.838 Materials Engineering XXXIX

MIS.839 Materials Engineering XL

MIS.840 Materials Engineering XLI

MIS.841 Materials Engineering XLII

MIS.842 Materials Engineering XLIII

MIS.843 Materials Engineering XLIV

MIS.844 Materials Engineering XLV

MIS.845 Materials Engineering XLVI

MIS.846 Materials Engineering XLVII

MIS.847 Materials Engineering XLVIII

MIS.848 Materials Engineering XLIX

MIS.849 Materials Engineering LX

MIS.850 Materials Engineering LXI

MIS.851 Materials Engineering LXII

MIS.852 Materials Engineering LXIII

MIS.853 Materials Engineering LXIV

MIS.854 Materials Engineering LXV

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MIS.860 Materials Engineering LXI

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MIS.884 Materials Engineering LXV

MIS.885 Materials Engineering LXVI

MIS.886 Materials Engineering LXVII

MIS.887 Materials Engineering LXVIII

MIS.888 Materials Engineering LXIX

MIS.889 Materials Engineering LX
Human Factors

299-155 Human Engineering
2 a.h.

299-156 Psychology in Management
2 a.h.
Application of psychological principles to human relations and supervision; causes of motivation, leadership, communication, group dynamics, office stress, and other topics. Offered fall semester, Format: 3-1-15.

299-158 Industrial Management Psychology
2 a.h.
Dissertation on selected industrial research in management psychology. Usually offered fall semester. Prerequisite: 299-156.

299-159 Human Machine Engineering
2 a.h.
Classification of industrial research areas in human factors engineering. Offered in departmental study. Prerequisite: 299-155.

Transportation

593/733 Transportation Engineering
2 a.h.
History of transportation, specification, and control of facilities, traffic control, pricing and design, new technologies, economic limiting strategies, economic impact of transportation alternatives and road location. Offered fall semester. Prerequisite: 393-131.

593/747 System Design
2 a.h.
Transportation system engineering, design, and management. Development of project network, and systems analysis and design. Prerequisite: 593-131. Corequisite: 593-290.

593-773 Transportation System Analysis
2 a.h.
Transportation systems management and traffic engineering, intersection design, development of macro network models, and discrete- and continuous-time models. Prerequisite: 593-774 or consent of instructor.
Graduate College

The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, 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 its administration of scholarships, fellowships, and research funds, the Graduate College encourages research and strengthening of departments. It gives extensive assistance to individual faculty members in finding the resources necessary for research projects. The Graduate College works with the other colleges of the University and with departments in the formulation of policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College comprises all University faculty members in the ranks of assistant professor, associate professor, and professor. A 12-member Graduate Council, elected from and by the graduate faculty and the Graduate Student Senate, is the executive committee of the graduate faculty and is advisory to the dean of the Graduate College.

Degree Programs

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Business Administration (M.B.A.), Master of Arts in Teaching (M.A.T.), Master of Fine Arts (M.F.A.), Educational Specialist (Ed.S.), Master of Social 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.
- Afro-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.S.
- 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.
- Chemical and Materials Engineering—M.S., Ph.D.
- Chemical Physics—M.S., Ph.D.
- Chemistry—M.S., Ph.D.
- Civil and Environmental Engineering—M.S., Ph.D.
- Classics—M.A., Ph.D.
- Community Dentistry—M.S.
- Comparative Law—M.S.
- Comparative Literature—M.A., Ph.D.
- Computer Science—M.S., Ph.D.
- Criminal Justice and Corrections—M.A.
- Dental Hygiene—M.S.
- Dramatic Art—M.A., M.F.A., Ph.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.
Environmental Engineering—M.S.*
Ph.D.
Fixed Prosthodontics—M.S.
Fraud—M.A.*, Ph.D.
Genetics—Ph.D.
Geophysics—M.A.*, Ph.D.
Geology—M.S.*, Ph.D.
Germes—M.A.*, Ph.D.
Greek—M.A.*
History—M.A.*, Ph.D.
Home Economics—M.A.*, M.S.
Hospital and Health Administration—M.A.*, Ph.D.
Industrial and Management Engineering—M.S.*, Ph.D.
Journalism—M.A.*
Lettis—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.*
Philosophy—M.A.*, Ph.D.
Microbiology—M.S., Ph.D.
Museum Methods—M.A.,**
Music—M.A.*, M.F.A., M.M., Ph.D.
Nursing—M.A.
Nutrition—Ph.D.
Operative Dentistry—M.S.
Ophthalmology—M.S.
Oral Pathology—M.S.
Oral Surgery—M.S.
Orthodontics—M.B.
Otolaryngology—M.S.
Pathology—M.S.
Pediatrics—M.S.
Periodontology—M.S.
Pharmacology—M.S., Ph.D.
Pharmacy—M.S.*, Ph.D.
Philosophy—M.A.*, Ph.D.
Physical Education—M.A.*
Physical Therapy—M.A.
Physics—M.S.*, Ph.D.
Physiology and Biophysics—M.S., Ph.D.
Political Science—M.A.*, Ph.D.
Preventive Medicine and Environmental Health—M.S.*, Ph.D.
Psychology—M.A.*, Ph.D.
Public Affairs—M.A.*
Radiation Biology—M.S., Ph.D.
Recreation Education—M.A.*
Religion—M.A., Ph.D.
Removable Prosthodontics—M.S.
Russian—M.A.*
Science Education—M.S.*, Ph.D.
Social Studies—M.A.*
Social Work—M.S.W.
Sociology—M.A.*, Ph.D.
Spanish—M.A.*, Ph.D.
Speech—M.A.*, Ph.D.
Speech and Dramatic Art—M.A.*, Ph.D.
Speech Pathology and Audiology—M.A.*, Ph.D.
Statistics—M.S.*, Ph.D.
Urban and Regional Planning—M.A.*, M.S.
Zoology—M.R.*, Ph.D.
**Degrees conferred with or without thesis
***Nonmatric degree
**Student entry suspended

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 interlocking 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 "Financial Aid." These are the primary sources of assistance:

Teaching and Research Assistantships
Available in most departments; stipends typically range between $5,000 and $8,000 a year on a year-round basis. Assistantships are also eligible for tuition scholarships; nonresident assistantships (one-quarter time or more) are reduced to resident rates.

University Teaching-Research Fellowships
For first-year graduate students entering doctoral programs, typical stipends of $6,000 a year on a year-round basis, with all tuition paid, for as many as four years; recipients have teaching and research assignments, but may carry full course loads at the same time, one year out of four and all summers, recipients have full time to pursue studies, research, or writing.

Scholarships
Up to full tuition and fees.

Graduate Fellowships
$4,800 for the academic year.

Other Sources
University and National Defense Student loans are available through the University's Office of Student Financial Aid. Many departments offer additional support through teaching assistantships and 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 advance the interests of the graduate students 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. Applicants 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 fall semester enrollment, December 1 for spring semester enrollment or May 1 for summer enrollment. These are general Graduate College deadlines. Individual departments 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 (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete with the exception of scores on the GRE or the GMAT may, depending on departmental policy, be admitted if they meet all other requirements. The GRE, or the GMAT, must be taken within one session after registration. The test is given several times a year at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of acceptable levels of performance on this test and the weight it receives in the decision on admission of a student is left to the departments. Some departments in fields where GRE Advanced Tests are available require these in addition to the Aptitude Test. Inquiries about the Aptitude Test may be directed to University Evaluation and Examination Service; and inquiries about the requirement of the Advanced Test should be directed to the executive of the department in which the applicant is interested.

C. English for Foreign Students

Prior to consideration for admission, foreign student applicants whose native language is other than English must take and pass TOEFL (Test of English as a Foreign Language), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. The examination is given at various times of the year and in many centers throughout the world. Inquiries should be addressed to the Director, TOEFL, Educational Testing Service, Princeton, New Jersey 08540.

Foreign students transferring from unfinished degree programs of other universities in the United States who have not taken this examination, or who have received a grade lower than the minimum established by the Graduate College dean, must take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the department of those students whose performances on the TOEFL test meet the department's requirements for entrance. Individual departments may require such students to take and pass a course at The University of Iowa in English usage designed especially for foreign students.

D. Early Admission

A student who is within four semester hours of having satisfied all the requirements for the bachelor's degree at The University of Iowa or any other accredited college may be given provisional admission.

E. Candidacy

Admission to the Graduate College is not the equivalent of acceptance as a candidate for a master's degree, which must be earned through work successfully completed at The University of Iowa. (See "Section X. Master's Degrees," and "Section XII. Professional Degrees.")

F. Declaration of Major and Degree

Every applicant for admission must indicate on the application form the department or degree program or certificate program of his or her 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 initiate 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 are admitted to the graduate degree program and who have met the minimum requirements for admission and who have been accepted by a department or interdisciplinary degree program, for work leading to a graduate degree or certificate or professional 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 to conditional status, the student must be recommended by a department, which will assume responsibility for advising him or her. (See minimum grade-point requirements, "Section IX.3."

3. Temporary—The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by achieving a grade-point average of at least 2.00 (3.00 for doctoral students)
and acceptance by the major department, or be dismissed.

3. Special—Students in receipt of a valid baccalaureate degree who want to register for no more than two courses at a time and who are not planning to become candidates for a graduate degree or certificate. These students, relatively few in number, must obtain special permission to register from the director of graduate studies. Special graduate students are not eligible for a graduate degree or for a certificate in a certificate program.

4. Summer Session—Students with a valid baccalaureate degree and at least a 2.3 grade-point average may register for only one summer session without being accepted by a department or college. (See “Section III” below.) The deadline for application for admission to the summer session will be determined by the director of the summer session and the director of admissions. Before admission to any supplement session, including another summer session, the student must file an application and be admitted to regular or conditional status.

H. Minimum Requirements for Admission

Graduates of any college or university accredited by regional accrediting associations may be admitted to the Graduate College if their academic records meet the required standards. At the master's level, 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. A cumulative 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 upon the undergraduate and graduate work completed. In cases in which a student applying for admission has a grade-point average below the minimum required, but has a Graduate Record Examination score above a point to be designated by the Graduate College dean, his or her application will be forwarded to the department concerned for examination and decision.

Students applying for admission to a doctoral program with 12 or more semester hours of graduate work must meet a minimum grade-point average of 3.0 on the graduate work. For students with less than 12 semester hours of graduate work, a minimum of 2.7 is required on the entire record of collegiate work.

Departments, or committees in charge of interdepartmental degree programs, may, and often do, set higher minimum admission requirements than those set forth above for the University as a whole. Information concerning departmental or program requirements may be obtained directly from the dean of the department concerned.

For State Board of Regents' formal admission requirements, see "Appendix" of the Catalog.

I. Admission of Faculty Members to Graduate Study

Persons who hold faculty rank of assistant professor (including clinical assistant professor) or above at the University of Iowa may be admitted as special students. (See "Section G," above.) A person holding faculty rank as specified above may petition the Graduate College dean for permission to enter a departmental program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment or closely related departments, such persons must have prior approval of the department of appointment. If the department in which the study is to be pursued, and the Graduate Council.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit will be substituted to one hour of graduate credit, with registration limited to a total of 18 semester hours. This applies to the calculation of academic load only. Graduate credit is not given for courses numbered under 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 8-week summer session will be arranged on a basis proportionate to that stated above with the approval of the dean of the Graduate College. Nine semester hours is the regular semester maximum full-time registration. (Fallow are required to carry at least nine semester hours during a semester as a condition of their appointments.) Four-quarter-time and one-third-time appointees are permitted to register for the maximum 15 semester hours per semester and eight semester hours during the eight-week summer session.

B. Courses Not Included in Total Registration

In addition to the regular schedule, a graduate student may register for courses printed in the Schedule of Courses as carrying no semester hour credit.

C. Changes In Announced Credit

Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. One-half-time appointees may register for not more than 12 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eighth-time appointees may register for not more than 10 semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds and three-quarter-time appointees may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Seven-eighth-time appointees may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for not
more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retroactive Registration
No form of retroactive registration is permitted.

F. Registration for Part of a Session
A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed the 15 semester hours permitted for a semester and the 8 semester hours permitted for the 8-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 the Graduate College, registration for work done off campus is accepted for residence credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional 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. Credit was obtained off campus by members of the graduate faculty (see "Section X.2") for minimum semester hours required on the campus of the master's and doctor's degree
5. Residence graduate credit from another Iowa Regents' University (see "Section X.3.B.")
6. As many as nine semester hours of graduate work taken at the Quad-Cities Graduate College 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. Coursework transferred from another institution;
2. Correspondence courses.

H. Extramural Fees and Privileges
Students registered for extramural courses for graduate residence credit must apply for admission to regular status (see "Section I.0") and pay established fees. (See "Section X.9.3" for special fees applicable to postcomprehensive registration, which should not be confused with extramural registration for residence credit.

1. Correspondence Courses
Correspondence study credits do not count as residence credits. Graduate correspondence study credit earned prior to a student's acceptance as a degree candidate at The University of Iowa may be counted toward an advanced degree upon the approval of the appropriate college or department. Not more than nine semester hours of graduate correspondence work can be accepted for credit for an advanced degree. Such credit must be acceptable for the student's Plan of Study and must be examined after the student has attained graduate status. A student entitled for residence credit may not register for correspondence courses without the 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 200 or above in each department. Course open to and carrying credit to graduate and undergraduate students are numbered from 100 to 199. Courses below 100 are not accepted for graduate credit.

K. Auditing of Courses
In special cases, and upon the recommendation of the instructor and the adviser, the dean of the Graduate College may grant permission to graduate students to audit courses for no credit. Auditing is permitted only to 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 after the deadline date, he or she must obtain permission from the dean of the Graduate College before he or she is permitted to reenroll.

Section III. 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 on another campus but not available on his or her own campus: special course offerings, research opportunities, unique laboratories, and library collections.

B. Procedure
1. A CIC Traveling Scholar first must be recommended by his or her own graduate adviser, who will approach an appropriate faculty member at the possible host institution in regard to a visiting arrangement.
2. After agreement by the student's adviser and the faculty member at the host institution, graduate dean at both institutions will be fully informed by the adviser and have the power to approve or disapprove.
3. A CIC Traveling Scholar will be registered at the home university, and fees will be collected and kept by that institution. The student registers for 000-800 CIC Scholar at The University of Iowa.
4. Credit for the work taken will be recorded at the home university.
5. Those desiring additional information should write to the office of the Graduate College.
C. Conditions
GIC Traveling Scholars will normally be limited to the semester or quarters of one campus. Each university retains its right to permit or request any student who submits to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal
A. Master's, Specialist, Certificates, or other Nondegree Students
A student on regular status shall be placed on probation if, after completing eight semester hours of graduate work, he or her cumulative grade-point average on graduate work done at The University of Iowa falls below 3.00. If, after completing eight more semester hours of graduate work at the University, his or her grade-point average remains below 2.50, he or she shall be denied permission to register; otherwise, the student shall be restored to good standing.

B. Doctoral Students
A doctoral student on regular status shall be placed on probation if, after completing eight hours of graduate work, the student's cumulative grade-point average on graduate work done at The University of Iowa falls below 3.00. 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 register unless he or she applies and is accepted for another degree or certificate program. If the condition of probation is met, the student is returned 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 any 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 regulations, specific departments may establish further requirements which then determine the individual student's standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be filed in each departmental office and the notice of the Graduate College dean. Copies are to be made available to students in the departmental office, and departments shall make all reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated to 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 disadvantage 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 different 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 degree requirements, inclusion of theses, dissertations, or other forms of student work, and any other regulations that may apply. The nature of the departmental advisory system shall be explained to the incoming students.

E. Academic Progress, Departmental Probation, and Dismissal Procedures
If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what subject(s) the student is failing to meet the standards. The student shall be provided a reasonable amount of time to meet the standards prior to departmental dismissal. If, in its monitoring of a student's progress, conditions such as conditional admission or probation are imposed, the department shall give at the time its imposition written explanation of the status and its time limits.

A student who will not be permitted to register for the next semester shall be notified of this fact in writing with reasons for the action provided. Such dismissal may follow refusal to meet conditions of admission, conditions of probation, pre-conviction departmental grade-point requirements or other standards, or failure of a regularly scheduled examination or formal evaluation. If a student judges the dismissal decision improper, the student has a right to review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean, and shall afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above. (See "Section IV.D.")

F. Graduate College Review of Departmental Dismissal
Questions involving judgment of performance will not be reviewed beyond the department level. However, the student feels there has been unfairness or some procedural irregularity concerning dismissal, the student must request a review by the Graduate College. This review may be conducted by the Graduate College dean alone, or the dean may appoint a Graduate College committee involving all of the 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 appropriate 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 the Graduate College, residence graduate credit from another Iowa State University may be counted as residence credit at this institution, provided such work is acceptable to the student's major department on the basis of the department's determination of its applicability toward the degree. (See "Section X.D." and "X.L.G." for minimum semester hours required on campus for the master's and doctor's degrees.)

C. Reduction in Credit
For courses or seminars in independent study, thesis, and research, an instructor may report less credit than the number of semester hours for which a student is registered.

D. Graduate Credit for Veterans Credit may be granted for studies pursued in war and military 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 group or individual situations. The value of such 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 Withdrawal from Courses
Students Entering Military Service
1. Students who leave within the first six weeks of the semester receive no credit.
2. Students who leave within the period of seven to nine weeks receive one-half credit.
3. Students who leave within the period of 10 to 12 weeks receive two-thirds credit.
4. Grade reports for the one-half and two-thirds credit periods: (a) Instructor 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 department's approval.
5. Students who complete the twelfth week receive full credit.

6. Grade 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 no credit may be assigned.

Section VI. Marking System
A. Marks Carrying Advanced Grade Credit
These are A, B, C, and S—satisfactory.

B. Marks Carrying No Credit for Advanced Degrees
These are D—poor, F—failed, I—incomplete, W—withdrawn without discredit, R—registered, and U—unsatisfactory.

C. Audit
If assigned when a student registered for no credit attends as an auditor throughout the course, if the student 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 session cannot be completed because of illness, accident, or other circumstances beyond the student's control. For registrations for thesis, research, or independent study, the S/U grades may be supplied. (See next paragraph. "E") Students who receive the mark of I must remove that mark within the first session of registration after the closing date of the session for which it is given, or one grade becomes F, except that students with I's from the spring semester are exempt from completing the course during the succeeding summer session. Specific deadlines for the submission of student work to the faculty and for the faculty's report on I grades to the registrar will be set by the Graduate College dean 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.

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 the student receives no credit. Neither S nor U is used in computing grade-point averages. At the later date, the instructor may change the S to a letter grade. In addition, departments 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 session and must be reviewed by the Graduate Council before being granted for longer periods. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

F. Grades of S and U
S and U may be used for courses taken by a graduate student outside the major department or interdepartmental department program provided that the instructor of the course and the departmental advisor approve the S/U grading. Arrangements for S/U grading in these courses are accomplished by filing a card with appropriate signatures in the Registrar's Office at the time of registration, or to work on the last day of the third week of a semester or the third day of the second week of a summer session. No changes from letter grades to S/U grades or vice versa will be allowed after these dates.

It is not the policy of the Graduate College to abandon the traditional letter grades used above; however, in certain exceptional instances, departments having several areas of concentration involving widely differing types of effort may request the permission of the Graduate Council to allow students majoring in one area to
Section VII. Graduate Appointments

A. Scholarships

Scholarships are competitive and are awarded on merit. 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 dean; (d) satisfactory rate of progress in completing the program for the degree. 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 in no case exceed the comprehensive fee 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 complete the degree. Other terms of the award will be established by the Graduate College dean in consultation with the Graduate Council.

C. Faculty Research Assistantships

Faculty research assistantships are awarded to qualified graduate students and serve two purposes: (a) to provide research service to professorial members of the academic staff and (b) to provide apprenticeship experience for graduate students who are in training in research. Not more than 20 hours of service per week are required of a half-time assistant. Other part-time service is scaled in proportion, and a limited academic schedule is permitted (see "Section I.D."). Appointments ordinarily are made for the non-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 September are usually made by the Graduate College dean upon recommendation of the various departments in March of each year, although applications may be considered at any time. Applications 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 serve two purposes: (a) assistance in the instructional program of the University and (b) the preparation of future college teachers. In order to achieve both aims, scholarship, and, if student, 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 sanctioned 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 Assistantships 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 teaching or research service for which the student receives payment as a graduate or a faculty research assistant.

I. Loans

Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Scholarships and Loans" section of the Catalog.

J. Other Forms of Support

Many departments offer financial assistance in the form of teachships, part-time employment on research programs, or part-time teaching. Inquiries should be 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 the 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 that date will result in
postponement of graduation to a subsequent session.

9. Enrollment in Final Session
The student must enroll during the session in which the degree is to be conferred, except as noted in the following paragraph. Students who meet the eligibility criteria for this program are not required to register for independent study, research, or thesis according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for the postcomprehensive registration described in "Section X. Master's Degrees.

Section X. Master's Degrees
A. Kinds of Degrees

Master's programs require a minimum of 30 semester hours; this includes coursework in 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 applicant for a master's degree must file a plan of study approved by the adviser and the departmental executive with the Graduate College within the session in which the degree is to be granted and by a date to be established by the Graduate College dean. The plan shall include the requirements for the degree approved by the graduate faculty. (See also "Section IV. 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 of which must be completed under the auspices of the University of Iowa. (See "Section III. Master's Degree.") In addition to this requirement, the major department of each degree program also requires an additional 30 credits of coursework in the major subject area.

E. Reduction of Old Credits

A master's degree is awarded more than 10 years from the date of completion of the previous degree. This rule may be waived by the dean in cases affected by departmental policy.

F. Limit on Law, Medical, or Dental Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled as a candidate for a professional degree may be counted on a graduate program of study leading to a Master's degree, provided such courses were taken after the student had earned a bachelor's degree. Work accepted from courses not directly related to the student's major field of study in the Graduate College and approved by the major department will be counted as part of the residence requirement for nondoctoral degrees in the Graduate College only when the student is registered 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 degree 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

More than eight semester hours of credit for thesis preparation shall be counted in satisfying the 24-hour minimum requirement. This thesis may be a scholarly study or an artistic production.

A copy of the thesis, in typewritten or printed form, must be presented to the Graduate College for a check of format, and checked for plagiarism, within two weeks before the graduation in which the degree is to be conferred. (See Graduate College publication, Thesis Manual.) After approval by the Graduate College and 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 the final copy shall be deposited with the Graduate College not less 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 Thesis Manual.)

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 program 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 the unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in
The examination 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 examination committee, and, at his or her discretion, the Graduate College dean may add a member to the committee.

Section XI. Two-Year Degrees

A. Master of Fine Arts Degree

This degree is awarded for creative work in the visual arts, dramatic arts, music, and literature. It is designed for students preparing themselves professionally in such fields as painting, design, mural decoration, sculpture, printmaking, acting, producing, stage craft, musical performance, composition, instrumentation, poetry, fiction, and translation. Central to the program, the thesis may consist of a novel, a painting, a play, a musical composition, or any other approved artistic accomplishment.

The program for the Master of Fine Arts requires at least two years of residence credit in a graduate college. This requires a minimum of 45 semester hours of graduate credit, at least 24 of which must qualify for residence credit at this University. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately, with a minimum combined total of 80 semester hours of graduate credit.

For other requirements see "Section X.B. Plan of Study"; "C. Major and Related Fields"; "E. Reduction of Old Credits"; "H. Master's Degree with Thesis"; "J. Final Examination"; and "K. Examining Committee."

B. Specialist in Education Degree

This degree is granted upon completion of 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 80 semester hours required for the degree, at least 24 semester hours must be completed in residence at the University, of which 15 semester hours must be earned while the student is on campus within one 12-month period in any two summer sessions. Twenty-eight of the 60 semester hours are prescribed in the area of specialization. The others are in cognitive fields, supervised experience, and electives. Four semester hours of research culminate in a written report. Courses successfully completed 10 or more years prior to the final examination will be evaluated by the major department in determining the amount of credit that shall be awarded for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at one time of submission of the plan of study.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the one-year master's degree in "Section X.B. Plan of Study"; "F. Limit on Law, Medical, or Dental Courses"; "H. Master's Degree with Thesis"; and "K. Examining Committee."

A master's degree may be earned while in residence for the educational specialist degree provided the student meets all the requirements for the master's degree in question.

C. Master of Social Work Degree

The M.S.W. degree is conferred by the University upon those students who give evidence of knowledge and competence in the professional practice of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at The University of Iowa;
2. A minimum of 60 semester hours in graduate social work, including a research requirement; and
3. A final comprehensive examination, written or oral or both, covering all work for the degree.

The requirement of 60 semester hours may be interpreted to mean that a student who can satisfy the faculty of the school that he or she has accomplished, in the junior or senior undergraduate years, the clear equivalent of part or parts of the graduate curriculum in social work, may be permitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree in less than 60 semester hours. In no case may a student qualify for the degree on less than 40 credit hours in graduate social work study.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social services, and research. During the two-year graduate program, classwork is combined with field practice in social agencies or social work departments. Since classwork and field practice are arranged sequentially, students can enter the School of Social Work only in August. For other requirements, see "Section X.B. Plan of Study"; "E. Reduction of Old Credits"; "F. Limit on Law, Medical, or Dental Courses"; "H. Master's Degree with Thesis"; and "K. Examining Committee."

Section XII. Doctor's Degrees

A. Philosophy

The University 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 indicated markd excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates exceptionally high 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 (9 semester hours minimum) in each of two semesters or (2) enrollment for a minimum of 6 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 desired excellence. For purposes of record and assessment of fees, student registration should 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 special responsibility of the student working together with his or her adviser. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken which are 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 Professional Courses
Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited toward a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree. The work accepted from the professional colleges must be directly related to the student's major field of study in the Graduate College, and the plan of study must be approved by the student's adviser and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will not be counted as part of the one academic year which must be spent in residence as a doctoral student on the campus of this University.

H. Joint Program for Master's and Doctoral Degrees
Those students who expect to continue their training through the doctoral degree may file a joint program for the master's and doctor's degrees. The master's examination may be combined with the comprehensive examination for the doctorate for these candidates. The examining committee will file separate reports of its 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 Languages
There is no general Graduate College requirement in foreign languages. Those departments which require competence in one or more foreign languages establish standards as to the extent and level of competence, as well as methods of testing. Specific requirements will be found in the departmental statements of standards and procedures (see "Section IV.D."). Departmental executive officers are responsible for reporting completion of requirements to the registrar for entering on the student's record.

Specifications of departmental requirements in foreign languages are listed in the Graduate College Office and may be changed upon the initiative of the departments.

