For the first time, The University of Iowa has instituted a biennial Catalog publication policy. This edition is to serve during the two-year period, August 1, 1970, through August 1, 1972.

The University Catalog is available for examination in all Iowa high schools, offices of the County Superintendents of Schools, the public libraries, and in each of the junior and community colleges in the state. Copies are also available for examination at the major state government offices in Des Moines and in each office on the University campus in Iowa City.

Copies of the Catalog may be ordered from the Office of Admissions and Registrar at $1 per copy. If the Catalog is to be mailed, a zip code must be included in the address. Reprints of the various college and departmental sections of the Catalog are available without charge on request to the Office of Admissions and Registrar.

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August 1, 1970

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### 1970 Calendar

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## Calendar

### SUMMER SESSION

- **Registration for summer session**
- **Opening of classes, 7 a.m.**
- **University holiday; offices closed**
- **Close of summer session classes, 5 p.m.**
- **Opening of Independent Study Unit for law and graduate students**
- **Close of Independent Study Unit**
- **University holiday; offices closed**

<table>
<thead>
<tr>
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<td>September 7, Monday</td>
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### FIRST SEMESTER

- **Beginning of registration, 1 p.m.**
- **Opening of classes, 7:30 a.m.**
- **Homecoming; classes suspended except for classes meeting on Saturdays only**
- **Beginning of Thanksgiving recess, 10 p.m.**
- **University holiday; offices closed**
- **Resumption of classes, 7:30 a.m.**
- **Beginning of holiday recess, 12:20 p.m.**
- **University holiday; offices closed**
- **University holiday; offices closed**
- **Resumption of classes, 7:30 a.m.**
- **Close of first semester classes**
- **Beginning of Examination Week, 7:30 a.m.**
- **Close of Examination Week**

<table>
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### SECOND SEMESTER

- **Beginning of registration, 8 a.m.**
- **Opening of classes, 7:30 a.m.**
- **Foundation Day**
- **Beginning of spring vacation, 10 p.m.**
- **Saturday classes only meet**
- **Resumption of classes, 7:30 a.m.**
- **Close of second semester classes**
- **Beginning of Examination Week, 7:30 a.m.**
- **Close of Examination Week**
- **University Commencement, 9:30 a.m.**
- **University holiday; offices closed**

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### SUMMER SESSION

- **Registration for summer session, 8 a.m.**
- **Opening of classes, 7 a.m.**
- **University holiday; offices closed**
- **Close of summer session classes, 5 p.m.**
- **Opening of Independent Study Unit for law and graduate students**
- **Close of Independent Study Unit**
- **University holiday; offices closed**

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For the Advancement of the Individual

An education is defined differently, and correctly, by different people. Thus, in a university we must take multiple approaches to education, to meet the needs and utilize the talents of students and faculty members in great variety.

An adlacent person today must be a generalist as well as a specialist. He must be able to put his share of knowledge into a meaningful, worthwhile whole—to maintain perspective, to approach the broader issues of life with a determination to understand them, and to have an effect upon them. Hence the essential purpose of the university classroom is to help the student learn to analyze.

At The University of Iowa, course sequences are being continually de-emphasized in order to lessen concern with content. This not only strengthens the student's ability to cope with changes in his field, but it will eventually enable him to change as necessary from one field to another, for with the expansion of the lifespan each of us is likely to have more than one career. We are a mobile people. We shift, not only from place to place, but from activity to activity. Our education should prepare us for that mobility, so we will not be rapidly outdated. By stressing analysis and one's responsibilities in society, the student is prepared for a life of continuing education, flexibility, and relevance.

At a residential university where group living adds an important dimension to education, constant interaction is inevitable. The University of Iowa is a small university as state universities go these days, yet it is one of the most concerned about growing too large, and in the process losing the qualities of a limited-size learning center. Residence hall and other group living are important aspects of education. To afford opportunity to pursue different interests outside the classroom, more than 200 student organizations engage the attention of Iowa students in activities ranging from political to cultural to professional.

The University of Iowa is a heterogeneous, cosmopolitan community, drawing people from all over Iowa, the nation and indeed, the world. We are proud of this fact for this diversity is essential to a vital university, and it increases the exposure of all of us to new and varied ideas. With their help, the University seeks ever to be an example of a free and open society without regard to race, economic status, or place of original residence.

In a time in which we are all concerned about the human environment, the University is in the enviable position of having a stimulating program of music, letters, art, dance, and theater. No comparable community is so well endowed in the