J. Examination for the Candidate
The candidate must pass a comprehensive examination, consisting of written or oral parts or both, by the regulars 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 University at the time of the comprehensive examination, which must be passed not later than the session prior to the session of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation of the candidate's mastery of the major and related fields of study, including the topics in which competence has been certified.

The comprehensive examination is not a deferred qualifying examination. It is intended to evaluate the candidate's mastery of his or her 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 is concerned chiefly with defense of the thesis and related subjects, are the two principal examinations for the doctoral degree.

The comprehensive examination will be evaluated by a convened meeting of the committee and reported as satisfactory, satisfactory with reservations, or unsatisfactory to the Graduate College office within 14 days after the completion of the examination. Two "unsatisfactory" votes will make the committee report unsatisfactory.

In the event of a report with two or more votes of "satisfactory with reservations," the exact stipulations of the committee should be recorded in the report form. If the stipulations involve further examination in a particular area of study, the statement should be specific in defining the area, in requiring additional courses or other procedures, and in specifying the time and method of satisfying the stipulation. The candidate will not be admitted to the final oral examination until such stipulations have been satisfied. The executive of the major department should promptly send a written report to the Graduate College giving 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 no 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, he or she may not be readmitted to candidacy until he or she has submitted an application which has been approved by his or her advisor, the departmental executive, and the Graduate College dean.

All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of contact with the faculty. The student should register for the courses, research, and thesis necessary to complete the plan of study.

When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for 000/000 Post Ph.D. Comprehensive Registration and paying a special minimum tuition for any semester in which the department (i.e., department chair or director of graduate studies) and the student's advisor determine that the student is neither taking significant use of University facilities (except library privileges) or 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 facilities, unless the student is taking a degree at the end of that session.

L. Dissertation for the Doctoral Degree

A copy of the dissertation must be presented at the offices of the Graduate College not later than four weeks before the graduation date at which the degree is to be conferred and two copies deposited there in final 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 500 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 of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University Library.

If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the librarian in charge of these will help the student and faculty advisor work out an appropriate method of preparing the accompanying manuscript. If such help is needed. Once the manuscript is accepted, it is treated the same as any other. Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

M. Dissertation Fee

A nonrefundable dissertation fee is charged each candidate to cover the cost of the above processing of the dissertation and abstract.

N. Final Examination

The work for the degree culminates in a final oral examination administered on campus. This examination should include: (1) a critical inquiry into the purposes, methods and results of the investigation—not a mere recapsitulation of the procedures followed; (2) intensive questioning on areas of knowledge constituting the immediate context of the investigation. The final examination may not be held until the next session after the student passes the comprehensive examination nor until the first check of the dissertation by the Graduate College, however, a student must take the final examination no later than five years after passing the comprehensive examination. Failure to meet this deadline will result in a reexamination 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 "K.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 date of the examination. The final examination will be evaluated by a faculty 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. Examining Committees
The comprehensive and final examinations are conducted by
committees of no fewer than five
members of the graduate faculty appointed by the Graduate College dean
upon recommendation of the major
department, except that departments
may request the dean's permission to
replace one of the five members of the
graduate faculty by a recognized
scholar of professional 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 examination. For the
final examination one member of the
committee must be a member of the
graduate faculty from outside the major
department.

Upon recommendation of the major
department, the Graduate College dean
may appoint additional qualified persons
(not necessarily members of the
graduate faculty) to serve as voting
members of the examining committees.
A voting member may be added at the
discretion of the Graduate College dean.

Section XIII. 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>Title</th>
<th>Credits</th>
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<tr>
<td>030002</td>
<td>Master's Final Examination</td>
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<tr>
<td>030005</td>
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Program Objectives

The overriding objective of formal legal education is to establish a solid foundation for a lifetime of professional growth. The educational elements necessary to build this foundation are varied. thorough familiarity with the substance of legal principles and with the operation of legal institutions are important components, but the University of Iowa program places an equal emphasis on the development of fundamental lawyers' skills and an appreciation of the nature 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, autodidact 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.

The University of Iowa College of Law considers upon its graduates the degree of Juris Doctor (J.D.). To be eligible for the degree, a student must satisfy the residency requirement, receive credit for 90 semester hours of coursework, take and complete all required courses, achieve a cumulative weighted average of 65, and satisfy the college's five-unit research and writing requirement.

Program of Study

Full-Time Policy

The faculty believes that students receive a better legal education when they are devoting substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law 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 may also attend summer school at any point during their careers.

An entering class of up to 65 students is allowed to enter law school in May of the year for which they applied. They complete nearly a full semester of work in the first eleven-week 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 1980 may graduate in August 1982. 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 more than 16 hours per semester or 13 hours in summer school without permission of the dean.
Summer Session

The summer session consists of two periods of five and one-half weeks during which six to eight upperclassmen and three to four first-year courses are offered. Nonaccelerated students may enroll either or both periods. Accelerated students attend the entire 11-week session.

First-Year Small-Section Program

One of the distinctive benefits of legal education at the University of Iowa is the first-year "small-section" program which integrates legal research and writing instruction into a substantive course taught by regular, full-time faculty. The program's purposes include giving careful attention to development of each student's skills in legal research and writing, encouraging student participation in class discussion, and providing additional opportunities for student-faculty interaction.

In the fall semester (or summer for accelerated students), the entering class is divided into sections of approximately 35 students. In the spring (or fall for accelerated students), each section contains approximately 15 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, each with a different educational objective. Faculty members provide extensive critiques of the 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 coursework 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 91:364 Torts A or 91:365 Torts B, and 91:210 Appellate Advocacy I is the second year, and before graduating all must take 91:223 Constitutional Law II and an upper-class small section course. The latter requirement assures students the opportunity to enroll in a small class (usually 30 students) in a variety of subject matters; in conjunction with the 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 by satisfactory completion of 91:210 Appellate Advocacy I and the upper-class small section. He or she can earn the remaining three credits through any combination of courses and activities that carry writing credits, including seminar papers, independent research papers, Law Review, Journal of Corporation Law, 91:410-411 Client Counseling I, 91:423 Mediation Board, and 91:211 Appellate Advocacy II.

Legal Clinic

Students who have completed one-half of the work toward their J.D. degrees are eligible to participate in the College of Law's Legal Clinic Program, which offers a broad range 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 eastern Iowa communities in a wide range of civil and criminal cases. Students in the Prisoner Assistance Clinic represent inmates at Iowa correctional institutions in both habeas corpus and civil cases. Both Legal Aid and Prisoner Assistance interns participate fully in interviewing, fact investigation, negotiation, and courtroom proceedings.

Students in the Clerkship Program act as law clerks to trial court judges. As such, they observe court proceedings and draft orders, opinions, and jury instructions.

Finally, students in the Legislative Internship Program are assigned to work as legal assistants to state legislators and to work in other aspects of the legislative process.

In addition to those programs carrying academic credit, the College of Law participates each summer in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state.

A student may earn up to a total of 15 semester hours of credit in the clinic program, although students taking courses in other schools or colleges of the University may receive no more than 20 hours of credit for such courses plus clinic.

Joint Law and Graduate Degree Program

The College of Law has developed a program with a number of departments of the Graduate College of the University of Iowa under which students can simultaneously pursue degrees in both colleges. Under this program, if a student takes a course which is relevant to both degrees, the course can, with limitations, be counted toward the hour requirements of both and reduce the time required to obtain the two degrees separately. Hopefully, too, the joint degree student will contribute to one discipline the insights and experience gained in the other. Graduate departments with which joint degree programs have already been initiated include Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counseling Education, Economics, Education, Educational Administration, English, Finance, Journalism, History, Library Science, Philosophy, Political Science, Sociology, Social Work, and Urban and Regional Planning. Further information about Joint degree programs is available from the dean of the College of Law.

A two-year program leading to a commission in the United States Army is available to students entering the College of Law. Information about this program may be obtained from the UI Department of Army Military Science.

For information about programs leading to a commission in the United States Air Force, write to the US Department of Aeronautics and Space Studies.
Student Life

There are currently eleven student organizations at the college: three co-curricular programs, each managed by students; an Off-Campus Life program; and two student-produced scholarly journals.

The college operates a placement office to assist students and alumni in securing suitable summer and/or permanent employment.

Financial Aid

A comprehensive financial aid program at the college attempts to assist all students who need funds in order to permit them to attend school full-time. However, since financial aid funds are inadequate to cover the full cost of a "legal" education for every needy student, applicants and their families are expected to make a maximum effort to provide a reasonable portion of the students' expenses. Applicants are urged to contact the financial aid office at the college for further information about types of aid available.

Admission Requirements

Applicants for admission must present a baccalaureate degree from an approved college or university prior to... commenting work in the College of Law. The services which the graduate of the College of Law may be called upon to perform are so varied and the possible fields of endeavor so broad and diverse that the college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisers, each student should develop an undergraduate program which explores and develops that student's particular intellectual interests. There are three basic objectives, however, as decided by a committee of the Association of American Law Schools which everyone thinking of law school should keep in mind when planning an undergraduate course of study: education for comprehension and expression in words; education for greater understanding of human institutions and values; and education for greater power in thinking. That committee strongly emphasized that undergraduate education of students for a full life through liberal education is far more important than education directed too pointedly toward later professional training and practice. Students are urged not to sacrifice the broader perspective for detailed specialization.

Application Procedures

Applications may be obtained by writing to: Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must file his or her application for admission by March 1 preceding the summer or fall semester in which he or she wishes to enter. Applications should be sent to the Director of Admissions, Calvin 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 (LSAC), Box 2000, Newtown, PA 18940. The College of Law must receive the applicant's LSAC report prior to the March 1 deadline for submission of applications.

In your LSAC registration packet, you will find Law School Application Matching Form. To preserve your rights to privacy, ETS has agreed not to release your LSAC report to any school that does not furnish ETS your Law School Application Matching Form.

The University of Iowa cannot process your application without your Law School Application Matching Form. Therefore, please attach or enclose the form with your application. If you do not, the processing of your application will be delayed until the form is received.

Low 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, Princeton, New Jersey 08540. Students 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 February. 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. February testees 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 need not be made within two weeks after action is taken on the financial aid application. For those who roll, the deposit is credited toward the student's first University bill.

Evaluation Process

For a more detailed description of the admissions evaluation process, please consult the college's bulletin which is distributed annually.
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 60 days after beginning law school. Details are available from the dean's office in the College of Law upon registration as a student in the college or from the clerk of the Iowa Supreme Court.

Courses
For description of these courses, consult the college's bulletin, which is available from the Admissions Office at the College of Law.

11279 Legal Research
11300 Ch 1 Procedure
11470 Constitutional Law I
11550 Contracts and Sales
11550 Criminal Justice
11550 Criminal Justice II
11550 Criminal Justice III
11550 Client Representation
11550 Property
11550 Remedies
11550 Contracts
11550 Civil Procedure
11550 Employment Discrimination
11550 Education Law
11550 Environmental Law
11550 Estate Planning
11550 Federal Incomes Taxation
11550 Federal Income
11550 Federal Income Tax
11550 Federal Taxation
11550 Fundamentals of Injury and Disease for Lawyers
11550 Future Interests
11550 Insurance
11550 International Organizations
11550 International Economic Relations
11550 Arbitration
11550 Criminal Justice
11550 Labor Law
11550 Labor Relations
11550 Law, Language, and Ethics
11550 Corporate Accounting
11550 Law and Publicity
11550 Legal History
11550 Legal Counseling and Interviewing
11550 Legal Professionalism
11550 Labor Arbitration
11550 Local Communication Law
11550 Police Authority Act
11550 Negotiations, Mediation, and Arbitration
11550 Natural Resource Law
11550 Patents and Intellectual Property
11550 Privacy Law
11550 Privacy Law
11550 Practice Court
11550 Products Liability
11550 Professional Liability
11550 Property
11550 Regulated Industries
11550 Remedies
11550 Securities Regulation
11550 Sec Stabilization Law
11550 Scientific Evidence
11550 Selected Real Estate Problems
11550 Sexual Harassment
11550 State and Local Government
11550 Settlements and Compromise
11550 Taxation of Global Transfers
11550 Taxation
11550 Tax
11550 Torts B
11550 Trade Regulation
11550 Transactional Law
11550 Trial Advocacy
11550 Trial Advocacy
11550 Trial Advocacy Board
11550 Trusts and Estates
11550 Law Review
11550 Land Law Review
11550 Journal of Corporation Law
11550 Independent Research Project
11550 Student Publications
11550 Advanced Problems in Criminal Law and Procedure Seminar
11550 Advanced Problems in Article 2 of the Uniform Commercial Code
11550 Civil Law Seminar
11550 Advanced Problems in Tax Law of Evidence
11550 Children in the Law Seminar
11550 Civil Rights and Liberties Seminar
11550 Cooperative Law Seminar
11550 Corporate Control Seminar
11550 Criminal Trial Practice Seminar
11550 Consumer Problems
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<tr>
<td>91431</td>
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<td>91522</td>
<td>Entrepreneurship and Law</td>
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<td>91526</td>
<td>Free Speech</td>
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<td>91430</td>
<td>Education Law Seminar</td>
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<td>91440</td>
<td>Energy Policy Issues Seminar</td>
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<td>91450</td>
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<td>91451</td>
<td>International Economic Relations Seminar</td>
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<td>91444</td>
<td>International Transactions</td>
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<td>91446</td>
<td>Problems In International Law and Policy</td>
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<td>91446</td>
<td>Problems In Juvenile Justice Seminar</td>
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<td>91447</td>
<td>Policy-Oriented Advocacy Seminar</td>
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<td>91442</td>
<td>Land Use Planning Seminar</td>
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<td>Legal History</td>
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<td>91449</td>
<td>Law in Literature</td>
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<td>The Police</td>
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<td>Selected Problems in Public Employment Law</td>
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<td>91440</td>
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The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students, not only those in the health colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences areas of the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through "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 physician’s 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 16 community hospitals in eight cities throughout the state. The college promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level. Accredited by the American Medical Association and 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 being part of—yet apart from—their work in teaching. Many have earned national and international honors.

Graduate Programs

The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, nutrition, pharmacology (including toxicology), physiology and biophysics, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to the Master of Science degree are offered in ophthalmology, distributology, 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
Combined M.D.- Master's Degree Programs

Students who want to pursue the M.D. degree in combination with a master's degree in nursing may do so by gaining admission both to the College of Medicine and to the Graduate College, and making detailed arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.

Interdisciplinary Programs and Centers

Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the facilities available to them, without regard to their departmental units or to the separation of graduate and postgraduate training. Notable among these are the interdisciplinary programs in endocrinology, neurobiology, and immunology, in which degrees 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-related research of disease processes. Studies of normal human physiology, biochemistry, and pathology 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 federally funded programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Atherosclerosis, the Lipid Research Clinic, three training programs and a coordinated program of other interdisciplinary research supported by a number of individual project grants. Gifts from private donors have underwritten 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 rates, the biochemical adaptation to drugs, and studies of their action at the molecular and cellular level.

Diabetes Center

The Diabetes Center coordinates research and training programs related to diabetes and associated endocrinological 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.

Conner Center

A Cancer Center was established in 1980 to coordinate the efforts of the faculty and staff of the University in research, education, and demonstration programs related to all aspects of cancer.

Educational and Patient Care Facilities

Classes are taught in the basic sciences and Medical Laboratories buildings. A new Health Sciences Library is at the core of the medical complex. Students acquire clinical experience in the 1,063-bed University Hospitals and Clinics complex, in the adjacent 333-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 355-member clinical(1,063-bed University Hospitals and Clinics, whose thousands of clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 500-plus resident physicians and residents who comprise the house staff of University Hospitals and Clinics, which also the facilities for teaching all major medical specialties, for residencies in all such specialties, and for fellowships in a number of subspecialties.

University Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most 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 a wide variety of animals.
The bioengineering facility provides specialized electronic design, construction, and repair services. The learning resources unit is composed of educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, stimulates, and cooperates in education research endeavors, and conducts teacher education activities.

The medical instrument facility designs and fabricates scientific equipment, providing precision machine services. The medical graphics, photography, and television services offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Genographics, 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 primate structures are conducted in a facility containing ultracentrifugation, amino acid analyzers, and protein sequencer equipment.

Doctor of Medicine

The University of Iowa College of Medicine accepts 175 freshman students each year into its four-year course of study leading to the degree, Doctor of Medicine (M.D.).

The curriculum in medicine at The University of Iowa is based on a strong tradition of excellence. It is evaluated and revised continually to reflect the changing needs of the new physician and of society.

Basic Medical Sciences

The first three semesters present the core of sciences basic to the study of medicine.

First Semester

30.123 Basic Pharma for Medical Students in centered around a series of clinical situations. The language of these disciplines is presented in the context of problems the physician will meet. In the small group discussions that follow the clinical series, the student starts to see various problem-solving approaches.

62.102 Gross Human Anatomy for Medical Students includes embryology, clinically relevant areas of anatomy. The student studies anatomy with clinical correlations. A complete dissection of the human body is undertaken, and the relationship to the living system is stressed.

60.105 General Histology provides a course of study for the core information concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

115.102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine. The course provides students with laboratory experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

63.110 Biostatistics completes the work of the seminar. It utilizes a self-paced study of statistical principles and their application to the biological and medical sciences.

Second Semester

75.212 Medical Physiology (including endocrinology) offers the student an understanding of the responses an organism gives to external stimuli and provides a basis for understanding the integrated function of organ systems. Much of the material in these two courses is presented from a clinical point of view. In small discussion groups, which have essentially replaced laboratory exercises, the students present their evaluations of the physiologic mechanisms at work in the clinical material. Some demonstrations are used to good advantage.

61.103 Medical Microbiology includes immunology and presents a core of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to these agents. Laboratory work continues to play an important role in this course.

69.101 General Pathology for Medical Students is concerned with microbiology in this semester to increase the efficiency of the learning process. Much of pathology at this level is self-instructional, with the student "teaching himself" at 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 genetic diseases.

Third Semester

69.202 Systematic Pathology for Medical Students, in which the principles given in the previous semester are expanded upon in an organ approach. Student-centered learning is fostered by discussion groups and practice in case analyses.

60.110 Medical Neuroanatomy presents the structure of the nervous system. Much of the material is available for self-study and small group study in clinics.

63.109 Community Health Services fundamentals to help prepare the student in some of the sociologic, economic, and public health aspects of medical practice.

71.100 Pathophysiology for Health Sciences: Medical bridges the clinical and basic science and provides the students with principles that must be understood to describe properly the actions of drugs to the patient.

Several elective courses are available to students during the third semester. These courses cover from semester hours of credit. 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," "Human Nutrition," and "Spanish for Health Professionals."

Introduction to Clinical Medicine

A major interdisciplinary course, 50.111 Introduction to Clinical Medicine, fills 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 is an intensive review of clinical medicine on an organ system basis, given by teams of clinicians and basic scientists. The final group of mornings is spent in areas of medicine which do not naturally fall into organ systems, and on re-emphasis of some key subjects. Throughout the 10 weeks of this course, students spend afternoon acquiring and practicing the skills of the clinician in history-taking and physical examination. Habits of care, concern, and compassion needed by all physicians are established in this seminar. Toward the end of the semester, each student is evaluated individually several times in order 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 a student with opportunities to work with physicians of almost all disciplines as they care for their patients. Students spend the three weeks in Internal Medicine; six weeks each in Surgery, pediatrics and obstetrics; and one week and obstetrics and gynecology; and two weeks in pediatrics and ophthalmology, neurology, urology, and family medicine. Students spend half of this time in Iowa City. The clinical clerkship year is the most critical period of time in medical education, for this is when the student takes on the posture of a physician, to learn at first hand the complexities of medical science when viewed at the bedside, and to understand the responsibility of the physician for human life.

**Period of Selective Study**

Following the clerkships, the fourth year provides a period of selective study, giving the student many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify the student to participate in a variety of advanced courses in specialty areas to community-based clerkships in primary care.

**Financial Aid**

The College of Medicine provides financial assistance on the basis of demonstrated financial need. Most aid is in the form of loans from the United States Public Health Service Health Professions Student Loan Program, the Federally Insured Student Loan Program, or the college’s Medical Education Assistance Program. A limited number of scholarship grants are awarded each year to students who demonstrate exceptional need. These scholarships vary in value from $500 to $1,500.

Small short-term emergency loans may be obtained through the college. Information and counseling 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 underrepresented in American medicine.

**Admission to the M.D. Program**

The College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. Preliminary applications are processed by AMCAS beginning June 10 of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply as early as possible. The closing date is December 1.

Final applications will be forwarded to applicants whose AMCAS applications pass a review conducted by the College of Medicine. A $10 fee must accompany the final application from applicants who have not completed work in residence at The University of Iowa. This fee is not refundable except to residents of Iowa who are denied admission.

Each applicant must also file with the University Office of Admissions an official transcript from each college he or she has attended.

**Requirements**

An applicant for admission to the College of Medicine must have: received the baccalaureate degree; or completed three years of a curriculum qualifying him or her to receive the baccalaureate degree after completing the first year in medicine; or completed three years of a baccalaureate program meeting the general graduation requirements of the college he or she is attending.

Prospective students must have earned at least 84 semester hours of credit, or the equivalent, including:

- Physics: a complete introductory course,
- Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school.
- Chemistry: a minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in general chemistry principles.
- Biological sciences: a complete introductory course in the principles of animal biology, or zoology and botany (not botany alone), and an advanced biology course.

All the foregoing must be taken with appropriate laboratories.

Fulfillment of the specific requirements for admission does not ensure admission to the College of Medicine. From the applicants meeting the requirements, the admissions committee of the College of
satisfy those who appear to be best qualified for the study and practice of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years before seeking admission to the College of Medicine are considered by the admissions committee only under exceptional conditions. To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 (A=4) for all college work undertaken. Because the quality of work in premedical science is basic to success in medicine, the admissions committee gives special attention to grades in science and to the level of difficulty of the program undertaken. Where courses are on a graded or pass-fail basis, it is expected that applicants will take the required science courses on a graded basis.

Preference is given to applicants with high scholastic standing who are residents of Iowa. Outstanding nonresidents are considered exclusively under the Early Admission Plan. Under this plan, the prospective student submits a single application to his or her first choice of schools by August 1 of the year preceding the one for which the applicant is seeking admission, and the decision is made by October 1.

Applicants are required to take the New Medical College Admission Test administered by the Association of American Medical Colleges in the spring or fall of the year preceding that for which they are seeking admission. Students may make arrangements to apply for this examination through the University's Evaluation and Examination Services.

Personal interviews are usually conducted but are occasionally requested by the admissions committee. Applicants who feel that an interview is necessary may request that an interview be arranged by contacting the coordinator of admissions. Requests for interviews should normally be made before January 1. The specific purpose of the interview should be clearly stated.

Applicants accepted on or prior to February 15 must submit a $50 advance payment by March 1. Applicants accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students entering the College of Medicine are required to submit the results of a physical examination. They must also take a tuberculosis skin test and, if it is positive, have it by chest X-ray. Both the examination and the skin test should be completed during the year prior to enrollment.

**Promotion Policies and Procedures**

**Role of the Promotions Committee**

The purpose of the promotions committee is to ensure that each person graduated from The University of Iowa College of Medicine has adequate skills, knowledge, and judgment to assume the responsibilities of a medical doctor. To perform its duties, this committee depends upon the cooperation, advice, and judgment of faculty, students, and administration.

**Composition of Promotions Committee**

The promotions committee consists of five faculty members, plus the associate dean for medical student affairs ex officio (without vote). Two members must be from two different basic science departments and three from three different clinical departments. Appointments are made by the dean of the College of Medicine after consultation with the executive 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 grading period may be recommended by the promotions committee, provided that an appropriate tutorial program is designed for the student. Each student must demonstrate proficiency in each required course. Evaluation of student progress in basic science seminars is based on such examinations or other tests as are determined by each department or course. Evaluation of student progress in clinical seminars is based on clinical skills and competence, and on such examinations or other tests as are established by each department or course.

Scholastic performance in the first three years is reported by using the letters H, P, F, and I in the selective studies segment, only grades P, F, and I will be used. The letter P indicates satisfactory achievement at the passing level. The letter H, signifying "honors," indicates achievement at an exceptionally high level. The letter F indicates work below the passing level. The letter I is used when good reasons the student has not completed the work of a course.

The promotions committee meets at least three times each year, following the completion of each academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews the course directors the records of all students who have received a grade of F or I during the previous grading period. The committee reserves the record of any student presented by the course directors committee or the associate dean for medical student affairs to do a continual yearly work. The committee considers other business or procedures as deemed necessary to perform its duties as set forth in the charge. The promotions 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 courses; allowing the student to continue at either a regular or on a deans' program. Students having unwarranted grades of failure or incomplete will normally be placed on academic probation. Students
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 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, in its judgment, he or she has not lived up to the expected general fitness requirements for entering 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 meeting in joint session and acting as representatives of the faculty.

Associated Medical Sciences

The Division of Associated Medical Sciences is organized to include the programs for Medical Technology, Nuclear Medical Technology, Physical Therapists, and Physician’s Assistants. Admission to these professional programs follows the selection described in the respective sections of this Catalog.

Unclassified Students

Persons who do not wish to be admitted to the College of Medicine but who wish to register for certain courses will be admitted only upon complying with all the preregistration requirements for admission to such courses, or by action of the faculty upon recommendation of the professor in charge of the course.
Anatomy


The department performs three major functions: teaching anatomy of the human body to students preparing for careers in the health care professions; providing advanced clinical teaching and research training to graduate students preparing for careers in teaching and research; and conducting original research into biological structures and structures-function relationships.

Preclinical Study for the Health Care Professions

The department contributes to the preclinical education of health care professionals by providing courses in gross anatomy, microscopic anatomy, and neuroanatomy for medical and dental students; gross anatomy and neuroanatomy for physical therapy students; general anatomy and microanatomy for dental hygiene students; and general anatomy for pharmacy students.

Master of Science

For admission to the Master of Science program, a person must already possess a degree in a health sciences specialty (e.g., medicine, dentistry, nursing, etc.).

The M.S. is awarded on the basis of satisfactory completion of coursework in each of the major subdisciplines of anatomy—gross anatomy, microscopic anatomy, and neuroanatomy; teaching experience in one of these areas; a thesis based upon an experimental study; and a successful oral defense of the thesis.

Doctor of Philosophy

There are excellent teaching and research opportunities in medical colleges for persons with doctorates in anatomy.

All students in the Ph.D. program work directly for the doctorate without an intermediate master's program. They acquire in-depth knowledge of gross anatomy, microscopic anatomy, and neuroanatomy by taking courses and teaching in these laboratory sections, which are under faculty supervision. Students ordinarily require four years of full-time study to complete the doctorate in anatomy.

During the first year, the student chooses a research area and becomes affiliated with a faculty member whose research is in that area. The department's research strengths currently are in endocrinology and reproduction, neurobiology, and the cardiovascular system. By the end of the second year, the student defines a research problem with his or her major advisor, formulates a research prospectus, and undertakes a comprehensive examination. This examination assesses the student's ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. The third and fourth years are devoted heavily to research. During this period, the student may also elect advanced graduate coursework and gain additional teaching experience.

The final examination for the Ph.D. consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the student's faculty adviser and four other faculty members.

Financial Aid

Financial aid is awarded on a competitive basis to students admitted to the Ph.D. program. Applications for aid should be completed by February 1.

Graduate Admission

An applicant for admission to the M.S. or Ph.D. programs in anatomy should have undergraduate preparation including advanced mathematics, one year of organic chemistry, at least two biology courses, and one year of general physics. For admission requirements, see the "Graduate College" section of the Catalog. In addition to taking the Graduate Record Examination (GRE) Aptitude Test, applicants to graduate programs in anatomy are strongly encouraged to take the GRE Biology Advanced Test. This is particularly useful to the advancement committee in considering applicants whose undergraduate record may not reflect the individual's full capabilities.

Facilities

The department occupies over 35,000 square feet in the Basic Sciences Building in the health sciences sector of the University campus. These quarters house modern facilities and well-equipped research laboratories. The most modern instrumentation is available, including a high-resolution electron microscope, Balzer evaporation unit, spectrophotometer, cryostat, an automated gamma counting system, etc. Research is increasingly problem-oriented, rather
then discipline-dependent, and is principally in the theme areas mentioned in the previous section.

Courses

00:117 Financials: Human Anatomy 4.0 h.
Lectures and laboratory demonstrations in human anatomy. Prerequisite: for students of nursing and dental hygiene.

00:213 Human Microanatomy 3.0 h.
Microscopic study of cells, primary tissues, and organs, emphasis on nerve and skeletal structures, including embryology. Preparatory course for histology seminar. Offered spring semester.

00:211 Gross Human Anatomy for Dental Students 4.0 h.
Regional dissection, lectures, demonstrations, tutorials, and dissections. Prerequisite: concurrent with the course of study in histology. Offered fall semester.

00:213 Human Microanatomy 3.0 h.
Microscopic study of cells, primary tissues, and organs, emphasis on nerve and skeletal structures, including embryology. Preparatory course for histology seminar. Offered spring semester.

00:112 Principles of Medical Sciences 3.0 h.
Lectures on gross and microscopic anatomy, with particular emphasis on organs involved in drug response and dysfunction. Prerequisite: for pharmacy students.

00:113 Gross Human Anatomy for Medical Students 4.0 h.
Regional dissection, lectures, demonstrations, tutorials, and dissections. Includes embryology, clinically relevant areas of anatomical relationships, and surface anatomy with related connections. Preparatory course for histology seminar. Offered fall semester. Prerequisite: concurrent with first-year students.

00:114 General Pathology 4.0 h.
Microscopic study of cells, fundamental tissues, and organs in health and disease. Emphasis limited to medical students and dental students; graduate students admitted by written permission. Offered fall semester. Prerequisite: concurrent with first-year students.

00:115 Human Anatomy 3.0 h.
Regional dissection, lectures, and demonstrations with emphasis on areas important in physical therapy. Registration limited to physical therapy students, or others with consent of instructor. Offered fall semester.

00:116 Anatomy and Biomechanics 4.0 h.
Dissection of head and neck, anatomy and laboratory exercises emphasizing orientation, organization, and functions of central nervous system. Open to graduate students in anatomy, and those of medical students; restricted to students of medical students; graduate students admitted by written permission. Offered fall semester.

00:117 Medical Histology 3.0 h.
Exposure to the applications of fundamental histology, including the basic and function of the nervous system; immunohistochemistry. Emphasis limited to students of medical students; graduate students admitted by written permission. Offered fall semester.

00:111 Gross Human Anatomy for Preclinical Students 3.0 h.
Regional dissection, lectures, and demonstrations with emphasis on areas important in physical therapy. Offered fall semester. Prerequisite: concurrent with first-year students.

00:114 Oral Microanatomy and Embryology 1.0 h.
Dissection on bones and related structures. Open to graduate students with consent of instructor. Offered spring semester.

00:110 Endocrinology for Medical Students 1.0 h.
Dissection of organs with emphasis on areas important in physical therapy. Open to graduate students with consent of instructor. Offered spring semester.

00:112 Independent Study in Anatomy 1.0 h.
Projects related to anatomy, arranged with faculty member in the department. Prerequisite: concurrent with medical student's seminar or under graduate medical student's seminar. Offered fall semester.

00:113 Advanced Human Anatomy 3.0 h.
Regional dissection of tissue, peripheral and central nervous system; muscles, tendons, ligaments, and connective tissue. Prerequisite: concurrent with department's thesis and presentation seminar.

00:114 Anatomy Research 3.0 h.
Independent study is necessary to carry out research with a member of the faculty actively engaged in research.

00:115 Gross Human Anatomy for Graduate Students 4.0 h.
Regional dissection, lectures, demonstrations, tutorials, and dissections. Includes embryology, clinically relevant areas of anatomical relationships, and surface anatomy with related connections. Required of graduate students in medical student's seminar. Open to others with consent of instructor. Offered fall semester. Prerequisite: concurrent with first-year students.

00:116 Teaching Workshop in Anatomy 3.0 h.
Preparation of teaching materials for anatomy and teaching theory by the teaching of anatomy; includes instruction in instruction and media, teaching methods and self-evaluation, test construction and evaluation. May be taken by medical students. Offered fall semester. Prerequisite: concurrent with first-year students.

00:117 Microanatomy for Graduate Students 4.0 h.
Comprehensive study of cells, tissues, and emergent structures in the light and electron microscope. Required of graduate students in anatomy, open to others with consent of instructor. Offered fall semester.

00:118 Problem Seminar 1.0 h.
Cohort of graduate students in anatomy, with faculty member in anatomy as an active participant. Offered fall semester.

00:119 Introduction to Neuroanatomy 3.0 h.
Lectures and demonstrations on basic principles of research neuroanatomists and neurohistologists. Emphasis on practical techniques for preparing sections for light and electron microscopy, with emphasis on sectioning, embedding, tissue culture, immunocytochemistry, histology, histonchemistry, and other neuroanatomical techniques. Offered fall semester.

00:120 Biostatistical Analysis 1.0 h.
Practical aspects of statistical analysis, including the application of statistical methods for analyzing experimental data. Offered spring semester of even years. Prerequisite: concurrent with first-year students.

00:121 Microscopy 3.0 h.
Practical applications of the scientific techniques used in the laboratory for the examination of stained and unstained tissues. Emphasis on the use of standardized procedures. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:122 The Structure and Function of Membranes 1.0 h.
Modern models of membrane structure and function of specialized membranes. Prerequisite: concurrent with first-year students. Offered spring semester of even years. Prerequisite: concurrent with first-year students.

00:123 Seminar in Reticuloendothelial System 1.0 h.
Presentation of specific topics in the current literature and presentation of a research project. Prerequisite: concurrent with first-year students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:124 Advanced Electron Microscopy 1.0 h.
Current techniques for the preparation and examination of biological material. Electrons microscopy. Prerequisite: concurrent with first-year students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:125 Electron Microscopy of Gastrointestinal and Early Development 1.0 h.
Current topics concerning the cytophysiolog of sensory, motor and autonomic nerve, sensory, vegetative, and metabolic responses, including neurons, glia, hormone-secreting cells, endocrine cells, and non-neuronal or autonomic elements. Prerequisite: concurrent with first-year students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:126 Transmission Electron Microscopy 3.0 h.
Prerequisite: concurrent with first-year students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:127 Gastrointestinal Cell Biology 1.0 h.
Presentation of current research in cell biology. Prerequisite: concurrent with first-year students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:128 Gastrointestinal Cell Biology 1.0 h.
Open only to graduate students who are present during current research in digestive system biology. Prerequisite: concurrent with first-year students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:129 Macrophage Fluid Biology 3.0 h.
Open only to graduate students who are present during current research in digestive system biology. Prerequisite: concurrent with first-year students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:130 Molecular and Cellular Biology 3.0 h.
Open to preclinical and graduate students. Emphasis on current research in molecular and cellular biology. Prerequisite: concurrent with first-year students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:131 Molecular and Cell Biology 1.0 h.

00:131a Lectures, laboratory, and demonstrations of current research in cell biology. Open only to graduate students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:131b Experimental Techniques in the Nucleomembrane 3.0 h.

00:131c Lectures, laboratory, and demonstrations of current research in cell biology. Open only to graduate students. Offered spring semester of odd years. Prerequisite: concurrent with first-year students.

00:131d Experimental Techniques in the Nucleomembrane 3.0 h.

00:132 Special Study in Cell Biology 1.0 h.

00:133 Special Study in Cell Biology 1.0 h.
Anesthesia

Department Head: Wesley C. Stevens
Faculty: professors Dave Dingel, Mohamed Ghoneim, Peter S. Johnson, John Meyers, Sheri Stiteshine, North Smith, Wesley C. Stevens associate professor Kevin J. Hess.

The department introduces the second-year medical student to anesthesia as a specialty, helps to develop in the third-year student some concepts and technical skills related to resuscitation, airway management, and the care of the comatose patient and offers the fourth-year student more intensive study in any and all phases of the department.

Divisions: clinical experience, seminars and teaching conferences, and ongoing research activities develop in the postgraduate student, or resident, the knowledge and skills required of a specialist in anesthesia.

Courses

1194 Clinical Anesthesia 2 a.h.
Required for junior medical students. Clinical patient care in the operating room and recovery room.

1195 Basic Science Seminars 2 a.h.

1381 Intensive Care 2 a.h.

1382 Clinical Anesthesia Seminar 2 a.h.
1384 Basic Science Seminar 3 a.h.
1385 Narkology and Intensive Care 3 a.h.
10099 Special Studies in Anesthesia 3 a.h.
Research in a self-defined project relating to anesthetic. May be accepted by student with approval of instructor and head.

15004 Special 100-200 course 3 a.h.

Sophomore Year

First Semester
- Literature core 2 a.h.
- Social science core 2 a.h.
- 321 Organic Chemistry I 3 a.h.
- 373 Principles of Anatomy and Physiology I 5 a.h.

Second Semester
- Literature core 2 a.h.
- 289 Basic Physics 4 a.h.
- 371-12 Cell Biology, Tissue, and Organ Systems 5 a.h.
- 4129 Organic Chemistry II 3 a.h.
- 9915 Biochemistry 3 a.h.
- 9910 The Chemical Basis of Biological Materials 3 a.h.

Total: 16 a.h.

Junior Year

First Semester
- Foreign language 4 a.h.
- 70-190 Intermediate Physiology 4 a.h.
- 5123 General Pathology 4 a.h.
- 29-111 College Physics I 4 a.h.
- 63-101 Dynamics of Health 3 a.h.
- 61-147 Survey of Immunology 3 a.h.
- 61-157 General Microbiology 4 a.h.
- 37-150 Introductory Endocrinology 2 a.h.
- 37-162 Endocrinology Laboratory 2 a.h.

Total: 15-16 a.h.

Second Semester
- Foreign language 4 a.h.
- 29-112 College Physics II 4 a.h.
- 37-118 Parasitology 4 a.h.
- 37-128 Fundamental Genetics 3 a.h.
- Electives 3 a.h.

Total: 15-16 a.h.
Medical Technology

Program director: Werner Ackles
Faculty: associate professor Anthony Cooper, associate professor Allen Cooper, Arthur Ackles

The program is accredited by the American Society of Clinical Laboratory Technologists. 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.

The program requires the completion of:
94 semester hours of college study;
18 semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry;
6 semester hours of mathematics, including 3 courses in statistics; and
15 semester hours of biology, including general zoology, microbiology, physiology, and parasitology.

Physical fitness, biostatistics, and genetics are highly recommended.

Admission requirements include the following:

The program is designed for students who have completed high school and have not less than a 3.0 grade point average. Applicants must have completed the following coursework:
96 hours of college science, including 30 hours of physical science, 18 hours of biological science, and 18 hours of mathematics.

The program is accredited by the American Society of Clinical Laboratory Technologists. 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.

The program requires the completion of:
94 semester hours of college study;
18 semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry;
6 semester hours of mathematics, including 3 courses in statistics; and
15 semester hours of biology, including general zoology, microbiology, physiology, and parasitology.

General physical, biostatistics, and genetics are highly recommended.

Admission requirements include the following:

The program is designed for students who have completed high school and have not less than a 3.0 grade point average. Applicants must have completed the following coursework:
96 hours of college science, including 30 hours of physical science, 18 hours of biological science, and 18 hours of mathematics.
Upon satisfactory completion of the four-year program, the student receives the Bachelor of Science degree with a major in general science and nuclear medicine technology, and is eligible for national certification as a nuclear medicine technologist.

Preclinical Program

The required preclinical courses emphasize the physical and biological sciences, which provide a basic background and which are prerequisites for the subjects and activities of the clinical year. The following is a summary of the prerequisites for acceptance into the nuclear medicine technology program:

- Satisfaction of the College of Liberal Arts general requirements, and the requirements for a general science major.
- A minimum of 36 semester hours distributed 16-12-8 among chemistry, zoology, and physics.
- A minimum of 8 semester hours in mathematics; and
- A minimum of 6 semester hours in all coursework, with a 2.5 minimum cumulative grade point average.

Clinical Year

The clinical year is conducted in The University of Iowa Health Center. The classroom portion covers in depth the clinical or technical specializations of physics of nuclear medicine, bioassay measurement, scanning instrumentation, radiochemistry, scintigraphy, liquid scintillation, health physics, principles of nursing care techniques, principles of clinical administration, doctor’s conferences and case critique, fundamentals of microbiology, clinical chemistry, kinetic studies, and medical ethics. Clinical rotations are established in radionuclide procedures, clinical radionuclide laboratory, tracer techniques, research application, thyroid function studies and rectilinear and other scanning, and in kinetic studies.

The clinical year comprises these courses:

74-100 Nuclear Medicine Practice I
74-101 Nuclear Medicine Practice II
74-102 Nuclear Medicine Practice III

For course descriptions, see "Radiology" in this section of the Catalog.

Admission

Prospective students in nuclear medicine technology are encouraged to apply for study and to provide a transcript of previous work as early as possible in the preclinical program, since the class size is at present limited to seven students, and prerequisites are increasing in importance. Personal interviews are required. Successful applicants for the clinical training program are notified of their selection at least three months before the beginning of the next clinical class. At present, the 12-month clinical training program starts in September of each year.

Physical Therapy

Physical therapist participates in evaluation of the capabilities and disabilities of patients. They eliminate treatment to accomplish, correct, or minimize deformity, and improve the general health status of the individual. They treat the patient, his 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 administration 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 athletic departments. Additional career opportunities are available for teaching in educational programs of physical therapy and related professions.

One of the unique features of the Physical Therapy Program at The University of Iowa is that education is available at three different levels: basic professional (certified), master’s, and doctoral. There are 60 students in the basic professional program and approximately 25 full- and part-time students in advanced degree programs. The facilities are excellent and are fully equipped for classroom and laboratory instruction. The Physical Therapy Program is located 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. Resources in this location make it readily accessible to the Physical Therapy Program’s basic science and medical faculty, basic science courses, and interdepartmental associations associated with a College of Medicine environment.

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. Satisfactory completion of the professional program qualifies candidates for the Professional Examination Service (P.E.S.) test for licensure in Iowa and other states.

The two-year professional certification program consists of:

First Semester

60:108 Human Anatomy 4 s.h.
101:080 Fundamentals of Physical Therapy 3 s.h.
101:115 Kinesthetics 3 s.h.
101:124 Therapeutic Physical Agents I 3 s.h.
101:141 Introduction to Physical Therapy 1 s.h.
69:203 Introduction to Human Pathology 2 s.h.
Second Semester
60:128 Human Anatomy and Neuroanatomy 4 s.h.
72:150 Intermediate Physiology 4 s.h.
101:285 Therapeutic Exercise I 2 s.h.
101:118 Clinic Observation 0 s.h.
101:101 Introduction to Clinical Medicine I 2 s.h.
101:122 Emotional Aspects of Disability 1 s.h.
101:930 Physical Agents I 2 s.h.
101:186 Applied Biosciences 2 s.h.

Third Semester
101:102 Fundamentals of Orthopedics and Clinical Sciences 3 s.h.
101:111 Therapeutic Exercise II 3 s.h.
101:113 Principles of Neurology and Clinical Sciences 1 s.h.
101:124 Clinical Education and Rehabilitation 2 s.h.
101:103 Scientific Inquiry 2 s.h.
101:121 Physical Therapy Administration 1 s.h.
101:150 Fundamentals of Cardiopulmonary Therapeutics 2 s.h.
101:170 Prosthetics and Orthotics 1 s.h.

Fourth Semester
101:120 Clinical Internship arr.

Admission
A new class is admitted to the professional curriculum program each fall. Students may enter the program following their junior year of college or after earning a baccalaureate degree. A student entering the program after the third year of undergraduate study must be able to satisfy all requirements for the Bachelor of Science degree by successfully completing the first year of the professional curriculum program.

Undergraduates who complete their preprofessional 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 preprofessional 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 96 semester hours of college study, including a complete introductory course in zoology or biology (12 semester hours; zoology preferred), a complete introductory course in chemistry (8 semester hours), a complete introductory course in physics (8 semester hours), a complete introductory course in psychology (6 semester hours), and one college-level mathematics course (3 semester hours). The student must have completed all science courses in the major departments offering the courses, and all must include at least one required laboratory assignment.

The applicant should have a minimum overall grade-point average of 2.7 (A=4) and a 3.0 minimum in all courses in zoology or biology, chemistry, physics, and psychology.

Graduate applicants must take the Graduate Record Examination (GRE) Aptitude Test prior to admission. Undergraduates will take the 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 therapy admission committee selects the applicants who appear to be best suited for the study and practice of the profession.

Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply as early as possible. The closing date in February 1.

Graduate Programs
The graduate programs in physical therapy emphasize research and teaching in three areas of physical therapy: musculoskeletal (orthopedic), neuromotor (neurology, and cardiology), and pediatrics. This includes in the neuromotor area. Clinical experiences are also offered. The programs focus on theoretical and practical bases for assessment and treatment of abnormal human movement. The major's degree requires a minimum of 30 semester hours of graduate coursework, the doctorate 90. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Physical therapy laboratories are available for human and animal studies. Three laboratories are as well equipped with electromechanical systems for measurement of locomotor functions such as muscle strength, gait, posture, reflexes, muscle activity (EMG), endurance, and proprioceptive 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, pharmacology, anatomy, physiology, and with personnel in the physical therapy clinics.

Master of Arts
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 practices;

Be able to teach at the basic professional level of physical therapy training and show promise of ability to teach at the Master's level;

Have a knowledge of the physical therapy theoretical and research literature related to a specific topic; and

Be skilled in the application of basic concepts in the areas of musculoskeletal, neuromotor, and cardiopulmonary physical therapy.

Required courses:
101:301 Thesis Physical Therapy 4 s.h.
101:315 Medical Instrumentation 3 s.h.
101:105 Biomechanics and Biochemistry 3 s.h.
101:215 Principles of Human Motion I 3 s.h.
101:220 Cardiopulmonary Therapeutics 3 s.h.
101:276 Evaluation of Selected Neurological Disorders 3 s.h.
101:280 Teaching Practicum 1 s.h.
Division of Associated Medical Sciences/MEDICINE

Doctor of Philosophy

A student successfully completing the Ph.D. program in physical therapy will:
- Be able to perform original scholarship and research directed toward the discovery of new theoretical principles that will advance the understanding of physical therapy clinical practices.
- Be able to teach at the basic professional and master's levels 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 skilled in the application of basic and advanced concepts in the areas of musculoskeletal, neurosensory, and cardio/pulmonary physical therapy.

For a description of the Ph.D. program in physical therapy, see "Physical Education—Field house" in the "College of Liberal Arts" section of the Catalog.

To be considered for admission to the Ph.D. program, the applicant must be a Graduate of an approved professional program in physical therapy, be a licensed physical therapist, and 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 February 15 for notification by April 1 and May 15 for notification by July 1.

Courses

The courses listed below are open only to students in the professional program.

5130 Fundamentals of Physical Therapy
5131 Neuroscience and utilization of physical therapy methods and techniques in the management of neuromuscular and neuromotor disorders
5132 Therapeutic Exercise
5136 Physical Agents I
5160 Physical Agents II

101:68 Clinical Education and Rehabilitation
101:91 Introduction to Clinical Medicine
101:112 Introduction to Orthopedics and Clinical Science
101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5130 Scientific Inquiry
5132, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5132 Therapeutic Exercise I
5133, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5134 Therapeutic Exercise II
5135, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5136 Therapeutic Exercise III
5137, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5138 Therapeutic Exercise IV
5139, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5130 Therapeutic Exercise V
5140, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5141 Therapeutic Exercise VI
5143, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5144 Therapeutic Exercise VII
5145, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5151 Therapeutic Exercise VIII
5153, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5154 Therapeutic Exercise IX
5156, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5157 Therapeutic Exercise X
5159, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5160 Therapeutic Exercise XI
5162, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5163 Therapeutic Exercise XII
5165, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5166 Therapeutic Exercise XIII
5168, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5169 Therapeutic Exercise XIV
5171, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5172 Therapeutic Exercise XV
5174, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5175 Therapeutic Exercise XVI
5177, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5178 Therapeutic Exercise XVII
5180, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
5181 Therapeutic Exercise XVIII
5183, 101:118, 119:2, 3, and 119:118, 119:3 are prerequisites.
Physician's Assistant Program

Program director: Derek Diver
Faculty: associate professor, Oscar Chavero
Resident professor: Douglas L. Cleary
clinical coordinator: Sandy Martin
Degree offered: M.S.

The physician's assistant is a person qualified to collect historical and physical data about a medical patient, organize and present this data in such a way that the supervising physician can diagnose the medical problem and assist the physician in determining appropriate diagnostic or therapeutic procedures. The physician's assistant is also capable of performing these procedures, and of coordinating the activities of other, non-technical, assistants. While the physician's assistant functions under the general supervision and responsibility of the physician, under certain circumstances, and under defined rules, the physician's assistant may perform within the physician's immediate supervision, and thus must be able to exercise independent judgment based on general medical knowledge. The demand for physician's assistants is increasing in all types of health care settings.

The Physician's Assistant Program at The University of Iowa is approved by the American Medical Association's Joint Review Committee on Educational Programs for the Primary Care Physician, the Iowa Board of Medical Examiners, and the Association of Physician's Assistant's Programs. Completion of the program qualifies applicants for the Bachelor of Science degree and for the opportunity to sit the National Certifying Examination for Primary Care Physician Assistants. Successful completion of the national certifying examination is a prerequisite for registration in Iowa.

The Physician's Assistant Program at The University of Iowa emphasizes the practice of general medicine in settings designed to foster the role of health care teams. In addition to education and career opportunities with private practicing physicians, a network of primary care clinics has been developed in the state to serve communities with an integrated health care system. These family clinics integrate the physician's assistant into the medical delivery team with physicians, health technicians, public health nurses, clinical nursing staff, and social service personnel.

The Physician's Assistant Program is an integral part of the College of Medicine. The third, or final, 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 program is divided into three broad phases.

The initial, didactic, phase consists of seven months of coursework in a number of basic science areas. Whatever appropriate, related subjects are integrated to provide sequential lecture, laboratory, and clinical experiences. A seminar course specifically directed to the history and development of the physician's assistant profession is also offered during this session.

The third phase is 508.121: Introduction to Clinical Medicine for Physician's Assistant Students. This full-year course involves the application of basic science knowledge to the understanding of basic clinical-pathologic correlations of the common and/or catastrophic disorders encountered in the major disciplines of general medicine. The student also is instructed in the sciences and art of retaining a medical history and performing a thorough physical examination.

The third, clinical, phase consists of supervised rotations in required and elective specialties. These rotations of two to four, or up to fourteen months, allow the student to apply the knowledge gained in the didactic and practical phases of the program and to develop additional skills through individual, supervised instruction. The clinical rotations are designed to provide the student with instruction and experience in the care of patients in a manner which facilitates effective integration of the knowledge, skills, and attitudes acquired from the basic science and pre-clinical phases of the program. Also, the 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 model health care clinic at Mascoutah, Davenport, Mason City,
and Des Moines. Students gain additional clinical experience through placement with 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's assistants on this type of service team. The program is integrated into the teaching of the College of Medicine, thus permitting interdisciplinary activities between various medical and health care professional students.

**Professional Curriculum**

**First Year**

7:125 Pharmacology for Health Sciences: Physician's Assistant Students 6 s.h.
50:100 Law and Medicine for Physician's Assistant Students 1 s.h.
60:111 Osteopathic Human Anatomy for Physician's Assistant Students 6 s.h.
81:110 Microbiology for Physician's Assistant Students 2 s.h.
89:203 Introduction to Human Pathology 4 s.h.
69:130 Clinical Pathology for Physician's Assistant Students 2 s.h.
72:164 Human Physiology for Physician's Assistant Students 4 s.h.
95:164 Biochemistry for Physician's Assistant Students 3 s.h.
117:101 Seminar for Physician's Assistant Students 2 s.h.
59:232 Human Anatomical (Anatomy) 2 s.h.
50:131 Introduction to Clinical Medicine for Physician's Assistant Students 20 s.h.

**Second Year**

Required clinical rotations:
70:525 Pediatrics for Physician's Assistant Students 6 s.h.
70:625 General Surgery for Physician's Assistant Students 6 s.h.
78:555 Internal Medicine for Physician's Assistant Students 6 s.h.
115:555 Family Practice I for Physician's Assistant Students 6 s.h.
115:556 Family Practice II for Physician's Assistant Students 6 s.h.
80:125 Obstetrics and Gynecology for Physician's Assistant Students 6 s.h.
73:100 Psychiatry for Physician's Assistant Students 4 s.h.

Elective clinical rotations, selected from the following:
70:104 Pediatrics Elective for Physician's Assistant Students 6 s.h.
70:100 Emergency Room for Physician's Assistant Students 4 s.h.
70:102 Orthopedics for Physician's Assistant Students 6 s.h.
115:500 Family Practice Elective for Physician's Assistant Students 6 s.h.
78:100 Internal Medicine Elective for Physician's Assistant Students 6 s.h.
82:5 Dermatology for Physician's Assistant Students 4 s.h.
74:5 Radiology for Physician's Assistant Students 4 s.h.
75:110 Surgery Elective for Physician's Assistant Students 6 s.h.
75:116 Rehabilitation Elective for Physician's Assistant Students 6 s.h.
79:120 Urology Elective for Physician's Assistant Students 6 s.h.
69:110 Obstetrics and Gynecology: Physician's Assistant Elective 3 s.h.
73:101 Psychiatry Elective for Physician's Assistant Students 3 s.h.
75:110 Surgery Elective for Physician's Assistant Students 3 s.h.
(Burn Unit)

**Faculty**

All courses in the physician's assistant professional program are taught by College of Medicine departmental faculty members. The program is administered with advisory assistance from a committee consisting of faculty of the College of Medicine, physicians in private practice, health care administrative personnel, and students currently enrolled in the program.

**Expenses**

In addition to general University student expenses, students in the Physician's Assistant Program are responsible for the purchase of their uniforms and diagnostic equipment. Microscopes are not required.

**Admission**

To be eligible for admission to the Physician's Assistant Program, the applicant must have completed 80 semester hours of college study, including:

College of Liberal Arts general education requirements in rhetoric, physical education, and the historical, cultural, literary, and social sciences courses.

A complete introductory course 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 college biology, trigonometry, and physics.

The applicant must have achieved at least a 2.5 grade-point average (GPA) on the last 40 semester hours of college coursework unweighted. The admissions committee gives special attention to the applicant's performance in science courses.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician's Assistant Program. The admissions committee selects the applicant it considers best qualified. Applicants with previous health care experience involving direct patient contact receive differential considerations. The committee will request interviews with the most qualified applicants.

A new class begins the first week of June. Applicants are accepted beginning one year in advance, and close January 15. Each applicant must complete The University of Iowa application and the Physician's Assistant Program supplementary application and submit at least three letters of recommendation.

**Courses**

121:101 Seminar for Physician's Assistant Students 5 s.h.
90:100 Laboratory, research, and group experiences dealing with the history and development of physician's assistant profession. Open only to students in the Physician's Assistant Program.
110:200 Advanced Emergency Medicine for Physician's Assistant Students 4 s.h.

Five weeks of intensive instruction, including lectures, computer simulation, clinical experiences, and simulated patient care. Open to selected senior physician's assistant students and premedical physician's assistant students.

Division of Associated Medical Sciences/College of Medicine
Biochemistry

Department Head: Edward C. Heath

Research Assistant Professors: Harry B. Hall, James E. James, James E. James, and other faculty.

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., Ph.D., or Ph.D.-M.D. (Medical student training) combined programs.

The spirit of the graduate program is the individual student, whose educational needs are met in normal coursework and by tutorial conferences in the research areas from which he or she may choose a thesis topic.

First-year graduate students usually take general and advanced biochemistry courses (08:136 Physical Biochemistry), a seminar on affective oral presentation (08:202 Seminar), and a seminar course. Students spend about half of their time working in different faculty laboratories (08:281 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 research, begin their thesis projects, and take elective courses that supplement and complement their interests and preparation. Students are required to complete a minimum of 10 semester hours of 1-2 semester hour minors in biochemistry (chosen from the 14 offered) and 8 semester hours of elective science courses offered in other departments.

After passing the comprehensive examinations toward the end of the second year, students are formally admitted to degree candidacy and concentrate on their thesis work. The program culminates in the completion of this work, and its successful defense before the thesis committee.

In addition to meeting these and the general requirements of the Graduate College, students are expected to assist 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 receive close personal attention from the biochemistry faculty members who serve as research advisors.

Research Interests

The department's current research interests include several aspects of physical biochemistry, effects of conformational change, and chemically and biochemically reactive systems. The carbohydrate, hormonal control mechanisms, structure and function of nucleic acids, gene control in higher organisms, biochemistry of glycoproteins, carbohydrates, and control of protein synthesis, biochemistry of proteins, and the characterization of liver and kidney enzyme systems.

In addition to the departmental reading room, excellent lecture courses are provided by the new (1972) Health Sciences Library and the various other departmental branches of the University Library System.

Financial Assistance

Financial assistance is available to all students enrolled in the doctoral program in biochemistry.

Admission

The graduate program in biochemistry is sufficiently flexible to accommodate students with bachelor's degrees in any of the biological, biochemical, or physical sciences. Requirements preparation includes one-year college-level courses in mathematical and physical chemistry, biology, and physics, and mathematics.
Dermatology
Department head: John S. Steere
Faculty: Jeanne Minnich, William S. Cotler, Donald T. Cowling, John S. Schumacher, associate professor Robert L. Zavisnay, assistant professor Prameela Vanda, Thomas L. Reye, Nancy Sato

The Department of Dermatology instructs medical students and trains dermatology residents in the care of patients with skin disease, and provides opportunity for the development of research skills in the field of dermatology.

This is one of 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 and clinic patients, including a large number referred from the Southern Health Service. Additional patients are seen at the nearby Veterans Administration Community Clinic. Various electives are available for fourth-year medical students, including further clinical experience, dermatologic research, and special studies.

Courses

61.1 Clinical Dermatology 2 a.h.
Dermatologic examination of medical school patients, intensive patient study materials, clinical investigations

61.3 Dermatology Electives
An
Fourth-year medical students grant four weeks in dermatology, dermatologic surgery, and special assignments.

62.4 Research in Dermatology
An
Research Fellowship Award Students
General purpose of medical research: clinical or laboratory research, independent study.

62.99 Special Studies on Campus
An
63.25 Special Studies Off Campus
An

Dietetic Internship
Director: Rose Anne Stany
Educational Coordinator: Eric Inman

University of Iowa Hospitals and Clinics offers a dietetic internship program which qualifies graduates to take the American Dietetic Association registration examination. The program is fully accredited by the ADA. Courses comprising the program are administered by the University of Iowa College of Medicine. The following are required:

50.201-202 Nutrition Seminar 3 a.h.
50.203-204 Clinical Nutrition 4.5 a.h.
50.205-206 Projects in nutrition 3 a.r.
50.208-310 Hospital Dietary Administration 4.5 a.h.

The following are recommended electives:

62.216 Comprehensive Nutrition 3 a.h.
62.216 Analysis of Food Service Systems 2 a.h.
62.211 Nutrition of the Child 2 a.h.

Students generally complete the program with 16-17 semester hours of graduate credit. University Hospitals awards a certificate to graduates of the program. Credit earned in the program may be applied toward an advanced degree, and approximately half of the students of the program do go on to complete advanced degree programs, most typically the master's degree in home economics, preventive medicine, public health education, or business administration.

American Dietetic Association and University of Iowa Graduate College requirement for admission to the program include the bachelor's degree with a strong background in food and nutrition, food service management, and basic sciences.

Students will enter the program in the fall semester. The deadline for application is March 1.

University Hospitals pays an intensive stipend which partially covers educational and living expenses.

For descriptions of program courses, see the "Nondisciplinary", "Human Nutrition," and "Pettyioics" listings in this section of the Directory.

Family Practice
Department head: Robert E. Seitel
Faculty: Jeanne Minnich, William S. Cotler, Donald T. Cowling, Robert F. Oates, Norman Poll, James G. Lasker

The Family Practice Program was invited in response to the need for more primary-care physicians in Iowa and throughout the nation.

Appropriate coursework in the department is included throughout the four-year M.D. program. The department's 18 elective senior rotations give ample opportunities for exposure to various Iowa communities through work in affiliated hospitals or clinic facilities, in the department's Oakville, Willimburg, and University Hospital clinics, and in private practices with selected family physicians throughout the state. There is also ample opportunity for independent study during the senior year, and an international health care offering offers exposure to primary health care systems of other countries.

Residency

The department directs a three-year residency program, graduates of which are eligible for certification by the American Board of Family Practice. The residency trains physicians to provide continuing and comprehensive care to the total family unit, utilizing a concept integrating the patient, allied health professionals, and the physician into an efficient and effective health care team.

The program is intentionally flexible to allow each resident freedom to select his or her training to individual interests and
needs. It includes a broad spectrum of electives in internal medicine, pediatrics, obstetrics and gynecology, psychiatry, 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 Hospitals, where the patients have been referred by physicians from all over the state, and in various community hospitals, where the patient 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 to participate in the practice—both inpatient and outpatient—of the private physician staff. Rotations are specifically designed to provide breadth of experience. In the second and third years, experience is available at Broadlawns Polk County, Iowa Lutheran, and Blank Memorial hospitals in Des Moines, St. Joseph Mercy Hospital in Mason City, the Capacitated Community Health Center, the Red Oak Family Care Center, and in selected teaching practices.

Teaching Fellowship

A two-year teaching fellowship in family medicine begins each August 1. The primary goal is to train physicians for academic roles in family practice department or residency programs. elective opportunities include research methodologies, administrative and teaching techniques, and modern educational methods.

Special Facilities

The department office is located in Children's Hospital in the University Hospitals complex and is the center of departmental activities. It contains faculty offices, the University Hospitals Family Practice Office, and an inpatient unit. The department also maintains family practice offices at the University's Oakdale campus, four miles to the west of the hospital, and at Williamsburg, 25 miles west of Des Moines. The Williamsburg office is the only medical office in that community. In all offices, patient families are assisted by a resident with faculty supervision and are seen by appointment. Responsibility remains with that resident for the period he or she is in the training program. Emphasis is placed on teaching the principles of practice management, including the organizational and administrative problems of practice setting, patient record and bookkeeping procedures, and short auditing methodologies required to manage a private practice.

Courses

115 102 Family Group Practice Medicine 1.5h Weekly meeting in small groups of students for nonpenentive, non stressful shared. Structured course lasts one semester. This second group can continue.

115 201 Principles of Family Practice 3.0h

115 203 Facilitator Human Development 1.5h

115 401 Family Practice, Broadlawns 3.0h

115 401 Family Practice, Broadlawns

Student participates in care of patients seen at Family Health Center, as new liaison, clinical medical office for care of patients admitted at Family Practice Center. This experience serves to introduce the residents to diagnosis and treatment of common problems. Residents are expected to maintain a record of their own experience, present readings, and learning conferences.

115 402 Emergency Room Saskatoon Clinic, Broadlawns

Broadlawns residents are to develop their own student's art and professionalism in delivering quality primary care service, including medical home, and personal care. This involves the care of patients treated by residents, and three months required. Prerequisite: competent of department.

115 423 International Health Care 3.0h

Residents in primary health care delivery systems of other countries: practice visits in Great Britain, Ireland, Sweden, Austria, Germany, and Canada with other resident students in primary care. Residents may be required to go for appointment, two, or three months required. Prerequisite: competent of department.

115 449 Preparation in Family Practice 6.0h Available with admitted family physicians representing a variety of role and other physicians in Iowa. Residents participate in clinics and groups of rotating residents. Residents are to participate in the practice role, including such functions as examination of new patients, arrangement of care, and the type of situation for which is most interesting or convenient. Didactic: 12 h of didactic teaching experiences. Prerequisite: competent of department.

115 450 Family Practice Center, Cedar Rapids

Practicum relating to Family Practice Center Office, provides health care to patients for whom the student follows. Sessions of orientation, cafeteria style, and exposure to various diagnostic procedures. Residents are expected to participate in the care of patients and in the development of diagnostic program and planning and implementing programs for teaching and patient care. Room and board not provided. Prerequisite: corequisite of department.

115 469 Emergency Room, Cedar Rapids

Student participates in care of patients treated in the emergency room. Residents are required to report all cases treated. Residents are to participate in the care of patients and in the development of diagnostic program and planning and implementing programs for teaching and patient care. Room and board not provided. Prerequisite: corequisite of department.

115 470 Family Practice Clinic, Iowa Lutheran Hospital

Residents in primary health care delivery systems of other countries: practice visits in Great Britain, Ireland, Sweden, Austria, Germany, and Canada with other resident students in primary care. Residents may be required to go for appointment, two, or three months required. Prerequisite: corequisite of department.

115 471 Family Practice Clinic, Iowa Lutheran Hospital

Residents in primary health care delivery systems of other countries: practice visits in Great Britain, Ireland, Sweden, Austria, Germany, and Canada with other resident students in primary care. Residents may be required to go for appointment, two, or three months required. Prerequisite: corequisite of department.
Hospital and Health Administration

Program director: Samuel Levery
Faculty: associate professor Genevieve Martin, associate professor Ray B. Tawfeel, Robert A. Liske, Richard W. Fadler, James R. Westby, Jr., Charles E. Tawfeel III

Since its inception in 1950, the Graduate Program in Hospital and Health Administration has offered two degree programs, each having distinct, mutually reinforcing academic objectives. The Master of Arts program is designed for individuals who seek executive positions in health organizations. The Master of Science program is obtained primarily by individuals who are interested in teaching and research in the health fields, although individuals seeking senior managerial appointments in health organizations are also encouraged to apply.

Five Year Program

As early admission 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 awareness of the need for a new level of education in health administration. Diversity of background will contribute to the development of a pool of well-trained administrators who can offer differing perspectives on planning, management, and evaluation. 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 admission plan should apply directly to the program during the third year of undergraduate work. Early application will make it 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 program of study leading to a bachelor's degree in health administration and a graduate degree in another discipline such as business administration or urban and regional planning. Joint programs are encouraged. Applicants who are interested in a joint program should register with the admissions office when requesting application materials.

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 in management and policy development in the health fields.

At the doctoral level, the curriculum is organized into four basic fields of study, and students are expected to demonstrate competence in each:

- Research Methodology
- Quantitative Analysis
- Health Systems Management and Evaluation
- Political, Social, and Economic Aspects of Health Care
- Medical Care Organization

Doctoral students will be exposed to advanced courses in health services management, health policy, and health services research. Doctoral candidates are required to complete at least 90 semester hours of graduate work, pass comprehensive examinations, and submit an acceptable dissertation.

An option available to students in the master's program involves filing a joint program for the M.A. and Ph.D. degrees. In addition to satisfying the academic requirements of the program, the doctoral student must satisfy the requirements of the Graduate College.

Admission

Admission procedures are the same for M.A. and Ph.D. applicants.

A qualified student with a baccalaureate degree in any discipline from an accredited college or university may apply for admission. Applicants for admission to the doctoral program are generally expected to possess master's degrees in health administration, medical care organization, public health, or in other fields related to health.

Introductory undergraduate courses in auditing, economic management, and statistics are program prerequisites. In special cases, at the discretion of the faculty, students may be permitted to complete the prerequisite courses subsequent to admission. Students must have a 3.0 grade-point average for regular admission, although a student with a lower grade-point average may be admitted on an experimental basis upon the recommendation of the faculty.

All students applying for admission are required to furnish completed application forms, official transcripts of all graduate and undergraduate coursework, three letters of recommendation, and a brief statement outlining career objectives. Applicants are required to take the Graduate Record Examination (GRE) Aptitude Test and are encouraged to take the Graduate Management Admission Test. A personal interview is usually requested prior to admission.

Applicants are accepted for admission in the fall semester only. Completed applications must be filed no later than July 15. Early applicants may be notified of admission by March 15.

Financial Aid

A limited number of scholarships, research assistantships, and tuition scholarships are available to support students in both the M.A. and Ph.D. programs.

Courses

- 50-01 Introduction to Health Care Organizations 2.0 a.
- 50-02 Health Administration 2.0 a.
- 50-03 Health Care Management 2.0 a.
- 50-04 Economics of Health Care 2.0 a.
- 50-05 Comparative Health Systems 2.0 a.
- 50-06 Health Care Organization, Financing, and Delivery 2.0 a.
- 50-07 Public Health Practice and Policy 2.0 a.
- 50-08 Legal Aspects of Health and Medical Care 2.0 a.
- 50-09 Philosophy and Language 2.0 a.
- 50-10 Sociology of Health 2.0 a.
- 50-12 Health Care Policy and Practice 2.0 a.
- 50-13 Health Services Management 2.0 a.
- 50-14 Health Services Research 2.0 a.
- 50-15 Health Services Analysis 2.0 a.
- 50-16 Health Services Planning 2.0 a.
- 50-17 Health Services Evaluation 2.0 a.
- 50-18 Health Services Policy and Management 2.0 a.
- 50-19 Health Services Administration 2.0 a.
- 50-20 Health Services Administration 2.0 a.
Human Nutrition

Program director: Samuel Feron
Program assistant: May Ali
Administrative assistant: Elizabeth Peterson.

The goal of the doctoral program in human nutrition is to train individuals for research in nutrition and teaching. It is anticipated that the majority of individuals completing this training will find employment in research programs at the faculties of medical centers, departments of nutrition in schools of public health, various governmental agencies, or industry. Students accepted into the program without previous graduate training will be expected to devote approximately five years in acquiring the necessary breadth in biomedical education, laboratory methodology, use of animal models for study of human problems, and essential preliminary design for clinical investigation.

Coursework will be arranged to permit each student to spend three to twelve months in each of three or four research laboratories during the first 24 months of the training program. It is anticipated that the student will eventually choose to complete research in one of these laboratories. The five-year training program permits intensive research during the last three years.

In special instances the advisory committee for the Ph.D. program in human nutrition may waive certain requirements.

otherwise, the following core curriculum is mandatory for all students:

96:183 Biochemistry for Medical Students
96:190 Metabolism
96:191 The Chemical Biology of Materials
96:200 Molecular Endocrinology
96:202 Intermediate Physiology
97:203 Molecular Endocrinology
97:204 Clinical Nutrition
98:213 Nutrition Methods

Admission

The Ph.D. program in human nutrition aims at attracting students with a wide range of previous interests and training. Prerequisites for admission to the program include completion of acceptable courses in college-level mathematics, physics, chemistry, and biology. Students must also pass the Graduate Record Examination (GRE) Aptitude Test.

Individuals interested in further details of the program may write to the director. Formal application will require submission of all college level grade transcripts, a letter expressing career goals, and a list of names of three individuals familiar with the applicant's academic record.

Facilities

Students accepted into the program will have the opportunity to participate in a wide range of nutrition research activities. Facility advisors are available in a number of departments: Anatomy, Biochemistry, Home Economics, Internal Medicine, Obstetrics and Gynecology, Pediatrics, Preventive Medicine, and Environmental Health, and Surgery.

Financial Support

Financial support is available to all students in the program.

Courses

Graduate courses are offered in: Nutrition, including clinical investigation, Offered fall semesters.

Graduate courses are offered in: Nutrition, including clinical investigation, Offered spring semesters.

Graduate courses are offered in: Nutrition, including clinical investigation, Offered spring semesters.

Energy, protein, carbohydrates, vitamins, minerals and drug-nutrient interactions, selected aspects of food technology, dietary health. Emphasis on nutrition of normal individuals. Offered fall semesters. Offered beginning 1982.

Assessment of nutritional status, age- and sex-specific considerations, common chronic disorders, dietary illness, preventive nutrition. Offered spring semesters. Offered beginning 1982.

Assessment of nutritional status, age- and sex-specific considerations, common chronic disorders, dietary illness, preventive nutrition. Offered spring semesters. Offered beginning 1982.

Assessment of nutritional status, age- and sex-specific considerations, common chronic disorders, dietary illness, preventive nutrition. Offered spring semesters. Offered beginning 1982.

Assessment of nutritional status, age- and sex-specific considerations, common chronic disorders, dietary illness, preventive nutrition. Offered spring semesters. Offered beginning 1982.

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Assessment of nutritional status, age- and sex-specific considerations, common chronic disorders, dietary illness, preventive nutrition. Offered spring semesters. Offered beginning 1982.
substantial research testing activities include initial interpretation of liver function tests, daily conference with肝炎 specialist concerning the patient's condition, and discussing potential complications. The patient's response to treatment is continuously monitored.

70390 Clinical Gastroenterology
Method: An involvement of the patient's performance status, disease course, and treatment response in the clinical evaluation is essential. The patient is monitored for complications and adverse effects of therapy, and the patient's response to treatment is continuously monitored.

70400 Hospital Epidemiology
Method: The patient's response to treatment is continuously monitored, and the patient's course is followed closely. The patient is monitored for complications and adverse effects of therapy, and the patient's response to treatment is continuously monitored.

70410 Research in Gastroenterology
Method: The patient's response to treatment is continuously monitored, and the patient's course is followed closely. The patient is monitored for complications and adverse effects of therapy, and the patient's response to treatment is continuously monitored.

70500 Clinical Gastroenterology
Method: The patient's response to treatment is continuously monitored, and the patient's course is followed closely. The patient is monitored for complications and adverse effects of therapy, and the patient's response to treatment is continuously monitored.

70510 Research in Gastroenterology
Method: The patient's response to treatment is continuously monitored, and the patient's course is followed closely. The patient is monitored for complications and adverse effects of therapy, and the patient's response to treatment is continuously monitored.
Medical Scientist Training Program

Program Director: Robert S. Ferraro (Physiology) and Frederick T. Gartner (Pharmacology)

The Medical Scientist Training Program (MSTP) is designed to prepare a limited number of very highly qualified men and women for a lifetime of creative professional activity in academic medicine and biomedical research. To accomplish this, the MSTP follows a curriculum sequence which provides efficient integration of graduate education and doctoral research training, with the full complement of clinical studies necessary for the medical degree. Requirements for both the M.D. and Ph.D. degrees can be completed in six to seven years of continuous study.

The Medical Scientist Training Program is administered by an executive committee composed of the heads of the five basic sciences departments and the departments of Internal Medicine, Pediatrics, and Psychiatry. An advisory committee, selected from the faculty of these departments, acts as a liaison with the individual, department, provides trainees with guidance, and advises the executive committee on matters related to candidate selection.

In the first two years of the MSTP, 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 broad exposure to the language and organizing concepts of the preclinical sciences, which constitute a foundation essential for all subsequent medical training. Trainees take courses in biochemistry, microscopic anatomy, gross anatomy, and bio-statistics in the first semester; histology, physiology, microbiology, and general pathology during the second semester. The first semester of the second year is devoted to the study of pharmacology, systemic pathology, clinical health sciences, neuroanatomy, and behavioral science.

The second semester of the second year, trainees are enrolled full-time in 50111 Introduction to Clinical Medicine, which initiates the development of skills necessary for building and maintaining competence as physicians. This semester provides instruction in clinical history-taking, physical diagnosis, and laboratory diagnosis, as well as insight into major health problems and needs. 50111 Introduction to Clinical Medicine 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.

By the middle of the second year, the student chooses the graduate department in which he or she will enroll full time for the last of years, fourth, fifth, and, to the extent necessary, sixth years, to acquire academic and research experience appropriate to his or her development as an independent investigator. This scientific training is directly supervised by selected 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 their final clinical year. This year serves two purposes. First, it allows the trainee to take his or her knowledge of laboratory science back into the clinical environment and apply it to problems of human disease. Second, it permits the trainee to renew and develop the clinical skills he or she acquired in the second year of the program. With completion of the final 38 weeks of clinical clerkships, including medical and surgical sub-specialties, all trainees are awarded the M.D. and Ph.D. degrees.

Financial Support

Trainees admitted to the MSTP receive stipend and tuition support for up to seven years from an AMCAS award to The University of Iowa from the National Institutes of Health or from funds provided by basic science departments in cooperation with the College of Medicine and Graduate College. Support for trainees admitted to advanced standing in the MSTP is arranged on an individual basis.

Eligibility

All applicants must be acceptable for admission by both the College of Medicine and the Graduate College of The University of Iowa. In addition to meeting the requirements for admission to the University of Iowa, students are expected to have completed requirements for a bachelor's degree at an accredited college or university. In addition to meeting academic requirements, including a good record 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 MSTP. Consideration is also 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). All applications must be submitted to the AMCAS to forward the candidates to the College of Medicine. The deadline for applications is June 15. At the same time, applicants should request a separate MSTP application form from the MSTP Office, 5-6OG Basic Sciences Building, University of Iowa, Iowa City, Iowa. This application is reviewed by the selection committee after the AMCAS application is received.

The deadline for receipt of applications is December 1. It is strongly recommended that all application materials be submitted as early as possible to facilitate review by both the College of Medicine Admissions Committee and the MSTP selection committee. The early decision requirement of the College of Medicine for out-of-state residents is waived for the MSTP. Equal consideration is given to applicants regardless of their state of residence.

All candidates for admission to the MSTP should make both the New 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 application is submitted.

Medical Technology
See “Division of Associated Medical Sciences” in this section of the Catalog.

Microbiology
Chair: Irving P. Crawford
Faculty: professors John E. Butler, John Cape, Jr., Irving P. Crawford, Thomas L. Feldhahn (Entomology), Rudolph P. Glaser (Chemistry and Entomology), Louise H. Hoffmann, William Joiner, Alexander J. Markert, Evert W. Brin, Donald F. Bunch, Joel L. Ensminger, Michael J. Fittz, J. C. Jackson, Peter H. Lowrie, Robert D. Cox, Michael J. Fittz, David M. Lobosky (Entomology), Jesse S. Stadler, Max F. Strick, C. Martin Stofahl, Daniel H. Waker, assistant professors George V. Bostian, Degree offered: M.S., Ph.D.

Undergraduate Program
See “Microbiology” in the “College of Liberal Arts” section of the Catalog.

Graduate Program
The objectives of the graduate program in microbiology are to help students become highly qualified in research and in the teaching of microbiology.

These six areas are included in the program: pathogens, bacteriology, microbial genetics, immunology, microbial physiology, medical mycology, and animal virology. Several of these specialized areas involve interdisciplinary training within and outside the department, so students receive broad experience during their course of study.

Usually the department accepts only candidates for a Ph.D. degree, but occasionally it accepts students desiring a terminal M.S. degree. Students working for the Ph.D. degree may obtain an M.S. degree during their graduate work, or proceed directly toward the Ph.D.

All students admitted as candidates for advanced degrees are expected to

ase in teaching in the department during their course of study.

Incoming students choose a research supervisor who serves as chair of the student's advisory committee. This committee assists the student in planning a program of study and reviews from time to time the student's progress in research.

The department cooperates with other departments in the various colleges on the campus, offering ample opportunity for students to avail themselves of the University's diverse course offerings, seminars, and research programs. For example, course in seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, and electron microscopy are taught in an interdepartmental basis.

Master of Science
Course requirements for the M.S. student are the same as those for the Ph.D. program. The M.S. student must prepare a thesis based on his or her own research.

Doctor of Philosophy
A candidate for the Ph.D. must satisfy departmental course requirements: the student must be a member of the advisory committee (minimum requirement: one course in each of the six subdisciplines available in the department, or 15 semester hours of coursework in two different areas) pass a comprehensive examination; and write a thesis and defend it satisfactorily in an oral examination.

Facilities
The department shares the Basic Sciences building with the departments of Anatomy, Biochemistry, Pharmacology, and Physiology. Adequate space and excellent equipment are available for teaching and research.

Admission
Prospective graduate students should become familiar with the general admission requirements of the Graduate College. Departmental requirements include a review and formal vote by the faculty before a student is admitted.

Before beginning graduate work, the student must have completed courses in biology, chemistry (inorganic, organic, quantitative analysis), mathematics (up to calculus), and physics. Students admitted without the above coursework must take it during the first year of graduate school. The student should have a grade-point average of 2.7 or better to be admitted to the graduate program in microbiology.

Courses
01:10 Medical Microbiology
01:10 Medical Microbiology Principles and methods essential to study of microorganisms, their roles in human and animal disease, and their use in the laboratory setting. Emphasis on laboratory techniques and principles involved in disease causation and control. 3 credits.
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01:10 Medical Microbiology 3 credits.
Neurology

Department head: Maurice M. Van Arnam, M.D.


Consulting professor Arthur L. Martin (Psychiatry), Gary G. M. Van Hoven (Anatomy)

Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. "Tecching and postgraduate training, workingly integrated with patient care. A long span of a significant function of the department. The department offers clinical and research fellowships training to third- and fourth-year medical students, contributing to the Doctor of Medicine degree. An active three-year approved residency program qualifying physician trainees for board certification in neurology is a major aspect of departmental activity; experience in clinical electroencephalography, pediatric neurology, psychiatry, and neurophysiology is part of this training. The department also offers research opportunities in behavioral neurology to candidates for the Doctor of Philosophy degree in psychology.

Investigative interests of the staff center on various disorders, duchenne dystrophy, behavioral abnormalities based on disease of the nervous system, electrophysiological correlates of disease, biochemistry of the anticonvulsant drugs, treatment of myopathy, peripheral neuropathy, and cerebrovascular disease. The department has conducted the Central Registry for the international Cooperative Anemia Project, funded by the National Institutes of Health.

Courses

0411 Clinical Neurology

More advanced and selective examinations in small groups, or management of ambulatory patients. Third year.

0412 Elective in Neuro-Ophthalmology

0413 Principles of Neurology and Clinical Sciences

Lectures, demonstrations, and case presentations featuring the indications, diagnoses, and patient course reviewed and evaluated of electrical activity of nerve fibers innervating. Same as 0412.

0401 Research Neurology

0402 Introduction to Behavioral Neurology

0403 Advanced Clinical Neurology

In-depth intensive period of observations usually of a diagnostic and experimental nature with patients with a variety of diagnostic problems, other involvement in acute or chronic mental illness. May be elected. Not for minimally admitted. Pursued during initial assignment of a resident and, through consultation with staff, revised thereafter. Orientation begins the second week of August as soon as possible. Credit for winter course begins second week of August.

0404 Neuropathology

0406 Behavioral Neurology and Language Disorders

Supervised study of clinical behavioral disorder and the effects of disease, depression in cerebrovascular disease, neurological diseases, research of appropriate study design and method for clinical research studies. Summer observations in study appropriate included. One student, Course period three months. Offered at year.
Ophthalmology

Coursework for M.D. Students

The courses in ophthalmology 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, laboratory and outpatient assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship (98-4 Clinical Obstetrics and Gynecology) gives the student core knowledge, skills, and attitudes necessary to provide health care to women perinatally.

The department offers a fourth-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 and Iowa Methodist Hospitals, Des Moines; Ochsner Clinic and Charity Hospital, New Orleans; the University of Miami Hospital and Clinics; and the Detroit Medical Center.

Residency Program

The department offers a four-year residency. After passing a written and oral examination, students are eligible to be certified by the American Board of Obstetrics and Gynecology.

Courses

80-4 Clinical Obstetrics and Gynecology

Clinical experience includes first-trimester abortion, postpartum care, and management of gynecologic conditions in a primary care setting.

80-4 Advanced Obstetrics and Gynecology/Level II (City College) and (City Hospital) offers advanced training in the management of obstetric and gynecologic conditions. Students receive exposure to a variety of clinical problems and attend weekly didactic sessions.

80-4 Geriatric Obstetrics and Gynecology

80-10 Gynecology-Oncology

80-12 Gynecologic Endoscopy

80-15 Advanced Obstetricians and Gynecologists

80-15 Advanced Obstetrician and Gynecologist

80-17 Advanced Obstetrician and Gynecologist

80-18 Advanced Obstetrician and Gynecologist

Ophthalmology

Cataract Surgery

This three-year and one-half-year program provides training in the diagnosis and management of cataracts and other anterior segment disorders.

Ophthalmology

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Ophthalmology/MEDICINE

Experience in ocular motility and management of patients with strabismus, amblyopia, and other motility disorders.

80-01 Advanced Ophthalmology

Experience in a multi-specialty private practice.

80-02 Advanced Ophthalmology

Experience in a teaching hospital.

80-03 Advanced Ophthalmology

Experience in a community hospital.

80-04 Advanced Ophthalmology

Experience in a military hospital.

80-05 Advanced Ophthalmology

Experience in a specialized subspecialty.

80-06 Advanced Ophthalmology

Experience in a private practice.

80-07 Advanced Ophthalmology

Experience in a teaching hospital.

80-08 Ophthalmology

Experience in a teaching hospital.

80-09 Ophthalmology

Experience in a teaching hospital.

80-10 Ophthalmology

Experience in a teaching hospital.

80-11 Ophthalmology

Experience in a teaching hospital.

80-12 Ophthalmology

Experience in a teaching hospital.

80-13 Ophthalmology

Experience in a teaching hospital.

80-14 Ophthalmology

Experience in a teaching hospital.

80-15 Ophthalmology

Experience in a teaching hospital.

80-16 Ophthalmology

Experience in a teaching hospital.

80-17 Ophthalmology

Experience in a teaching hospital.

80-18 Ophthalmology

Experience in a teaching hospital.
Facilities

The department maintains several research laboratories: tumor diagnostic, pathology and electron microscopy, electrophysiology, histotechnology, cytopathology, and vascular diseases. Clinical facilities are available not only at the University Hospital, but also at the Veterans Administration Hospitals in Iowa City and Des Moines. The department also maintains a clinic at the Broadwater Park County Hospital. The department sponsors an annual international symposium, annually a national conference, and monthly a statewide program of continuing education.

Two features of the department are outstanding: a large full-time faculty, and the opportunity it offers to prepare for a career of teaching and research in ophthalmology.

Courses

67-100 Courses in Ocular Pathology and Physiology

Four-week course devoted to study of ocular diseases: congenital, inflammatory, neoplastic, hereditary, metabolic, vascular, neuropathic, degenerative, infectious, and autoimmune diseases. Includes the study of histologic slides, measuring or reference assignments, and eye self-examination.

67-101 Electives in Ocular Diseases

4 EAs

67-102 Electives in Neuro-Ophthalmology

Two-week course in neuro-ophthalmology, neurosurgery, or internal medicine, emphasis on visual and motor function. Preparation for intern and resident positions. Includes patient care, ward workup, medical knowledge in selected areas. Specialize in areas of interest.

67-103 Electives in Pediatric Ophthalmology

Two-week course consisting of ward workup of infant patients, daily consultations, and reading assignments. Self-assessment program.

67-104 Electives in Ophthalmology

4 EAs

67-105 Electives in Ophthalmology

Two-week course in ophthalmology and general practice, emphasis on observing and promiscuous tests, major medical management artifices in field clinics for glaucoma screening.

67-106 Introduction to the Ophthalmic Eye

4 EAs

67-107 Ophthalmic Pathology

6 AAs

67-108 Ophthalmic Pathology and The Eye

6 AAs

Programmatic courses in clinical sciences related to ophthalmology: ophthalmic pathology, visual science, anatomy, histology, physiology, pharmacology, and clinical training including that required by the American Board of Ophthalmology. Each course is worth 4 hours of credit. Successful completion of this program is required for entry into the residency.

67-200 Research in Ophthalmology and Thesis

12 EAs

Research must be accepted in advance by the department head. Projects may be in any of the subspecialties of ophthalmology. Grants for specific research projects may be obtained from the National Institutes of Health, the American Medical Association, or other sources. The department also maintains a Graduate Research Fund, which provides financial support for graduate students in ophthalmology.

Requirements include a year of statistics, humanities, and animal care.

67-600 Special Studies on Campus

67-600 Special Studies on Campus

Orthopaedic Surgery

Department head: Regional 3 Cooper.

Facility: preclinical Michael Seume, Regional 3 Cooper, Vision 2, Pediatrics, Boston V. Parcell.

Assistant professor: William A. Lewis, Nathan A. Lewis.

Resident: George T. DiNardo, Jerry A. Lasseter, Michael R. Woodrow, Martin P. Brown, Brian L. Webster.


The department offers two types of postgraduate training—one five-year integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery, and sciences related to the neuromuscular skeletal 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 Program 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, and anesthesia.

During the following years, residents gain experience in infants, children's orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation, and selected clinical specialties. Residents also attend University of Iowa Orthopaedic Surgery residents on lower extremity amputees 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 neuromuscular skeletal 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 mucoproteinase 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 pathobiology—Ultrastructural studies on normal bones, cartilage, tendons, and muscles, and on those altered by experiment and disease.

Tissue transplantation—Adaptive osteoprotegerin and bone density, bone density of metabolic bone disease.

Facilities

The department is housed in the Carver Pavilion of The University of Iowa Hospitals and has an active service in the Veterans Administration Medical Center. Facilities include 100 beds, an outpatient clinic, a specialty laboratory, a special radiology unit, a surgery laboratory, and a physical therapy facilities.

The department maintains several research laboratories: tumor diagnostic, pathology and electron microscopy, electrophysiology, histotechnology, cytopathology, and vascular diseases. Clinical facilities are available not only at the University Hospital, but also at the Veterans Administration Hospitals in Iowa City and Des Moines. The department also maintains an annual international symposium, annually a national conference, and monthly a statewide program of continuing education. The two features of the department are outstanding: a large full-time faculty, and the opportunity it offers to prepare for a career of teaching and research in ophthalmology. Courses

67-100 Courses in Ocular Pathology and Physiology

Four-week course devoted to study of ocular diseases: congenital, inflammatory, neoplastic, hereditary, metabolic, vascular, neuropathic, degenerative, infectious, and autoimmune diseases. Includes the study of histologic slides, measuring or reference assignments, and eye self-examination.

67-101 Electives in Ocular Diseases

4 EAs

67-102 Electives in Neuro-Ophthalmology

Two-week course in neuro-ophthalmology, neurosurgery, or internal medicine, emphasis on visual and motor function. Preparation for intern and resident positions. Includes patient care, ward workup, medical knowledge in selected areas. Specialize in areas of interest.

67-103 Electives in Pediatric Ophthalmology

Two-week course consisting of ward workup of infant patients, daily consultations, and reading assignments. Self-assessment program.

67-104 Electives in Ophthalmology

4 EAs

67-105 Electives in Ophthalmology

Two-week course in ophthalmology and general practice, emphasis on observing and promiscuous tests, major medical management artifices in field clinics for glaucoma screening.

67-106 Introduction to the Ophthalmic Eye

4 EAs

67-107 Ophthalmic Pathology

6 AAs

67-108 Ophthalmic Pathology and The Eye

6 AAs

Programmatic courses in clinical sciences related to ophthalmology: ophthalmic pathology, visual science, anatomy, histology, physiology, pharmacology, and clinical training including that required by the American Board of Ophthalmology. Each course is worth 4 hours of credit. Successful completion of this program is required for entry into the residency.

67-200 Research in Ophthalmology and Thesis

12 EAs

Research must be accepted in advance by the department head. Projects may be in any of the subspecialties of ophthalmology. Grants for specific research projects may be obtained from the National Institutes of Health, the American Medical Association, or other sources. The department also maintains a Graduate Research Fund, which provides financial support for graduate students in ophthalmology.

Requirements include a year of statistics, humanities, and animal care.

67-600 Special Studies on Campus

67-600 Special Studies on Campus

Orthopaedic Surgery

Department head: Regional 3 Cooper.

Facility: preclinical Michael Seume, Regional 3 Cooper, Vision 2, Pediatrics, Boston V. Parcell.

Assistant professor: William A. Lewis, Nathan A. Lewis.

Resident: George T. DiNardo, Jerry A. Lasseter, Michael R. Woodrow, Martin P. Brown, Brian L. Webster.


The department offers two types of postgraduate training—one five-year integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery, and sciences related to the neuromuscular skeletal 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 Program 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, and anesthesia.

During the following years, residents gain experience in infants, children's orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation, and selected clinical specialties. Residents also attend University of Iowa Orthopaedic Surgery residents on lower extremity amputees 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 neuromuscular skeletal 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 mucoproteinase and collagen, both normal and those altered in epiphyseal dysplasia and scoliosis.

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Cell biology and pathobiology—Ultrastructural studies on normal bones, cartilage, tendons, and muscles, and on those altered by experiment and disease.

Tissue transplantation—Adaptive osteoprotegerin and bone density, bone density of metabolic bone disease.

Facilities

The department is housed in the Carver Pavilion of The University of Iowa Hospitals and has an active service in the Veterans Administration Medical Center. Facilities include 100 beds, an outpatient clinic, a specialty laboratory, a special radiology unit, a surgery laboratory, and a physical therapy facilities.
Physicians in the outpatient clinic see approximately 100 patients a day. Specialty clinics deal with such problems as scoliosis, club feet, congenital dislocated hips, neuromuscular disease, metabolic diseases, amputees, hips, knees, hands, neuropathies, 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**

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<th>Course Code</th>
<th>Description</th>
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<tr>
<td>76.101 Orthodontics for Physician's Assistant Students</td>
<td>Open to senior medical students only.</td>
</tr>
<tr>
<td>76.909 Special Studies on Campus</td>
<td>Open to senior medical students only.</td>
</tr>
<tr>
<td>76.909 Special Studies on Campus</td>
<td>Open to senior medical students only.</td>
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</tbody>
</table>

**Otolaryngology and Maxillofacial Surgery**

Department head: Brian F. McCrae

Faculty professors: James Beattie, Lee A. Berken, Charles A. Nuccio, William E. Leake, Brian F. McCrae, Ybildungt L. Morris, William W. Ochs, D.C., Reilander, D.B., K. Von Schierberg

Assistant professors: Scott N. Ferguson, Karin M. Borden, William B. Pande

Research scientists: James W. Stahl, Dale M. Johnson, Carol M. Borden, Roger Simonsen

Department offers: M.D.

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 16, including several members from the audiology, dentistry, and speech pathology professions.

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 basic and clinical science. 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 and its related fields.

To complete the requirements for the Master of Science degree, the student must earn at least 30 semester hours of credit; one-third of which must come from the basic science group, and must present and defend a thesis. Students capable of additional work may also take elective courses.

A limited number of resident physicians can be accepted each year. Applicants must be graduates of a recognized class A medical school and must have completed one year of general surgical training in an approved program.

**Courses**

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>80.3 Otolaryngology</td>
<td>20.04</td>
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<tr>
<td>80.103 Clinical Internship in Otolaryngology</td>
<td>30.04</td>
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<tr>
<td>80.104 Head and Neck Otolaryngology</td>
<td>30.04</td>
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<tr>
<td>80.105 Principles of Facial Plastic Surgery</td>
<td>40.04</td>
</tr>
<tr>
<td>80.106 Special Orthopedics in Otolaryngology</td>
<td>40.04</td>
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<tr>
<td>80.107 Maxillofacial Surgery</td>
<td>40.04</td>
</tr>
<tr>
<td>80.108 Basic Otolaryngology</td>
<td>20.04</td>
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</tbody>
</table>

Literature and reference to the anatomy and physiology, surgical anatomy of head and neck, endoscopy, reconstructive surgery, speech and swallowing, neurological aspects of the head and neck, and clinical aspects of the ear, nose, and throat disease.
Pathology

Department head: George D. Pasick
Faculty: professors Pasick, C. Cascio, Michael N. Hart, Thomas H. Kent, Frank F. Romito, Edward S. Weed, George D. Pasick, Charles E. Pickel, Eric B. Roe, Frederick W. Steiner
professor emeritus: Ernest S. Warner
associate professor: Carol A. Ardenbauer, Robert T. Clift, Fred A. Drab, Harold D. Feld, George F. Barnhoorn, David D. Johnston
instructor: James A. Gogus, Frank A. Misoc, Donald H. Richardson
associate professor: Carol A. Ardenbauer, Robert T. Clift, Fred A. Drab, Harold D. Feld, George F. Barnhoorn, David D. Johnston
instructor: James A. Gogus, Frank A. Misoc, Donald H. Richardson

The department offers basic pathology courses to health science students, a clinical training program in medical technology, a master's degree program, residency training programs leading to Board of Pathology certification in anatomic pathology, clinical pathology and neuropathology, and a postdoctoral training program in clinical chemistry.

Clinical Training in Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog.

Master of Science

The M.S. program in pathology is open to students with various educational backgrounds. The department particularly encourages applications from students with Bachelor of Science degrees in chemistry, biology, zoology, and medical technology, and from students with medical and dental degrees. The M.S. program is flexible, but the department emphasizes the following tracks, to provide a research background for academically oriented resident physicians and for medical and dental students, the other for medical technologists who wish to advance their training, usually by subspecialization in an area of laboratory medicine.

All M.S. students participate in teaching, patient care, and research through the instructional programs of the department, the service laboratories of the department and University Hospitals, and faculty members' research laboratories.

Admission to the M.S. program requires a 3.0 grade-point average in science courses, a Graduate Record Examination (GRE) Aptitude Test combined verbal and quantitative score above 1200, and a personal interview. A brochure describing departmental course requirements and giving examples of the major academic tracks is available on request.

Residency Program

The department is approved for 17 residency positions in pathology, covering a training span of up to five years. The programs are designed to utilize the patient population of University Hospitals and Clinics and the Iowa City Veterans Administration Medical Center.

There is systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytology, clinical biochemistry, medical microbiology, hematology, and blood bank. Adequate opportunity is afforded for specialization in subspecialties such as neuropathology, dermatopathology, and gastrointestinal pathology, and special pathology of the head and neck region.

To provide these special experiences, the faculty includes members who have special interest in blood coagulation and its disorders, and diseases of the nervous system, gastrointestinal tract, skin, lungs, hematopoietic tissues, heart and blood vessels, as well as medical microbiology, clinical biochemistry, hematology, and blood banking.

The department also offers a postdoctoral training program in clinical biochemistry for hematology and chemists. This program is approved by the American Board of Clinical Chemistry.

In addition, the department has a limited
Pharmacology

Department head: J.P. Long
associate professors Anne Astor, Roderick Banninger, David Goodwin, Thomas Shives
assistant professors Gary Cutten, M.D., Ph.D.

The department provides professional training in pharmacology for health science students, offers a Master of Science program in clinical pharmacology and clinical toxicology for students with the M.D. degree, and offers a doctor's program in didactic and research experience.

For qualified graduate students, it offers research and training programs in biochemical pharmacology and toxicology, drug metabolism, central nervous system and autonomic pharmacology, and the pharmacology of the cardiovascular and renal systems. The Toxicology Center is located primarily within the Department of Pharmacology, and the department is involved with other departments in such educational and research activities as the Neural and Behavioral Sciences Program, the Diabetes Center, and the Cardiovascular Center.

The department pioneered the offering of pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions in 71:120 Drugs: Their Nature, Action, and Use emphasize the mechanisms of drug action and give students a background for rational decisions 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 Pharmacology offers a Master of Science degree program in clinical pharmacology to applicants who already hold the Doctor of Medicine degree. The specific objective of this program is to provide increased emphasis on and training in the science of clinical pharmacology for residents in the various clinical specialties.

Completion of the M.S. program requires a minimum of two years. Satisfactory completion of the following core courses is mandatory unless specifically waived by the Department of Pharmacology, faculty. Any of these courses may be waived at the request of the trainee if he or her adviser agrees that the trainee has met them satisfactorily at a prior time:

7:1:310 Special Topics in Pharmacology 7:1:316 Biocomputational Biostatistics
7:1:212 Toxicology
7:1:218 Clinical Pharmacology
7:3:350 Clinical Pharmacology and Therapeutics Lecture Series

The trainee may audit 7:1:105 Pharmacology for Health Sciences: Medical, and may take additional courses appropriate to his or her program, including:

7:1:205 Advanced Cardiovascular Pharmacology and Physiology
7:1:123 Advanced Neuropharmacology
7:1:214 Renal Pharmacology

Courses in other departments

Eligibility for the M.S. degree in pharmacology also requires demonstration of proficiency in basic research, satisfactory performance on the qualifying examination (written and oral), and satisfactory preparation and defense of a thesis.

Doctor of Philosophy

Course requirements for the Ph.D. in pharmacology are as follows:

7:1:100 Chemobiodynamics
99:120 The Chemistry of Biological Materials and/or
99:130 Metabolism
7:2:121 Medical Physiology
7:1:101 Pharmacology for Health Sciences: Pharmacology
63:187 Biochemistry and Biophysics
7:1:205 biochemical Pharmacology
7:1:203 Pharmacology Research Seminar
7:1:204 Pharmacology Seminar
7:1:205 Pharmacology of Exitable Cells
One or more graduate biochemistry course(s)

The student must complete at least one additional course in his or her area of interest and individual faculty research advisories may require more than one.

There is no departmental foreign language requirement.

Students are encouraged to obtain a maximum of laboratory research experience during the first two years. After successful completion of the Ph.D. comprehensive exam, usually at the end of two and one-half years, the student begins or continues his or her Ph.D. thesis research. Thesis research usually requires two years beyond the comprehensive examination. Satisfactory preparation and oral defense of the thesis complete the program.
Financial Aid
Financial support is available for all predoctoral and postdoctoral students in pharmacology.

Courses
71502 Chemical Pharmacology
Pharmacological and experimental approaches to end design: emphasis on concepts and topics of biological research: chemisprerelations and receptor theory. Open to students in residence and qualified graduate students. Prerequisite: consent of instructor.

71501 Pharmacology for Health Sciences: Pharmacy
Prerequisite: general principles of pharmacology. pharmaceutical actions of drugs and correlation with therapeutic effects. Open to students in residence and qualified graduate students. Prerequisite: consent of instructor.

71503 Pharmacology and Toxicology
Chemical Pharmacology: 71501: nature and dosage; course dynamics and organ-specific toxic effects. Emphasis on the major drug classes and their mechanisms of action. Prerequisite: 71501 or equivalent. 48,000 or equivalent advised. Required for pharmacy students; open to graduate students with consent of course director.

71505 Pharmacology for Health Sciences: Medical
Lecture course; general principles of pharmacology, pharmacokinetics, actions of drugs, and correlation with therapeutic effects. Open to students in residence and qualified graduate students. Prerequisite: consent of instructor.

71511 Pharmacology for Health Sciences: Dental
Lecture course; general principles of pharmacology. pharmacokinetics, actions of drugs, and correlation with therapeutic effects. Open to students in residence and qualified graduate students. Prerequisite: consent of instructor.

71509 Drugs: Their Nature, Action, and Use
Lecture and discussion; principles of drug action and drug toxicity. antibiotics, anticonvulsants, antidepressants, antihypertensives, anticoagulants, and other drugs. Open to pharmacy students.

71523 Pharmacology for Physicians: Advanced
Lecture and discussion; general principles of pharmacology. pharmacokinetics, actions of drugs, and correlation with therapeutic effects. Open to students in residence and qualified graduate students. Prerequisite: 71511 and 71520, as a course prerequisite.

71520 Intermediate Pharmacology
Lecture course; general principles of pharmacology, pharmacokinetics, actions of drugs, and correlation with therapeutic effects. Open to students in residence and qualified graduate students. Prerequisite: 71509 and 71520, as a course prerequisite.

71550 Clinical Pharmacology
Lecture course; general principles of pharmacology, pharmacokinetics, actions of drugs, and correlation with therapeutic effects. Open to students in residence and qualified graduate students. Prerequisite: consent of instructor.

71560 Advanced Clinical Pharmacology and Physiology
Lecture course; advanced introduction to pharmacology. physiology, and pharmacophysics of cardiovascular diseases. Prerequisites: consent of instructor. Same as 72517.

71506 Biochemical Pharmacology
Lecture course; introduction to biochemical pharmacology. Prerequisites: consent of instructor.

71562 Pharmacology of Enzyme Inhibitors
Lecture course; introduction to biochemical pharmacology. Prerequisites: consent of instructor.

71563 Clinical Pharmacology and Therapeutics Lecture
Lecture course; emphasis on rational pharmacological approaches to treatment of diseases in humans. Open to fourth-year medical students. Offered spring semesters. Same as 72201.

Physiology and Biophysics
Department chair: R. E. Fellers
Faculty associate: F. M. Ableson (Internal Medicine)
Robert E. Fellers, D. Edger Feld, Jr.,
Katzoff-Hein (Physiology).
A. Chaikoff (Animal Physiology),
D. J. G. Seidman, H. S. Thomaos,
T. E. S. Burrows, R. D. Campbell,
W. C. C. H. Y. Q. Kanagal,
M. D. Chock, W. L. Golding,
S. J. P. J. B. R. J. H. D. Brin,
W. L. Golding
2.5 h

The Department of Physiology and Biophysics offers graduate programs leading to the Ph.D. in Physiology degree; provides instruction in physiology and biophysics for medical, dental, pharmacy, nursing, and other health professional students; participates in the Medical Sciences Training Program (combined M.D.-Ph.D.) program conducted under the auspices of the Graduate College and the College of Medicine; and offers a two-year program leading to the Master of Science degree.

Graduate Study
The graduate programs in physiology and biophysics are designed to provide broad general knowledge of fundamental life processes at cellular and organ levels, and to prepare students for intensive study of physiology and biophysics. The programs place major emphasis on the development of modern research skills and their application in the completion of original dissertation research. The entering student is advised in the first two years by the director of graduate studies, who provides guidance in the planning of a formal course program and an introduction to research activities of departmental faculty. In addition to general courses, advanced physiology, and biophysics.
Admission

An applicant for graduate admission must have completed undergraduate studies in an accredited institution and have an overall grade point average of 3.0 and a science grade point average of 3.5 or better on a 4.0 scale, coupled with strong performance on the Graduate Record Examination (GRE) Aptitude Test. The appropriate background for graduate study in physiology and biophysics includes an undergraduate major in one of the following: biological, chemical, physical, mathematical, or engineering sciences, with one or more years of coursework in biology, physics, chemistry (including physical chemistry), and calculus.

Courses

70:13 Introduction to Human Physiology 4.0 h
Basic concepts of human physiology. Offered fall semesters. Prerequisites: BIO 517, K71 or equivalent; and consent of course director.
70:151 Cell Biology 4 h
Physiology, biophysics, biochemistry, and regulation of the subcellular cell. Prerequisites: college biology, physics, calculus, general anatomy, and consent of instructor.
70:152 Endocrinology for Medical Students 2 h
Same as 10:152.
70:153 Intermediate Physiology 4.0 h
Principles of physiology and detailed treatment of organ systems and cell types. Required of pharmacy and physical therapy students. Offered fall semester. Prerequisites: 70:151 or equivalent. Offered every alternate year. Background in biology, physics, and chemistry. Offered fall semester. Prerequisites: consent of course director.
70:154 Normal Physiology 4.0 h
Principles of physiology and detailed treatment of organ systems and cell types. Limited to dental students. Offered spring semester.
70:155 Human Physiology for Physican's Assistant Students 4.0 h
Required of and limited to students in the Physician's Assistant Program. Offered summer semester.
70:156 Research, Independent Study 2.0 h
For students who are not candidates for advanced degrees in the Department of Physiology and Biophysics. Prerequisite: consent of the department chairman and the consent of course director.
70:200 Exercise Physiology 3 h
Basic concepts of exercise and related adaptations in exercise. Students required to register under 70:310 for internships. Offered fall semester. Prerequisites: previous standing and consent of course director.
70:201 Molecular Toxicology 3.0 h
Mechanisms of cell injury, including effects of viral, AMP action, intermediary metabolites, and other poisons. Examination of the toxic effects of chemical, physical, and biological agents. Prerequisite: consent of course director. Same as BIOS 436.
70:204 Cellular Toxicology 2.0 h
Studying adverse effects on somatic enzymes, xenobiotics, transport and intracellular interactions, in vitro and in vivo effects, and regulatory mechanisms. Prerequisite: consent of course director.
70:205 Preparation and Dissection of Research Animals 2 h
Prerequisites: consent of course director.
70:206 Medical Toxicology 2 h
Prepares medical students to deal with acute medical problems due to exposure to poisons. Prerequisites: consent of course director.
70:241 Medical Biochemistry 4.0 h
Basic biochemistry of cellular processes and enzymes with emphasis on metabolic diseases. Prerequisites: consent of course director.
70:242 Physiology of Exercise in Health and Disease 2 h
The basic concepts as outlined in the course in Exercise and Health. Prerequisites: 70:241 or equivalent. Consent of course director.
70:333 Advanced Pharmacological Physiology 2.0 h
Prerequisites: 70:241. Offered spring semester. Prerequisites: consent of course director.
70:351 Research Seminar in Neurotransmission and Endocrinology 2 h
Prerequisites: consent of course director.
70:353 Research Seminar in Membrane Physiology and Biophysics 2 h
Prerequisites: consent of course director.
70:354 Environmental Physiology 3.0 h
Physiological responses, especially acclimatization, to extremes of heat, cold, light, high and low oxygen tension, and changes in barometric pressure on respiration, microenvironmental measurements, and the human system. Prerequisites: consent of course director. Consent of course director.
70:352 Student-Supervised Research Seminar 2 h
Student-basically discussion of current literature in physiology and biophysics. Consent of course director.
70:371 Advanced Cardiac Pharmacology and Physiology 2 h
Pharmacological and physiological basis of cardiovascular disease. Prerequisites: 70:242 or equivalent. Offered fall semester of alternate years. Prerequisite: consent of course director.
70:372 Environmental Physiology in Health and Disease 2 h
Prerequisites: consent of course director.
70:373 Seminar in Catalysis and Molecular Biodynamics 2 h
Reports on current research interest in cell and molecular biology. Consent of course director.
70:374 Advanced Exercise Physiology Seminar 1.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:375 Advanced Exercise Physiology Seminar 2.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:376 Advanced Exercise Physiology Seminar 3.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:378 Advanced Exercise Physiology Seminar 4.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:379 Advanced Exercise Physiology Seminar 5.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:380 Advanced Exercise Physiology Seminar 6.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:381 Advanced Exercise Physiology Seminar 7.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:382 Advanced Exercise Physiology Seminar 8.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:383 Advanced Exercise Physiology Seminar 9.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:384 Advanced Exercise Physiology Seminar 10.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:385 Advanced Exercise Physiology Seminar 11.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:386 Advanced Exercise Physiology Seminar 12.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:387 Advanced Exercise Physiology Seminar 13.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:388 Advanced Exercise Physiology Seminar 14.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:389 Advanced Exercise Physiology Seminar 15.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:390 Advanced Exercise Physiology Seminar 16.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:391 Advanced Exercise Physiology Seminar 17.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laboratory. Offered spring and fall semesters. Prerequisites: 70:242 or 70:230 and consent of course director.
70:392 Advanced Exercise Physiology Seminar 18.0 h
Prepares students for research on exercise. Prerequisites: consent of course director. Oral report and presentation due to 70:310 for laborato
Preventive Medicine and Environmental Health

Department head: Peter Isacson
Faculty, professor: Cybe Barry, Shu Ying He, Peter Isacson, J.R. Keppel, Franklin P. Kent, Peter Leedsbrook, Keith Lueck, Robert Wallace, professor emeritus: Dora Bada, Hal Pan Hea, Franklin Top

Preventive medicine relates to the individual patient when knowledge and techniques from biological, medical, aural, and behavioral sciences are applied to prevent disease or its progression. It relates to the health of the entire community when the knowledge and skills of medical and allied sciences are applied in an 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 groups 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, 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 first 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 for medical students at the graduate and postgraduate levels, and reflect a special interest in our rural environment.

The department has an expanded and comprehensive biostatistics program, which offers 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. Departmental programs are advanced through affiliations with the Hygienic Laboratory, Environmental Health Service, Student Health Service, College of Engineering, Health Services Research Center, and many regional health care delivery programs.

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, 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.

Examples of specific ongoing programs include assistance in the development of evaluation of rural primary care health centers, conduct of a summer medical student primary care program for migrant farm workers, surveys of health service utilization behavior in low income communities, cardiovascular disease and hypertension screening programs, cancer epidemiology through the Iowa State Cancer Registry and the Iowa Cancer Epidemiology Research Center (both based within the department), the epidemiology of cardiovascular disease associated with estrogen/progestogen E, coil, 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 in agricultural worker accidents and trauma. Consultation on epidemiologic problems is given widely in diverse areas of research and applied clinical and community activities.

Graduate Programs

The master's program offers a degree with an emphasis on environmental health, biometry, or a general track for those who are already health professionals. The Ph.D. program is available with an emphasis in epidemiology, biometry, and environmental health. The department encourages development of interdisciplinary programs.

Institute of Agricultural Medicine

The Institute of Agricultural Medicine is housed in the Agricultural Medicine Research Facility on the Oakdale Campus. Research, teaching, and extension activities are centered on the health and safety problems of rural residents. Areas of study include environmental toxicology, comparative medicine, occupational health, the Occidental Pesticides Laboratory, and the Iowa Pesticides Epidemiology Studies Center.

Financial Aid

A limited amount of financial assistance is available within the department.
Admission
Application deadlines for the fall and spring sessions are April 1 and October 1, respectively. These deadlines apply both to University of Iowa and to non-University of Iowa students. No 없는International students are accepted for the summer sessions.
Minimum GPA requirements are 3.7 for admission to the master's program, 3.0 for the Ph.D. A minimum combined Graduate Record Examination (GRE) Aptitude Test score of 1050 in verbal and quantitative sections is required. The applicant must have an undergraduate major or course background in science or mathematics, depending on the student's proposed program of graduate study. The applicant must furnish three letters of recommendation. A personal interview is desirable.

Courses

P.13:1 Principles of Health
Survey of the basic biocultural sciences as they directly relate to human health and disease. Major diseases of man in Western cultures, with emphasis on pathogenesis, epidemiology, and preventive aspects, methods of disease investigation. Offered fall, spring semesters.

P.13:2 Medical Microbiology
Human ecosystems in relation to potential and demonstrated effects of biotic, chemical, physical, and social factors on health and life. Special recognition given to food and water, and the role of the microbiome. Major systems of environment, including pesticides, water and air pollution, and other vectors in the control of human diseases transmitted to man. Effects of population and urban and rural planning on health and disease. Offered fall, spring semesters.

P.13:3 Environmental Health
Program of governmental and voluntary agencies directed at evaluation of environmental health hazards in the community. Study of the role of government and voluntary agencies in environmental health services; promotional and regulatory activities employed in environmental management, and legal basis for such activities. Offered fall, spring semesters.

P.13:4 Community Health
Survey of community health programs, "health promotion" and "prevention" activities, roles of governmental and voluntary agencies in health services; roles of individuals and community to control disease and control clinical hazards. Offered fall, spring semesters.

P.13:5 Biostatistics
Survey of statistical methods for persons who want a brief introduction to statistical techniques and methodology; topics include descriptive statistics, probability, binomial and normal distributions, and principles of sampling; emphasis on terminology of clinical trials and epidemiology. Offered fall semesters for health science students. Offered fall semesters.

P.13:6 Public Health Aspects of Food and Housing
Public health aspects of food production and services, including sanitation and food handling, fundamentals of building and housing codes, their enforcement and enforcement, environmental and health problems peculiar to residential and institutional environments. Offered irregular or by arrangement.

P.13:7 Principles of Epidemiology
Theory and application of epidemiology to the study of the distribution and determinants of disease in populations. Offered fall, spring semesters. Offered fall, spring semesters.

P.13:8 Introduction to Biostatistics
Theory of medical statistics; analysis of data, including data collection and design; design of experiments; regression and other non-parametric tests; analysis of variance. Offered fall, spring semesters.

P.13:9 Introduction to Design and Analysis of Experiments in the Biomedical Sciences
Hypercubical, factorial, and coset designs. Principles of experimental design. Study of the properties of linear regression, analysis of variance, and other common techniques. Offered fall, spring semesters.

P.13:10 Introduction to the Design of Samples
Introduction to the design of samples. Techniques of constructing and analyzing sample surveys, including designs of experiments, techniques of estimation, and the design of experiments. Offered fall, spring semesters.

P.13:11 Introduction to Research Methods and Environmental Epidemiology
Introduction to research methods in health, including the design of observational and experimental studies, the use of control groups, and the analysis of data. Offered fall semesters.

P.13:12 Principles of Clinical Research in Health Studies
Basic principles of the design and analysis of clinical research. Topics include the design and analysis of clinical trials, randomized clinical trials, and observational studies. Offered fall, spring semesters.

P.13:13 Statistical Analysis of Biomedical Data
Theory and application of statistical methods to the analysis of biomedical data. Topics include analysis of variance, regression, correlation, and other non-parametric tests. Offered fall, spring semesters.

P.13:14 Introduction to Biostatistics
Theory of medical statistics; analysis of data, including data collection and design; design of experiments; regression and other non-parametric tests; analysis of variance. Offered fall, spring semesters.

P.13:15 Medical Microbiology
Human ecosystems in relation to potential and demonstrated effects of biotic, chemical, physical, and social factors on health and life. Special recognition given to food and water, and the role of the microbiome. Major systems of environment, including pesticides, water and air pollution, and other vectors in the control of human diseases transmitted to man. Effects of population and urban and rural planning on health and disease. Offered fall, spring semesters.

P.13:16 Epidemiology of Communicable Diseases
Survey of the epidemiology of communicable diseases and their control. Topics include the transmission of human diseases, the role of vectors and reservoirs, and the control of communicable diseases. Offered fall, spring semesters.

P.13:17 Introduction to Biostatistics
Theory of medical statistics; analysis of data, including data collection and design; design of experiments; regression and other non-parametric tests; analysis of variance. Offered fall, spring semesters.

P.13:18 Study of Health Problems in Developing Countries
Survey of the problems of health in developing countries. Topics include the role of the environment, the role of social and economic factors, and the role of health and medical care in the prevention of disease. Offered fall, spring semesters.

P.13:19 Principles of Clinical Research in Health Studies
Basic principles of the design and analysis of clinical research. Topics include the design and analysis of clinical trials, randomized clinical trials, and observational studies. Offered fall, spring semesters.

P.13:20 Statistical Analysis of Biomedical Data
Theory and application of statistical methods to the analysis of biomedical data. Topics include analysis of variance, regression, correlation, and other non-parametric tests. Offered fall, spring semesters.

P.13:21 Principles of Clinical Research in Health Studies
Basic principles of the design and analysis of clinical research. Topics include the design and analysis of clinical trials, randomized clinical trials, and observational studies. Offered fall, spring semesters.

P.13:22 Statistical Analysis of Biomedical Data
Theory and application of statistical methods to the analysis of biomedical data. Topics include analysis of variance, regression, correlation, and other non-parametric tests. Offered fall, spring semesters.

P.13:23 Introduction to Biostatistics
Theory of medical statistics; analysis of data, including data collection and design; design of experiments; regression and other non-parametric tests; analysis of variance. Offered fall, spring semesters.

P.13:24 Study of Health Problems in Developing Countries
Survey of the problems of health in developing countries. Topics include the role of the environment, the role of social and economic factors, and the role of health and medical care in the prevention of disease. Offered fall, spring semesters.

P.13:25 Principles of Clinical Research in Health Studies
Basic principles of the design and analysis of clinical research. Topics include the design and analysis of clinical trials, randomized clinical trials, and observational studies. Offered fall, spring semesters.

P.13:26 Statistical Analysis of Biomedical Data
Theory and application of statistical methods to the analysis of biomedical data. Topics include analysis of variance, regression, correlation, and other non-parametric tests. Offered fall, spring semesters.

P.13:27 Introduction to Biostatistics
Theory of medical statistics; analysis of data, including data collection and design; design of experiments; regression and other non-parametric tests; analysis of variance. Offered fall, spring semesters.

P.13:28 Study of Health Problems in Developing Countries
Survey of the problems of health in developing countries. Topics include the role of the environment, the role of social and economic factors, and the role of health and medical care in the prevention of disease. Offered fall, spring semesters.

P.13:29 Principles of Clinical Research in Health Studies
Basic principles of the design and analysis of clinical research. Topics include the design and analysis of clinical trials, randomized clinical trials, and observational studies. Offered fall, spring semesters.

P.13:30 Statistical Analysis of Biomedical Data
Theory and application of statistical methods to the analysis of biomedical data. Topics include analysis of variance, regression, correlation, and other non-parametric tests. Offered fall, spring semesters.

P.13:31 Introduction to Biostatistics
Theory of medical statistics; analysis of data, including data collection and design; design of experiments; regression and other non-parametric tests; analysis of variance. Offered fall, spring semesters.

P.13:32 Study of Health Problems in Developing Countries
Survey of the problems of health in developing countries. Topics include the role of the environment, the role of social and economic factors, and the role of health and medical care in the prevention of disease. Offered fall, spring semesters.

P.13:33 Principles of Clinical Research in Health Studies
Basic principles of the design and analysis of clinical research. Topics include the design and analysis of clinical trials, randomized clinical trials, and observational studies. Offered fall, spring semesters.

P.13:34 Statistical Analysis of Biomedical Data
Theory and application of statistical methods to the analysis of biomedical data. Topics include analysis of variance, regression, correlation, and other non-parametric tests. Offered fall, spring semesters.

P.13:35 Introduction to Biostatistics
Theory of medical statistics; analysis of data, including data collection and design; design of experiments; regression and other non-parametric tests; analysis of variance. Offered fall, spring semesters.

P.13:36 Study of Health Problems in Developing Countries
Survey of the problems of health in developing countries. Topics include the role of the environment, the role of social and economic factors, and the role of health and medical care in the prevention of disease. Offered fall, spring semesters.

P.13:37 Principles of Clinical Research in Health Studies
Basic principles of the design and analysis of clinical research. Topics include the design and analysis of clinical trials, randomized clinical trials, and observational studies. Offered fall, spring semesters.

P.13:38 Statistical Analysis of Biomedical Data
Theory and application of statistical methods to the analysis of biomedical data. Topics include analysis of variance, regression, correlation, and other non-parametric tests. Offered fall, spring semesters.

P.13:39 Introduction to Biostatistics
Theory of medical statistics; analysis of data, including data collection and design; design of experiments; regression and other non-parametric tests; analysis of variance. Offered fall, spring semesters.

P.13:40 Study of Health Problems in Developing Countries
Survey of the problems of health in developing countries. Topics include the role of the environment, the role of social and economic factors, and the role of health and medical care in the prevention of disease. Offered fall, spring semesters.
for special study and research. The clinical areas of psychology, child psychiatry, and group psychotherapy also offer opportunities to a limited number of students for research and further study.

Courses
72-101 Psychiatry for Physicians' Students
72-103 Psychiatry Elective for Physician's Students
72-209 Research in Psychiatry
72-320 Medical students, graduate students, and physicians who have had least one year in clinical psychotherapy are selected for special investigations in biological or psychosomatic problems related to psychiatry.
72-026 Problems in Psychiatry

Courses Open Only to Medical Students
72-18 Clinical Psychiatry, 6 A.H.
72-12 General Hospital Psychiatry
72-20 Psychiatric Investigation on Men, University Hospital and Clinics.
72-24 Psychiatric Disorders of Children in Adolescent, Independence, Iowa
72-24 Adult Psychiatry, Psychiatric Hospital
72-25 Hospital Psychiatry, Haw Hospital, Iowa City
72-26 Child Psychiatry, Psychiatric Hospital, Children's Services
72-26 Advanced Cartilage in Child Psychiatry
72-26 Mental and Gastrointestinal Disorders, Pelvis, Dickinson Institute of Medicine, University of Medicine and Dentistry of New York, U.S.A.
72-26 Emergency Nurse Psychiatry, Riverside Hospital, Iowa City
72-26 Advanced Psychophysiology, University of Michigan, Ann Arbor, Michigan
72-26 Community Psychiatry, University of Michigan, Ann Arbor, Michigan
72-26 Advanced Psychiatric Patient, under supervision, techniques of mental health information used by community agencies.
72-27 Consulting Child Psychiatry
72-27 Counseling Psychiatry, Iowa State Medical School, Des Moines, Iowa
72-27 Advanced Procedures in State Hospital Psychiatry
72-30 Hospital in Clinical Medicine
72-23 Research Psychiatry
72-23 Medical student may obtain experience and training in practical application of scientific methodology by establishing with an ongoing research project in Psychiatric Hospital or affiliated and community research centers.
72-28 Research Psychiatry of Campus
72-28 Experiences as for 72-23, except to special arrangement of research projects off campus, in this country and abroad.
72-080 Special Studies on Campus
72-080 Special Studies on Campus

Radiation Biology
Dephines: Associate A.A., Ph.D.
The program provides in-depth training and research experience in the study of the physical, chemical, and biological effects of radiation and the theory and widespread application of radiological methodology. The program stresses the importance of these areas to scientific research, clinical medicine, and the general public.

Undergraduate Study
Two courses, 72-103 Introduction to Radiobiology and Radiology and 72-108 Environmental and Radiological Health, Physics, are open to undergraduate students in liberal 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.S. Program in radiation biology emphasizes the technical aspects and serves well as a minor field for students whose major interests are in another, related field.
The Ph.D. program is open to graduate students with a background in study in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. Ordinarily, the M.S. in this or a related field is required as a prerequisite to the Ph.D. program, but consideration is given to other methods of qualifying.
After completion of the introductory course, the student may emphasize a particular aspect of the field. The details of the program are built around previous training, interests, abilities, and career objectives. Some students need to emphasize training in physical aspects, such as radiological physics or health physics. Others major in biological aspects and in either case, a broad base rather than complete specialization is the goal. In addition to formal lectures, the program involves small group conferences and discussions. Laboratory exercises are emphasized, and the student has the opportunity to become familiar with many types of instrumentation and techniques. It is recommended that a candidate for the Ph.D. have a rudimentary knowledge of scientific French or German and competence in biological statistics or computer programming before taking the final examination. Students must have at least one semester of experience as a teaching assistant and at least one as a research assistant; no registration is required and no academic credit given.

Special Programs
Postdoctoral training is available by arrangement with the program chairman and individual faculty members.

Facilities
The Radiation Research Laboratory has a variety of x-ray generators and other radiating devices. Students and staff members have access to other radiation sources, such as the Co-60 gamma source and the linear accelerators in the Department of Radiology and the reactor of the Biology Division at Argonne National Laboratory.
The Radiation Research Laboratory has a variety of x-ray generators and other radiating devices. Students and staff members have access to other radiation sources, such as the Co-60 gamma source and the linear accelerators in the Department of Radiology and the reactor of the Biology Division at Argonne National Laboratory.
The laboratory also has an electron spin resonance spectrometer, an ultraviolet spectrograph, an automatic cell counter and particle analyzer, and facilities for preparing histological sections of tissues—fixed or frozen—and autoradiographs. Three x-ray equipment rooms provide convenient housing for the small laboratory animals used in research and teaching.
Financial Aids
Graduate students are supported as research assistants when possible from funds available through research grants and contracts, or as teaching assistants paid from departmental funds. Some awards are also available to graduate students and postdoctoral students through the U.S.P.H.S. Research Service Award program to support training in biomedical radiation research. Individual postdoctoral awards are also possible and are applied for jointly by the candidate and his or her faculty sponsor.

Courses
71.102 Introduction to Radiobiology and Radiological 4.5h.
Characteristics and carcinogenic effects of ionizing radiation, properties and uses of radiographies, medical applications, biological basis for protection procedures. Offered fall semester. Prerequisite: Consent of instructor.

71.103 Environmental and Radiological Health 4.5h.
Selected topics: current regulations, biology of designed-use or carbon-fiber facilities in radiological research, and site-specific standards, exposures and regulations. Offered fall semester. Prerequisite: Consent of instructor.

71.104 Nuclear Medicine 4.5h.
Introduction to current methods of imaging, utilization of radioactive tracers, and techniques of medical imaging and radionuclide therapy. Offered spring semester. Principles of gamma-ray and X-ray medical imaging, as well as principles of radionuclide therapy. Offered spring semester of even years. Prerequisite: Consent of instructor.

71.201 Advanced Radiological Techniques 2.5h.
Properties of the x-ray spectrum and x-ray absorption. Applications of radiography and fluoroscopy, principles of radiography and fluoroscopy. Offered fall semester.

71.205 Special Topics. 2.5h.
For undergraduate students interested in a career in radiation sciences. Readings and/or laboratory experience. Arrangements should be made with instructor. Offered fall semester.

71.206 Nuclear Energy Reactors 2.5h.
The physics of controlled nuclear fission and fusion. The practical aspects of reactor design and operation. Offered fall semester.

71.301 Research Radiation Biology 1.5h.
Research reports by students and faculty to be presented from ongoing radiation biology research. Offered on S/U basis. Consent of instructor required.

71.302 Basic Research Radiation Biology 1.5h.
Research reports by students and faculty to be presented from ongoing radiation biology research. Offered on S/U basis. Consent of instructor required.

71.401 Medical Physics 1.5h.
Characteristics of X-ray and gamma sources, X-ray units and shielding, biological and physical effects of X-rays, and ionization chamber techniques to measure exposure and dose. Radiation protection and measurement with radioactivity; radiation exposure and depth dose measurement. Radiation therapy. Offered fall semester of odd years.
to medical students and qualified students in associated health sciences.

The student in surgery develops awareness of surgical therapy's place in the treatment of disease. Emphasis is placed upon basic operative skills in techniques, traumatology, oncology, burns, gastrointestinal and biliary tract diseases, endocrine disease, transplantation, plastic surgery and reconstruction, gastrointestinal surgery, thoracic and cardiovascular surgery, and neurosurgery.

A majority of the courses involve patient-centered discussions and practical exercises interspersed with operating room experiences. Lectures and conferences are regularly scheduled on specific topics.

Special courses in selected topics of surgical research, independent study, and clinical experiences are available to individual fourth-year students with special arrangement with the faculty.

Faculty

Special faculty strengths are centered in the fields of pathophysiology and problems of severe burns, organ transplantation, the surgical control of morbid obesity, inflammatory bowel disease, biliary tract disease, pediatric urology, and plastic surgery. The thoracic-cardiovascular and neurological surgical programs are among the most comprehensive in the clinical management of the spectrum of diseases in their specialties.

Facilities

The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit of its kind in the state, which provides adequate patient material for both clinical and basic science research.

Laboratories provide equipment, space, and technical assistance necessary to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal operating, tissue culture, gastoenterology, histology, peripheral vascular, transplantation, organ preservation, cardiovascular, and neurosurgery and oncology.

Courses

72.01 Surgical History 3.0

Surgical history course in emergency medical technology, difficult positional procedures, and emergency exercises and phases of surgery. 72.02 Fundamentals of Surgery 3.0

Six-week course, required of all medical students. Students become adept members of the surgical team by attending morning and afternoon sessions and also by observing operating room, and help with elective and emergency cases.

72.101 Emergency Room for Physician's Assistant

Students. 72.116 Advanced Emergency Medicine

Four-week course including intensive instruction in acute management of cardiac, respiratory, neurological, and multiple trauma problems; includes lectures, computer simulations, and procedures training in the animal lab. Open to senior medical students interested in emergency or primary care medicine.

72.156 Advanced Clinical Surgery

Students. The courses assume advanced responsibility for patient care on wards and in operating rooms as one of the main activities of the course. 72.166 Advanced Surgery

Students. 72.177 Medical Surgical Tutorials

Examination of patients in the medicine-surgical ward. 72.186 Oral Surgery

Examination of patients in the oral surgery ward. 72.187 Radiology

Examination of patients in the radiology ward. 72.188 General Surgery

Examination of patients in general surgery ward. 72.189 General Surgery

Examination of patients in general surgery ward and operating room. 72.221 Emergency Room

Preparation with house officers and faculty for emergency room care. 72.222 Emergency Room

Preparation with house officers and faculty for emergency room care. 72.223 Emergency Room

Preparation with house officers and faculty for emergency room care. 72.224 Emergency Room

Preparation with house officers and faculty for emergency room care.

Urology

Department head: David A. Culb

Faculty: professors David A. Culb, Charles E. Heaney

graduate assistant Raymond G. Sege

associate professors William W. Boyers, Steve Longstaff

assistant professor Bernard Feiler, Water L. Robertson

In addition to the areas of urinary tract stones, urinary tract infections, diagnostic urology, and the results of urinary tract obstruction, urology also includes urological nephrology, dialysis, prostatic hyperplasia, urologic oncology, proctology and endocrinology, and pediatric urology.

The Department of Urology in The University of Iowa College of Medicine offers courses in all these fields, at this and graduate levels and in continuing education for the delivery of urologic care.

This is 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 50.11 Introduction to Clinical Medicine, which covers 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 child.

In the third and fourth years of the curriculum in medicine, the department offers courses in diagnostic urology, pediatric urology, urologic oncology, and the entire field of urology. In the required third-year clerkship, the department offers the basics of one material, and in the fourth year it offers advanced elective courses of intense study in these areas.

The department offers continuing education throughout the year for urologists and faculty practitioners. These activities are conducted by the senior staff whose interests include pediatric urology, reproductive urology, urologic oncology, and prostatic diseases.

The department has earned international recognition for its studies of prostatic diseases.

The urological laboratories are active and offer instruction in various urology research areas. The department offers specific elective courses in these areas.

### Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>76:102 Clinical Urology</td>
<td>3 sh.</td>
<td>Intensive two-week course of study on urology ward, for medical students responsible for patient care under supervision of residents.</td>
</tr>
<tr>
<td>76:104 Advanced Clerkship in Urology</td>
<td>4 sh.</td>
<td>Major elective in internal medicine, under direction of chief resident.</td>
</tr>
<tr>
<td>76:109 Individual Study and Research</td>
<td>1 sh.</td>
<td>Individual study or research in the field of urology, with supervision of the director.</td>
</tr>
<tr>
<td>76:111 Urology</td>
<td>3 sh.</td>
<td>Extensive laboratory work in Urology and Radiology, where indications, complications, and techniques of urologic procedures are presented and practiced in intensive instruction of time provided, course members attend all experimental conferences.</td>
</tr>
</tbody>
</table>
The College of Nursing is an integral part of the University Health Center, sharing in and contributing to teaching, research, and patient-care resources which have earned international recognition. This provides an unusually fine setting for college preparations for nursing, because the educational and clinical resources which are needed to educate nurses are available on or near one 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 bachelor's degree and graduate programs are accredited by the Department of Health and Higher Degree Programs of the National League for Nursing, the professional accrediting 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, among them community health nursing services, doctors' offices, clinics, hospitals, armed forces, the Peace Corps, the World Health Organization, the Red Cross, homes and foreign alliances, youth agencies, and professional organizations. A professional nurse may be engaged in clinical nursing, teaching, 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, private industry, or in government, or in such community agencies as public health services, schools, and industries. In addition, it provides the essential base for graduate study in nursing.

In addition to the advantages of combining general education with specific career preparation, a college or university program offers the advantages—hardly less important—or fall participation in the social, cultural, and recreational activities of a highly diversified campus community. In nursing the need is less 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 and professional education. The basic 126-semester-hour program consists of 38 semester hours of general education courses, 40 semester hours of supportive prenursing courses, and 50 semester hours of coursework in nursing. Enrollment in 12-hour courses during one summer semester is required. A second summer session in a nursing core course is not guaranteed. Therefore, most students complete the program in four academic years and one summer session.
Approaches to the College of Nursing

The student may complete the entire program of Iowa, enrolling the first year in the University's College of Liberal Arts, or transfer from an institution earning a two-year sequence of specific courses approved by the College of Nursing.

Cooperating state institutions in the two-year transfer plan include Iowa State University; the University of Northern Iowa; and Upper Iowa, St. Mary's, Morriceville, Loras, Luther, Clarke, Simpson, Wartburg, and Augustana colleges. Participating community colleges are located in Muscatine, Iowa City, Marshalltown, Muscatine, Clinton, Muscatine, Ankeny, Boone, and Fort Dodge.

Completion of the two-year transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for two-year transfers are the same as for all other College of Nursing applicants. Prospective two-year transfer students who want more information about the plan should contact the cooperating institution of their choice.

Registered Nurses

With some modifications, registered nurses who enroll in the baccalaureate program in nursing at Iowa complete the same liberal arts and science courses as students with previous nursing preparation. Registered nurses planning to enter the baccalaureate program at Iowa should obtain specific information and advice from the College of Nursing.

Faculty Advisers

Advisers from the college are available to help prospective nursing students plan their programs, and each student in the college works with a faculty adviser.

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 students.

Expenses

Students pay the general University fees throughout the program, and purchase their own uniforms. The cost of a uniform order currently is about $370. Students also must purchase white shoes, a stethoscope, and a 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

There are no specific high school course requirements for admission to the College of Nursing, but the college strongly recommends four years of English, four years of mathematics, and one year of 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 at an accredited college, including two of the five required biological science courses and satisfaction of the following general education requirements:

- Rhetoric—8 semester hours (may be satisfied by testing or advanced standing; a student who has earned 8 semester hours of credit in English composition may complete the speech component after admission to the University of Iowa students transferring 40 or more semester hours of credits are exempt from the rhetoric requirement).

- Mathematics—Two and one-half years of high school mathematics, or a satisfactory score on the mathematics battery of the American College Tests, or completion of a college course in mathematics comparable to or higher than intermediate algebra (SGM-12).

- Chemistry—High school chemistry or its equivalent (if taken at the college level it may be included in the 30 semester hours required for admission).

- Physics—High school physics or its equivalent (if taken at the college level, it may be included in the 30 semester hours required for admission).

- Historical-cultural core—4 semester hours; and

- Literature core—4 semester hours.

Credits earned to satisfy the cultural-historical and literary core requirements may be included in the 30 semester hour presented for admission.

Predoctoral Background

Including the biological science courses required for admission to the college, one student must satisfy the following requirements before beginning clinical nursing coursework:

- Animal biology
- Chemistry (organic and biological)
- Human anatomy
- Human physiology
- Microbiology
- Nutrition
- Psychology
- Sociology
- Anthropology
- Human development and behavior

- Standards

To be considered for admission to the College of Nursing, the applicant should have satisfactorily completed college coursework taken.

The 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 417, Iowa City, Iowa 52240.

Selection Factors

Eligibility of minimum admission requirements does not guarantee admission to the College of Nursing. From applicants who meet minimum requirements, the college's admission committee selects those who appear to be best qualified. The committee may require personal interviews. A physical examination is required prior to final admission.

Application Deadlines

Applications must be received by March 15 for the fall semester, June 15 for the spring semester, and December 15 for the summer 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 NLN-approved baccalaureate degree program is one of the admission requirements.

The aim of the program is to prepare students in an area of nursing specialization and allow for role development in a functional skill area related to their career goals. 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/public health nursing. Within these specialty areas, however, students may tailor their plans of study to accommodate their specific interests by selecting courses from specific areas and types of field experiences to fulfill the practicum component of the specialization courses. Through selection of relevant concepts to be developed in these courses; by selection of specific courses in the supporting areas; and through the problems they select for study in their thesis project, similarily, role preparation is available in three areas: education, administration, and advanced clinical practice. Because the curriculum is intended to be flexible enough to accommodate diverse student interests, the same type of tailoring is feasible in the functional skill areas. Students, for instance, may select all of their supporting coursework in administration or management in order to allow for maximum preparation in that functional skill area.

Although the course offerings by the College of Nursing emphasize a holistic approach to patients or clients, it is possible to concentrate in either the behavioral or biological dimension. Students interested in mental health nursing, for example, may select concepts, field experiences, and supporting coursework to expand their knowledge and skill in that area. Role preparation in advanced clinical practice with an emphasis on mental health nursing would further accommodate that interest area. The end result would be that, with the assistance of their academic advisors, students can design plans of study within a flexible curriculum structure to suit their particular career interests. The basic requirements of the program are:

Degree Requirements

This 45-semester-hour curriculum will ordinarily require four semesters of full-time study for completion. Part-time study is possible; however, the student must maintain a 2.5 minimum grade-point average, and must complete all prerequisite courses before registration for any course. The master's degree curriculum is structured into five components:

- **Advanced Nursing Core (15 semester-hours):** Coursework in the areas of conceptual and theoretical foundations for nursing (5 semester-hours), leadership in nursing practice (5 semester-hours), methods of nursing research (3 semester-hours), and a professional seminar (2 semester-hours).
- **Nursing Specialization (9 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/public health nursing. Students may develop their areas of specialization through their choices of coursework and field work 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 mental health clinic, or a cancer care unit. Students with unique career goals have the option of further modifying their plans of study under the direction of their academic advisors and with the approval of the graduate faculty.
- **Role Development (6 semester-hours):** Students may select administration, clinical practice, or education as skill areas. Students electing to develop skills for careers in clinical practice, for example, will enroll for 8 semester hours of advanced clinical practice, which in addition to courses required for the nursing specialization component. Application experiences are included in this component. Students may select particular settings and/or preceptors compatible with their own career goals.
- **Supporting Courses (6 semester-hours):** Students may choose their supporting coursework in areas related to their nursing specialization or functional skill interests. Thesis (6 semester-hours): Every student is expected to write and successfully defend a thesis. This involves a systematic inquiry into a nursing problem, using appropriate methodologies as historical research, case studies, analytical literature reviews, surveys, or experimental studies which meet the requirements of the Graduate College.

Plan of Study

The plan of study described below must involve 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 3-5 years.
NURSING

First Year
Fall Semester
96:200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
96:204 Leadership in Nursing Practice 3 s.h.
96:222 Advanced Concepts of Child Health Nursing I 3 s.h.
96:226 Advanced Concepts of Adult Health Nursing I 3 s.h.
96:234 Advanced Concepts of Community/Family Health Nursing I 3 s.h.
96:210 Methods of Research in Nursing 3 s.h.
*Supporting course 12 s.h.
Total 21 s.h.

Spring Semester
96:201 Conceptual and Theoretical Foundations for Nursing II 2 s.h.
96:206 Leadership Application in Nursing 2 s.h.
96:223 Advanced Concepts of Child Health Nursing II 3 s.h.
96:227 Advanced Concepts of Adult Health Nursing II 3 s.h.
96:335 Advanced Concepts of Community/Family Health Nursing II 3 s.h.
96:210 Methods of Research in Nursing 3 s.h.
*Supporting course 11 s.h.
Total 15 s.h.

Second Year
Fall semester
96:210 Selected Concepts and Applications in Advanced Nursing 3 s.h.
96:246 Nursing Education: Process, Roles, and Strategies 3 s.h.
96:260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
96:266 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
*Supporting course 3 s.h.
96:208 Thesis 2 s.h.
Total 11 s.h.

Spring Semester
Role preparation course or *Supporting course 3 s.h.
96:206 Professional Seminar Issues in Nursing 2 s.h.
Total 11 s.h.

* Students developing role skills in the areas of education or administration must fulfill specific prerequisites before registering for the courses offered by the College of Nursing. If they have not been taken for undergraduate credit, the prerequisites may offer partial fulfillment of the supporting courses’ requirement. Students who select the education option are required to have a basic course in educational psychology. Those who select administration are required to have a course in administrative or management theory.

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; a 2.5 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 to 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 statistics course.

Applications for master’s degree candidacy are reviewed once a year for fall semester admission. The application deadline is March 15. By that time the admission committee will need all relevant admission materials, as listed above, in order to make a decision. Registration for coursework is possible in any term. However, initial enrollment in nursing courses which are offered sequentially takes place in the fall semester.

All regulations of the Graduate College pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. "Transfer credits applicable to the master’s degree program are limited, and must be approved by the dean for the graduate program in nursing and by the student’s advisor.

Admission as a Professional Improvement student
Some nurses may wish to take coursework at the University to fulfill the objective of professional or personal improvement only. Such individuals may request admission to 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 to a professional improvement student requires a formal application. This includes submission of three recommendations and all academic transcripts. Application deadlines are July 15 for admission in the fall semester, December 1 for admission in the spring semester, and
May 1 for admission in the summer session.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master's candidate, professional improvement students are required to follow the 800/5000 Procedure described in the preceding section if they wish to seek admission as a master's degree candidate. Only 3 semester hours, or one required nursing core course, taken under professional improvement status may transfer to the M.A. requirements.

Continuing Education

Through its Department of Continuing Nursing Education, the college offers nonacademic, short-term programs for registered nurses. Programs are scheduled on campus and at community sites throughout Iowa. Continuing education units (CEUs) are awarded for each offering on the basis of one unit per 10 semester hours of instruction. Continuing Nursing Education is an Iowa Board of Nursing approved provider number 1.

Pediatric Nurse Practitioner Training Program

This certificate program, offered jointly by the Department of Pediatrics of the College of Medicine and the College of Nursing, prepares registered nurses to function as pediatric nurse practitioners in an expanded role in child health care teams, in clinics and in private pediatricians' offices. Program requirements are:

96:142 Seminar for Pediatric Nurse Practitioners 5 s.h.
70:100 Practicum for Pediatric Nurse Practitioners 5 s.h.

Clinical experience in the care of children is provided in The University of Iowa Hospitals and Clinics and in other preceptors in the local setting. The program requires a minimum of one semester on-campus study.

Admission

Applicants must 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 College of Nursing apply. Graduate students may enroll for the program as described either prior to or following the required courses in advanced nursing for children.

Facilities

The Nursing Building is centrally located on the University's main campus in close proximity to the curricula of Medicine, Pharmacy, and Dentistry; University Hospitals; the Basic Science Building; and the Health Sciences Library. Completed in 1971, the Nursing Building consists of five floors of 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 Center. Additional classrooms and laboratories are housed throughout the building. Conference rooms, student lounges, and meeting rooms are conveniently located. Research facilities in the building provide quick access to calculating/simulating equipment and programmable microcomputers.

Courses

Undergraduate

96:330 Introduction to Health and Health Care Services 3 s.h.
96:331 Development of health and health care services, with emphasis on concept and philosophy of health, various selected factors affecting health, current health care system, and trends in health delivery systems. Prerequisites: 96:100.
96:332 Nursing and the Future 3 s.h.
96:332 Nursing and the Future 3 s.h.

Nursing and the Future 3 s.h.
96:334 Nursing and the Future 3 s.h.
96:335 Nursing and the Future 3 s.h.
96:336 Nursing and the Future 3 s!h.
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96:390 Nursing and the Future 3 s.h.
College of Pharmacy

The pharmaceutical sciences are concerned with the preparation and dispensing of medicinal products and monitoring their activity. The pharmacist is also trained to identify, analyze, select, combine, and standardize these medicines, and serves his or her community as a prime source of information on health topics.

Although he or she performs a variety of tasks, the pharmacist is basically a specialist in the science of drugs. He or she must understand their composition, chemical and physical properties, manufacture and uses, and activity in the normal individual as well as in the ill patient, and must be familiar with tests for the strength, purity, and efficacy of drug products. The pharmacist is a preparer to compound and dispense prescriptions written by health practitioners, who rely on the pharmacist for information about various drugs—their availability, activity, toxicology, contraindications, etc.

Nestly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of practitioners. Over 100,000 men and women practice in community pharmacies.

Another smaller group of pharmacists is employed in hospital pharmacy work. The government also employs pharmacists in the Public Health Service, Veterans Administration, Food and Drug Administration, and armed forces.

Pharmaceutical industry is also an area where numerous pharmacists are employed. This includes pharmaceutical manufacturing, where pharmacists can be found in various areas of research, development, manufacturing, control, marketing and advertising. In addition to these pharmacies, numerous others are employed in pharmaceutical sales. Pharmacy training is especially valuable to these men and women, who are responsible for acquiring physicians, dentists, veterinarians, and other practitioners with drug products.

In the United States more people are receiving total health care than ever before. The expansion of health care will continue. Young men and women in pharmacy will face new challenges, expanded responsibilities, and an ever-increasing growth in opportunities.

Undergraduate Program
Students in the College of Pharmacy are in a Bachelor of Science program, and they receive professional training and education in a number of areas, including pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical economics, and clinical and hospital pharmacy.

The College of Liberal Arts, Business Administration, Law, and Medicine contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, law, and humanities.

Basically, the Bachelor of Science program in pharmacy consists of one year of prepharmacy study, taken in the College of Liberal Arts at The University of Iowa or in any 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 and a prepharmacy program. A student entering the college after two years of prepharmaceutical study with complete the professional program in three years if the prepharmaceutical study includes, in addition to the basic preprofessional requirements, at least eight semester hours of organic chemistry, five to eight semester hours of biology or zoology, three or
four semester hours of economics and
two to four semester hours in
quantitative analysis.

The University of Iowa College of
Pharmacy is accredited by the American
Council on Pharmaceutical Education.
Graduates of the college are qualified to
take the licensure examination given by
the Iowa Board of Pharmacy Examiners.

The professional curriculum includes
a minimum of 18 semester hours of
electives; eight of these must be taken in
the fourth professional year. By
choosing appropriate electives, the
student may focus on such special
areas as clinical or hospital pharmacy
or pregraduate study.

The Professional Curriculum

First Year

First Semester
46:13 Pharmacy Math 3 s.h.
37:3 Principles of Animal Biology 5 s.h.
4:121 Organic Chemistry I 3 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.

Second Semester
46:14 Pharmacy Orientation 2 s.h.
46:1 Principles of Economics 4 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Intermediate Chemistry Laboratory I 2 s.h.
*50:102 Principles of Human Anatomy 3 s.h.
**Elective 3 s.h.
Total 11 s.h.

*Also offered first semester for students
on a 2-3 program only.
**18 semester hours of electives are
required, of which at least eight must be
taken in the P-4 year.

Second Year

First Semester
46:23 Pharmacology I 4 s.h.
99:162 Biochemistry for Pharmacy 4 s.h.
Students 4 s.h.
61:102 Principles of Human Anatomy 3 s.h.
Total 15 s.h.

Second Semester
46:24 Pharmacology II 4 s.h.
46:22 Pharmacological Pharmacokinetics: 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.
69:203 Introduction to Human Pathology 4 s.h.
71:101 Pharmacology for Health Sciences: Pharmacy 5 s.h.
46:32 Pharmacological Pharmacokinetics: Puultos 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.
46:38 Pharmacology and Therapy 3 s.h.
46:10 Clinical Pharmacy: Case Study 3 s.h.
46:81 Clinical Pharmacy: Drug Information 2 s.h.
Total 15 s.h.

*May be taken in first semester of fourth year.

Fourth Year

First Semester
46:41 Jurisprudence 2 s.h.
46:42 Pharmacology IV 4 s.h.
*46:80 Clinical Pharmacy: Community Pharmacy 2 s.h.
46:81 Clinical Pharmacy: Drug Information 2 s.h.
46:111 Clinical Pharmacy: Therapeutics 2 s.h.
**Electives 4 s.h.
Total 10-16 s.h.

Each P-4 student must complete six clinical clerkships (usually 2 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.

Second Semester
46:112 Clinical Pharmacy: Community Pharmacy 2 s.h.
*46:112 Clinical Pharmacy: Community Pharmacy II 2 s.h.
**Electives 0-6 s.h.
Total 12-14 s.h.

*May be taken in either semester.
**A minimum of 8 s.h. of electives must be taken in the P-4 year.

Professional Electives
46:46 Community Pharmacy Retailing 3 s.h.
46:50 Pharmacological Pharmacokinetics: Drug Analysis 3 s.h.
46:52 Senior Seminar 1 s.h.
46:54 Non-Prescription Drugs 2 s.h.
46:82 Clinical Pharmacy: Family Practice Therapeutics 2 s.h.
46:63 Clinical Pharmacy, Pediatrics 2 s.h.
46:84 Hospital Pharmacy: Radiopharmacy 2 s.h.
46:86 Clinical Pharmacy: Surgical Therapy 2 s.h.
46:88 Clinical Pharmacy: Electrocardiology 2 s.h.
46:80 Clinical Pharmacy: Geriatric Therapeutics 3 s.h.
46:87 Clinical Pharmacy: Neurology 2 s.h.
46:89 Clinical Pharmacy: Electrocardiology 3 s.h.
46:101 Pharmacy Projects 1-3 s.h.
46:102 Physical Pharmacy 3 s.h.
46:104 Pharmacokinetics and Biopharmacology 3 s.h.
46:105 Industrial Pharmacy Survey 2-3 s.h.
46:107 Hospital Pharmacy Survey 3 s.h.
46:108 Hospital Pharmacy Survey 3 s.h.
46:114 Advanced Clinical Pharmacy 4 s.h.
46:120 Clinical Pharmacy Research 3 s.h.
46:147 Introduction to Natural Product Research 1-2 s.h.
46:148 Communications Skills for Pharmacists 3 s.h.

Graduation from the baccalaureate
program in pharmacy requires the student to complete satisfactorily the
required courses in addition to 15
Admission

Admission to the College of Pharmacy requires the following prerequisites:

- Rhetoric: eight semester hours, or six hours of transfer credit in English composition and rhetoric, and two hours in speech.
- General chemistry: eight semester hours.
- Mathematics: three semester hours equivalent to analytic geometry or a higher mathematics course, calculus is suggested.
- Physics: one- or two-semester course in basic physics. A one-year animal biology or zoology course may be substituted; physics will then be taken in the first professional year.

Students who have minor deficiencies in meeting the above requirements may be admitted to the college upon recommendation of the chair of the admissions committee and the approval of the dean.

The applicant must have earned a 2.0 (A=4) cumulative grade-point average on all college work attempted.

Fulfillment of these requirements does not ensure admission to the college.

From applicants meeting the requirements, the admissions committee of the college selects the best qualified applicants.

Transfer Students

Students who transfer into the college after two years in a community or liberal arts college can complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, economics and quantitative analysis.

Students who plan to remain in a community college for two years before transferring to the college should consult the dean of the college 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 coursework 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 nonaccredited colleges may receive credit for work required in the Bachelor of Science curriculum in pharmacy, but still must expect to be enrolled for at least three years in the College of Pharmacy. A minimum grade of C is required for work credited by transfer toward the pharmacy degree.

Graduate Programs

The college has graduate programs in several areas. Master of Science and Doctor of Philosophy programs are available in pharmacology, medicinal chemistry-natural products, and pharmaceutical socioeconomics. A Master of Science degree is available in clinical-community 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 and universities, in government agencies, and in a number of health-related institutions and organizations.

The application deadlines, grade-point average for admission, GRE score and necessary letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate registration 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 Sciences Building; and the Health Sciences Library.

The Pharmacy Building is a five-story structure especially designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms, an auditorium, and learning resources center, the building houses well-equipped separate laboratories and a greenhouse for instruction at the undergraduate and graduate levels.

The college’s extensive industrial pharmacy-laboratory serves as a teaching aid as well as a service division of the college. Here undergraduate and graduate students have the opportunity to learn methods of large-scale pharmaceutical product development.

In the clinical pharmacy program, students work with other health professionals and have the opportunity to monitor drug therapy in hospitalized and nonhospitalized patients, under the supervision of clinical instructors in pharmacy, medicine, and dentistry. The various clerkships in which students are involved include many areas of the University and Veterans Administration hospitals and affiliated community practice clinics at Oakdale, Mechanicsville, and Williamsburg; Iowa City Mercy Hospital; Mercy and St. Luke’s Hospitals in Cedar Rapids; Scholl Hospital in Waterloo; the Community Health Care Clinic (Pediatrics) in Davenport; the State Medical and Dental Institute of Mt. Pleasant; the Iowa Medical Security Facility; selected community pharmacies and nursing homes; and the Iowa Drug Information Service.

Courses

Undergraduate

Pharmacists

...
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 external departments and colleges of the University and by bringing the University generally into direct 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 accounting, American studies, anthropology, business administration, chemistry, classics, economics, education, English, French, geography, Greek, history, home economics, journalism, Latin, letters, mathematics, music, physical education, police science, political science, psychology, religion, social work, sociology, Spanish, and speech and dramatic art. There is a $5 enrollment fee. The course fee is $25 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 East Hall.

In cooperation with the National 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 62-540. Veterans are referred to 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 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 business administration and engineering are scheduled on a contractual basis. Courses in liberal arts and education usually require a minimum of 20 enrollments. For information, write to the Center for Credit Programs, W400 East Hall.

Saturday and Evening Class Program

This program provides credit course offerings for part-time undergraduate, graduate, or unclassified students. Courses are offered from all schools and departments of the University. For a Saturday and Evening Class Program catalog, write to Saturday and Evening Class Program, W400 East 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 newspaper, radio, and television courses. For information, write to the...
Center for Credit Programs, W400 East Hall.

Education Tests
Standardized tests and scales developed at the University of Iowa are published and distributed on a nonprofit basis to schools, public agencies, and industrial firms in Iowa and throughout the nation. For catalogues, write to Education Tests, C20 East Hall.

Center for Conferences and Institutes
The center serves as the principal agency of the University for developing, coordinating, and conducting noncredit continuing education programs for nonresident adults and for administering the University’s Continuing Education Unit (CEU) program. The center’s primary goal is to enhance the usefulness of the University as a center of learning and to provide educational opportunities for people who are no longer full-time students but who seek new knowledge related to their jobs, professions, or special interests.

Each year more than 30,000 adults receive training in the center’s varied programs, which represent a cooperative endeavor between the center and the various colleges, departments, and disciplines within the University. The sharing of appropriate resources, coupled with the professional planning and execution of conferences and other short-term 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 noncredit 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-West-Coralville community) are expected to consult these activities through the conference center office and to utilize the conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union, to the extent they are available and appropriate.

Adult Education
Noncredit Program
This open enrollment program provides a wide variety of noncredit short-course offerings of special interest to adults. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing education units are awarded for course completion. For current offerings, contact the Center for Conferences and Institutes.

Radio Broadcasting Services
WUXL and KSUI-FM serve the needs and interests of the people of eastern Iowa with 18 hours of daily broadcasting, which extends the resources and activities of the University. The broadcast schedule consists of educational, cultural, and informational programming not available elsewhere. As an affiliate of National Public Radio (NPR), WUXL contributes program materials to a national network of more than 200 non-commercial radio stations. The main studio and offices are located in 3300 Engineering Building, and a live copy of the students’ Program Guide may be obtained by writing to that address.

Institute of Public Affairs
The mission of the Institute is to help improve state, city, and county governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the Institute are available to state and local government agencies and to citizen groups interested in civic affairs.

The Institute has a full-time research and training staff. Through the Institute, other resources of the University are applied to problems faced by Iowa public officials. The Institute also works in close cooperation with organizations of public officials such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The Institute provides: In-service training and continuing education services to public personnel; primarily managers and supervisors, offering a wide variety of courses and programs aimed at meeting individual and organization needs as well as professional goals; Research services, informational resources, and publications ranging from practical handbooks to issue papers; and Consultation services, ranging from answering "how-to" questions to serving on statewide government committees dealing with major concerns of state and local governments.

Bureau of Police Science
The bureau offers this series of law enforcement courses through correspondence study:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Duration</th>
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<tbody>
<tr>
<td>50040</td>
<td>Criminal Investigation</td>
<td>3 sem.</td>
</tr>
<tr>
<td>50041</td>
<td>Police Procedures</td>
<td>3 sem.</td>
</tr>
<tr>
<td>50042</td>
<td>Traffic Control</td>
<td>3 sem.</td>
</tr>
</tbody>
</table>

These courses are offered by correspondence only. In addition, the Bureau offers a variety of services to law enforcement including service and promotional examinations, general administrative or specialized training, and specialized training programs. It also conducts research programs in areas of public safety. Upon request the Bureau provides technical assistance in the administration of police and fire personnel examinations, administrative surveys, and record services.

Iowa Community Service and Continuing Education Program
The Division of Continuing Education serves as administrative and fiscal agent for the Iowa Community Service and Continuing Education Program, a cooperative state-federal program to expand the continuing education services of colleges and universities toward solving community problems, meeting continuing education needs of adults, and planning for resource
Office of Community College Affairs

The Office of Community College Affairs (OCCA), which is closely aligned with the College of Education, is the liaison office between the University and Iowa's area community and vocational/technical colleges. In activities involving discipline articulation and student services, OCCA extends its services to the private two- and four-year colleges in the state. The office serves these educational systems and their respective personnel in these ways:

- Provides liaison between the University and statewide professional educator associations as well as selected regional and national organizations, and conducts relevant research.
- Facilitates university-community college faculty relations.
- Coordinates articulation of university-community college institutional policy and curricula.
- 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 recognition activities.
- Provides regular information, consultation, and coordination services for specialized groups of community college personnel and students.
- Provides peer counseling outreach programs to prospective community college transfer students; and
- Coordinates consultation and information services for community college transfer students who enroll in the University.

INPOD

The Iowa Network for Personal and Organizational Development (INPOD), staffed and administered by the Office of Community College Affairs, is a project of the Iowa Area Schools Consortium. INPOD is a state and regional reference and referral center for staff, training, and organizational development resources, serving the fifteen Iowa Area Schools, Region Universities, private higher educational institutions, public and private educational institutions, public agencies, business and labor. INPOD's resources include human, audio-visual, printed, packaged modules, and workshops. Besides processing requests for information, INPOD also publishes a monthly calendar of training and development activities and a monthly newsletter.

Iowa Lakeside Laboratory

The Division of Continuing Education has general administrative supervision of the Iowa Lakeside Laboratory, a summer laboratory for the biological sciences in 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 year-round research are available. For information, write to the Division of Continuing Education.

Macbride Field Campus

The University hosts a thesis from the U.S. Army Corps of Engineers on two tracts of land in the Coralville Reservoir area north of Iowa City. The two tracts total approximately 820 acres. One tract is reserved for biological research, the other for University-wide activities. Developments in the area to date include provision of access road, water supply, electric power, maintenance storage facilities, a boathouse and seating facilities, field archery course, facilities for handicapped persons, and picnic area. A new nature lodge is available to school groups.

Audio/Visual Center

The mission of the Audio/Visual 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 Audio/Visual Center provides assistance in Instructional development, media production, and the utilization of audiovisual materials and equipment. These include:

Instructional Development

The Audio/Visual 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 Audio/Visual Center Media Library provides a major collection of team teaching films, available on campus without charge for instruction and current activities, and for rental to off-campus requestors. Smaller collections of audio and video recordings, filmstrips, and slides, plus facilities for student or faculty utilization, are also available. Catechisms 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, filmstrip, opaque, and overhead projectors; portable projection screens; audio tape recorders; record players; 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 service is available at a nominal charge for 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 service
- Motion picture—script, cinematography, editing, complete processing and printing laboratory
- Photography—portraits, passports, slides shows, filmstrips, 35mm slide duplication, complete printing and processing services
- Television—video production, color and black-and-white (1-inch and cassette), systems design, equipment maintenance, pantopak rental
- Fabrication—design and construction of displays, specialized audiovisual equipment and furniture

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.
Administrative Officers

State Board of Regents
The University of Iowa, Iowa State
University of Science and Technology,
the University of Northern Iowa, the Iowa
Braille and Sight Saving School, and the
Iowa School for the Deaf are governed
by the State Board of Regents,
consisting of nine members. The board
membership is as follows:

President: Mary Louise Petersen, Harlan
Ray V. Bailey, Millford
Ann Jorgenson, Garrison
Constance Bell, Des Moines
S.J. Brownlee, Emmetsburg
Percy G. Harris, Cedar Rapids
Donald Shaw, Davenport
Arthur Neu, Carroll
Peter J. Weststrand, Essex
Executive secretary: R. Wayne Richay

Central Administration
President: W. Pearl L. Boyd
Vice-President for Academic Affairs and
Dean of Faculties: May Brodtbeck
Vice-President for Educational
Development and Research and Dean of
the Graduate College: Duane C.
Spierschersbach
Vice-President for Finance and
University Services: Randall P.
Beason
Vice-President for Student Services and
Dean of Academic Affairs: Philip G.
Hubbard

Academic Affairs
Vice-President and Dean of Faculties:
May Brodtbeck

College of Business
Administration
Dean: J. Richard Zecher
Industrial Relations Institute Director:
Anthony J. Binko
Institute for Economic Research
Director: Gerald Barrick
Institute for Insurance Education and
Research Director: Emmett J. Vaughan
Institute for Entrepreneurial
Management: Clifford Baumbach

Labor Center: Emmett J. Vaughan
Management Center: Emmett J. Vaughan

College of Dentistry
Dean: James H. McLellan
Dana Institute for Dental Research
Director: Ian MacKenzie

College of Education
Dean: Charles W. Casso
Iowa Institute for School Executives
Director: George A. O'Keeffe

College of Engineering
Dean: Robert G. Hering
Institute of Hydraulic Research Director:
John F. Kennedy

Graduate College
Dean: Duane C. Spireschersbach
Dean of Advanced Studies: Rudolph W.
Schutz

College of Law
Dean: N. William Hines

College of Liberal Arts
Dean: Howard Loster
School of Art and History Director:
Wallace J. Tameski
School of Journalism Director: Kenneth
Stark
School of Letters Acting Director:
Richard Loyd-Jones
School of Library Science Acting
Director: Carl F. Oigren
School of Music Director: Marilyn F.
Samar
School of Religion Director: John P.
Boyle
School of Social Work Director: Ruth A.
Brandwein

College of Medicine
Dean: John W. Socrates

College of Nursing
Dean:

College of Pharmacy
Dean: Dale E. Wurtzer
Student Health
Director: Harley G. Fieldick
State Services for Crippled Children
Director: John C. MacQueen

General University
Alumni Association
Executive Director: Thomas Brown
University of Iowa Foundation
Executive Director: Darrell B. Wyrick
The following persons held University of Iowa faculty appointments with the rank of instructor, assistant professor, associate professor, or professor May 1, 1990. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses. 


Abbad, Francesco, Sacro-ateure Christian Brothers' School (Egypt) 1948, FNS Cairo (Egypt) 1949, M.B.B.Ch. Ain Shams (Egypt) 1955; professor, Internal Medicine/Physiology and Biophysics, 1961 (1965)


Abu-Yousef, Monzer M., M.D., B.Ch. Cairo (Egypt) 1970; assistant professor, Radiology, 1980

Acevedo, Alejandro, B.S. Loyola (Louisiana) 1952, D.D.S. 1966; associate professor, Oral Surgery, 1976


Adams, C. Morris, B.A. Northern Iowa 1961, M.S.W. Nebraska 1966; adjunct instructor, School of Social Work, 1980


Allin, Judith P., B.A. Oregon 1968, M.A. 1969, Ph.D. California (Berkeley) 1974; assistant professor, German, 1975


Alcorn, Marie D., B.S. Iowa State 1948, M.D. Creighton 1950; clinical assistant professor, Family Practice, 1975

Alden, L. Elizabeth, B.A. Lawrence 1941, M.A. Mills 1943, Ph.D. Wayne State 1946; associate professor, Home Economics 1963

Alexander, Bruce, B.S. Drake 1974, Pharm.D. Minnesota 1978; clinical assistant professor, Pharmacy, 1976


Alexander, Michael R., B.S. University of the Pacific 1965, M.S. 1971;
em eru, Physical Education, 1948
(1971)
Knares, Tachle M., B.A. Iowa 1910, M.A. 1911, Ph.D. 1912; assistant professor, emeritus, French and Italian, 1918 (1927)
Knoor, George, Polytechnic Institute of Technology, (Germany) 1944, Ph.D. Munich (Germany) 1962; professor, Physics and Astronomy, 1967 (1974)
Knott, John R., B.A. Iowa 1926, M.A. 1926, Ph.D. 1938; professor emeritus, Psychology/Neurology, 1941 (1910)
Koelner, Paul G., B.A. St. Ambrose 1955, M.D. St. Louis 1960; clinical assistant professor, Pediatrics, 1969
Kolod, Heinzporg G., M.D. Vienna (Austria) 1956, M.D. 1959; professor, Ophthalmology, 1968 (1973)
Kolls, Jerry J., B.S. Chicago 1936, Ph.D. 1942; professor, Zoology, 1948 (1967)
Kouanga, Frank C., M.D. Illinois 1968; associate professor, Dermatology, 1980
Kounet, Andraus, B.S. Delt (Netherlands) 1953, M.S. 1955, Ph.D. 1966; professor, Information Engineering, 1977
Krafcik, Ivan, B.S. Iowa State 1933, Iowa 1936; associate professor, Fixed Prosthodontics, 1961 (1979)
Kriha, Marie D., Ph.D. Florida State 1977; associate professor, Sociology, 1978 (1979)
Krus, Katherine A., B.A. Iowa 1945, M.S.W. Washington (Seattle) 1953; associate professor, School of Social Work, 1959 (1963)
Kuder, John M., B.A., Drake 1971, M.A. Arkansas 1972; instructor, Hospital and Health Administration, 1979
Kuhl, Robert F., B.A. Indiana 1907, M.A. Harvard 1908, Ph.D. 1910; assistant professor, English, 1929 (1932)
Kuhl, Joseph N., B.S.Ed. Central Minnesota 1948, M.S.E.D. 1951, Ph.D. Iowa 1954; assistant professor, Elementary Education/Educational Administration, 1954 (1964)
Kumar, Samuel P., M.S.B.S. Orleans Medical India (Dublin), 1969; clinical assistant professor, Internal Medicine, 1979
Kwasch, James M., B.A. Iowa 1969, M.A. 1974; instructor, School of Library Science, 1979
Labrecque, Sougai R., B.S. Boston (Massachusetts) 1970; assistant professor, Internal Medicine, 1977
Lazar, Erland, M.D. Iowa 1948; clinical associate professor, Internal Medicine, 1976.
Lazerson, E. M. Iowa 1948; clinical associate professor, Internal Medicine, 1976.
Lazerson, E. M. Iowa 1948; clinical associate professor, Internal Medicine, 1976.
Havard 1969; professor, Chemistry/Physics and Astronomy, 1969; associate professor, Internal Medicine, 1972 (1974)
Seymour, Donald B., W. S. Missouri 1963; M.D. Washington (Missouri) 1965; assistant professor, Anesthesiology, 1979
Swanson, Leslie W., M.D. Iowa 1936; clinical professor, Internal Medicine, 1976
Swenson, Charles A., B. S. Delaware State 1952, Ph.D. Iowa 1959; professor, Biochemistry, 1960 (1972)
Swett, Keane, B. S. Yale 1965, M.S. Colorado State (Scotland) 1965; professor, Zoology, 1969 (1977)
Szefler, Robert M., B. A. Loyola University of Chicago 1971, M.A. Wisconsin 1975; assistant professor, Sociology, 1977
Tannir, Joseph, Licenciate Maurit (Spain) 1957, Ph.D. 1962; professor, Spanish and Portuguese, 1975 (1979)
Tennant, Raymond M., Family of Medicine and Pharmacy (France) 1951; assistant professor, Pediatrics, 1977
Terry, Stanley P., B.S. Maribor (Cassad) 1971, M.D. 1971; clinical assistant professor, Pediatrics, 1977
Tetelbaum, Jean C., C.E. Nancy (France) 1944, M.D. Iowa 1966; Ph.D. 1966; associate professor; Energy Engineering, 1973 (1980)
Taylor, James, B.S. South Dakota 1958, M.S.W. St. Louis 1961; adjunct instructor, School of Social Work, 1962
Taylor, Jerry W., B.S. Ph. Texas 1974, Pharmacology 1977; clinical assistant professor, Pharmacy, 1977
Thomas, Eli, B.A. Rice 1962, M.S. Baylor 1964; clinical assistant professor, Dermatology, 1967 (1975)
Thorsen, Hans R., B.A. LaGhorn 1954, M.D. Medical College of Virginia 1956; associate professor, Medical Medicine, 1957 (1960)
Thompson, Ernest O., B.A. Nebraska 1946, M.D. 1947; professor, Internal Medicine, 1951 (1962)
Theobald, Richard V., B.S. Iowa 1959, M.S. 1958, clinical assistant professor, Pharmacy, 1966
Thomas, Carol B., B.S. Northern Illinois 1964; M.M. 1966, M.S. 1966; associate professor, School of Music, 1979 (1977)
Thompson, Duane E., B.S. Iowa State 1953, M.S. 1954, Ph.D. 1960; associate professor, Industrial Relations and Human Resources, 1959 (1967)
Wefel, James S., B.0. Valparaiso 1958, Ph.D. State University of New York (Buffalo) 1973, assistant professor, Pediatrics, 1977
Welch, Peter A., B.S. Northern Illinois 1972, Ph.D. Texas 1978; assistant professor, Biochemistry, 1979
Wandler, Arthur J., B.S.E. Wisconsin State Teachers (LaCrosse) 1929, M.A. Iowa 1932, Ph.D. 1936; associate professor emeritus
Wendt, Charles G., B.S.M. New Ulm 1930, M.S. Indiana 1963; professor, School of Music, 1963 (1965)
Wenger, Jan C., B.S.P. South Dakota 1980, M.S. Minnesota 1986; clinical assistant professor, Pharmacy, 1976
West, James R., B.A. Wichita State 1962, Ph.D. California (Irvine) 1972; assistant professor, Anatomy, 1979
West, Jude P., B.A. St. Mary of the Lake 1953, B.S.A. Chicago 1961, Ph.D. Iowa 1969; associate professor, Industrial Relations and Human Resources, 1969
Wheldon, Ann, B.S. Alaska 1959, M.S. Western Reserve 1939, M.A. Iowa 1957; associate professor emerita, Nursing, 1959 (1968)
White, Carl W., B.S. Nebraska 1961, M.D. 1964; associate professor, Internal Medicine, 1973 (1978)
Whitman, Charles B., B.A. Kansas State 1928, M.S. Colorado 1934, Ph.D. 1979; associate professor, Pharmaceutical Dentistry, 1924 (1964)
Widmer, Robert A., B.S. Eastern Oregon 1944, M.S. Oregon 1950; professor, Family Practice, 1959 (1964)
Wilson, Ubert S., M.A. Iowa 1947; professor emeritus, School of Art and Art History, 1986 (1975)
Williams, Louis M., M.D. Iowa 1968; clinical assistant professor, Internal Medicine, 1975 (1976)
Williams, Emma J., B.A. Simpson 1943, M.A. Iowa 1952, professor, School of Social Work, 1965
Williams, Glynn E., B.S.C. Utah 1950, M.A. 1953; acting National School of Medicine (Wesley 1953; assistant professor, Family Practice, 1974 (1977)
Williams, Tanice H., M.D. Manchester (England) 1953 Ph.D. Wales 1960; professor, Anatomy, 1973
N.D. 1948; professor, Surgery, 1948 (1953)
Zivkovich, Veljko K., M.D. Belgrade (Yugoslavia) 1963; clinical assistant professor, Pediatrics, 1973
Iowa Administrative Code: Board of Regents

The following is extracted from the Board of Regents section of the Iowa Administrative Code as of March 16, 1990.

Residence

720—1.4(262)
Classification of residents and nonresidents for admission and fee purposes.

1.4(1) General.
Students enrolling at one of the three state institutions shall be classified as resident or nonresident for academic and tuition purposes by the registrar. The residence shall be based upon information submitted by the student and of other relevant information. The registrar is authorized to require such written documents, affidavits, or other evidence necessary to establish the domicile of a student, including proof of equalization, adoption, service of custody or guardianship papers, or such other evidence as will establish that a student is exempt from paying the nonresident fee to upon the student.

For purposes of resident and nonresident classifications, the word "parents" as herein used shall include legal guardians or others standing in loco parentis in all cases where legal custody of any applicant for admission has been awarded to persons other than their own parents.

1.4(2) Residence for tuition purposes.

Rules regarding residence for academic and tuition purposes are generally divided into two general categories: (1) students under eighteen years of age who are under the age of eighteen and who are not students at a college or junior college and (2) students who are eighteen years of age or older.

The residence in these categories are different. Domicile within the state requires the presence of the student as a fixed permanent home and involving personal presence within our state. The two categories are discussed in more detail below.

1.4(3) Students who are minors.

The residence of a minor shall be based upon the residence of the parent or parents of the student. In cases where there are no parents, the residence of the guardian or person having legal custody of the minor shall be deemed the residence of the minor.

The residence of the minor shall be deemed to be such as the minor's parents or legal guardian or custodian desires, unless the parent or custodian of a minor recommends that the student be classified as a nonresident.

The residence of a minor shall be deemed the residence of the minor's parent or legal guardian or custodian, unless the parent or custodian of a minor recommends that the student be classified as a nonresident.

1.4(4) Students over eighteen years of age and married students under eighteen years of age.

A student eighteen years of age or older and a married student under eighteen years of age shall be classified as resident if (1) the student or parent was the resident of the state at the time the student reached majority or was married and the student is subject to the personal jurisdiction of the court of the state of Iowa; or (2) the student was married by a court of this state and the student reasonably believed that the marriage would be dissolved within a reasonable time.

The residence of the student or parent shall be ascertained by personal presence in the state of Iowa. If no personal presence can be established, the residence shall be based upon the residence of the parent or legal guardian of the student.

Any nonresident who becomes a student at any school or college does not loss of such status unless residence in Iowa for admission or tuition payment purposes.

f the father and the mother have separated places of residence, the minor shall be classified as a nonresident of the place where the residence of the minor is located.

A minor attending school in another state, or a state of domicile shall be classified as a nonresident of the state in which the minor resides, unless the minor is a resident of Iowa for purposes other than educational purposes in Iowa.

A minor attending school in another state, or a state of domicile shall be classified as a nonresident of the state in which the minor resides, unless the minor is a resident of Iowa for purposes other than educational purposes in Iowa.
College of Veterinary Medicine at the Iowa State University. Those applying to these are given in the following: 2.4(262), 2.4(262D) and 2.4(262R).

All new undergraduate students must complete the American College Testing Program tests, the Scholastic Aptitude Test (SAT) or its equivalent as determined by the admissions office before the beginning of orientation for the session in which the freshman year is to begin.

Supplemental Specific Rules for The University of Iowa

The following requirements are in addition to those given in the general rules listed:

7.20—2.4(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 supporting materials as required by the director of admissions. Students may be registered until they have been issued an admittance statement by the director of admissions.

7.20—2.3(262) College of Business Administration.

2.3(1) Application for admission.

Applications for admission to the College of Business Administration should be submitted to the Director of Admissions.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each applicant.

Closing dates for receipt of applications will be announced, subject to advance notice of the opening date of any session.

7.20—2.3(262) College of Business Administration.

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.达到了所学课程的最低学分要求，或在本学士学位的修读课程中完成所学课程。

7.20—2.4(262) College of Dentistry.

2.4(1) Application for admission.

All applicants for admission to the College of Dentistry must complete a predoctoral program at an accredited dental school.

Closing dates for receiving applications will be announced, subject to advance notice of the opening date of any session.

Applicants for admission to the College of Dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dental school.

Applications should include a comprehensive record of all courses and degrees received with a final predoctoral degree.

For admission to the College of Dentistry, all applicants must be graduated with a minimum grade point average of 3.0 on a 4.0 scale.

Applications for admission to the College of Dentistry must be accompanied by a letter of recommendation from the director of admissions.

For admission to the College of Dentistry an applicant must have completed a predoctoral program at an accredited dental school.

Closing dates for receipt of applications will be announced, subject to advance notice of the opening date of any session.

2.5(1) Admission of freshman students.

The applicant must be a graduate of a secondary school and must hold a satisfactory score on the University of Iowa's required entrance examinations, specifically in English and mathematics.

Closing dates for receiving applications will be announced, subject to advance notice of the opening date of any session.

For admission to the College of Dentistry an applicant must have completed a predoctoral program at an accredited dental school.

Closing dates for receipt of applications will be announced, subject to advance notice of the opening date of any session.

The applicant must be a graduate of a secondary school and must hold a satisfactory score on the University of Iowa's required entrance examinations, specifically in English and mathematics.

Closing dates for receiving applications will be announced, subject to advance notice of the opening date of any session.
2.5(2) Admission of undergraduate students by transfer.

The applicant must submit a formal application and official transcript of college work. Each applicant shall have:

a. Maintained satisfactory progress in mathematics,

b. Maintained satisfactory progress in the University's required academic examinations,

c. Maintained satisfactory cumulative grade-point average in all college work undertaken.

From applicants who do not have the above requirements, the admittance committee will review individual records and may offer probationary admission.

Applicants may be delayed, and

2.7(1) Admission with advanced standing.

A transfer student may be eligible for admission if he or she has been admitted to a school approved by the Association of American Law Schools (AALS). In good standing at the time of his or her withdrawal (evidenced by a letter from the dean of the school at the time of withdrawal, (c) meets the admission requirements for beginning student, and (d) has earned at least 2.5 grade-point average in the legal studies.

Students planning to study medicine should bear in mind that other professional work is required in addition to the above requirements because it offers an opportunity to secure a well-rounded education, which is of special importance to those enrolling in the medical profession. In the selection of applicants, preference will be given to those who present evidence of having obtained such a broad education.

To be considered for admission, an applicant should have attended a college where a grade-point average of at least 2.5 is maintained in college work undertaken. The grade-point average is based upon The University of Iowa's grading system at which a grade of "A" is equivalent to four points. Other grading systems will be evaluated by the following:

Applicants for admission must present a complete transcript from an accredited institution of higher education and submit a complete application to the College of Medicine.

Each applicant for admission must take the Law School Admission Test administered by the Law School. New Jersey, and have the scores forwarded to the College of Medicine. The test is given several times per year and may be taken at numerous universities in the United States and throughout the world. Applicants are urged to take the test in sufficient time to ensure that they will complete the fall semester of which they are enrolling and submit scores prior to the January 15th deadline. The admissions committee will not consider applications from students who fail to take the test prior to the January 15th deadline.

The Board of Regents of the University of Iowa reserves the right to make exceptions under exceptional circumstances.

The current curriculum must include at least three years (equivalent to at least twenty-four hours) in the medical sciences. Students planning to study medicine should bear in mind that other professional work is required in addition to the above requirements, because it offers an opportunity to secure a well-rounded education, which is of special importance to those enrolling in the medical profession. In the selection of applicants, preference will be given to those who present evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attended a grade-point average of at least 2.5 is maintained in college work undertaken. The grade-point average is based upon The University of Iowa's grading system at which a grade of "A" is equivalent to four points. Other grading systems will be evaluated by the following:

Applicants for admission must present a complete transcript from an accredited institution of higher education and submit a complete application to the College of Medicine.

Each applicant for admission must take the Law School Admission Test administered by the Law School. New Jersey, and have the scores forwarded to the College of Medicine. The test is given several times per year and may be taken at numerous universities in the United States and throughout the world. Applicants are urged to take the test in sufficient time to ensure that they will complete the fall semester of which they are enrolling and submit scores prior to the January 15th deadline. The admissions committee will not consider applications from students who fail to take the test prior to the January 15th deadline.

The Board of Regents of the University of Iowa reserves the right to make exceptions under exceptional circumstances.

The current curriculum must include at least three years (equivalent to at least twenty-four hours) in the medical sciences. Students planning to study medicine should bear in mind that other professional work is required in addition to the above requirements, because it offers an opportunity to secure a well-rounded education, which is of special importance to those enrolling in the medical profession. In the selection of applicants, preference will be given to those who present evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attended a grade-point average of at least 2.5 is maintained in college work undertaken. The grade-point average is based upon The University of Iowa's grading system at which a grade of "A" is equivalent to four points. Other grading systems will be evaluated by the following:

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The current curriculum must include at least three years (equivalent to at least twenty-four hours) in the medical sciences. Students planning to study medicine should bear in mind that other professional work is required in addition to the above requirements, because it offers an opportunity to secure a well-rounded education, which is of special importance to those enrolling in the medical profession. In the selection of applicants, preference will be given to those who present evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attended a grade-point average of at least 2.5 is maintained in college work undertaken. The grade-point average is based upon The University of Iowa's grading system at which a grade of "A" is equivalent to four points. Other grading systems will be evaluated by the following:

Applicants for admission must present a complete transcript from an accredited institution of higher education and submit a complete application to the College of Medicine.

Each applicant for admission must take the Law School Admission Test administered by the Law School. New Jersey, and have the scores forwarded to the College of Medicine. The test is given several times per year and may be taken at numerous universities in the United States and throughout the world. Applicants are urged to take the test in sufficient time to ensure that they will complete the fall semester of which they are enrolling and submit scores prior to the January 15th deadline. The admissions committee will not consider applications from students who fail to take the test prior to the January 15th deadline.

The Board of Regents of the University of Iowa reserves the right to make exceptions under exceptional circumstances.
2.6(2) Admission to advanced standing.
If that work properly to entitle a college of medicine would not meet the minimum requirement of an applicant, the college must be assured of a minimum of 60 semester hours and a grade point average of at least 3.0 on a 4.0 scale.

2.6(3) Unclassified students.
Applicants for admission to the College of Medicine who are unclassified for a degree or who desire to register for special courses will be admitted to any course of academic work upon completing with all the required requirements for admission to each course, or in the judgment of the faculty upon recommendation of the professor in charge of the course.

2.7(2) College of Nursing.
Applicants for admission to the College of Nursing should be admitted to the Dean of Admissions, University of Iowa, Iowa City, Iowa. Applicants for admission to the graduate program in nursing must have completed a minimum of thirty-six semester hours in an accredited college. For admission in the College of Nursing, applicants must have:

a. Completed specific coursework as prescribed by the faculty of the college. The director of admissions will provide a list of the coursework required.

b. Completed the American College Trust.

c. Successfully completed all course requirements.

Applications from students who have minor admissions in meeting grade-point requirements will be reviewed by the admissions committee of the college and, upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.

2.10(4) Required tests.
Applicants for admission to the American College Testing Program are required to take the American College Testing Program tests.

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.

2.7(2) College of Education.
Students at the University desiring professional work in education are registered in the College of Liberal Arts or the School of Education. Requirements for permission to take teaching-aiding courses are fixed in the University Catalog.
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For information about the admission requirements, degree requirements (such as credit requirements, course requirements, and scholarship requirements), and college policies (such as those regarding deadlines, grading, pass-fail courses, auditing, class attendance, probation and dismissal, and recognition for academic achievement) of the respective colleges, see these pages:

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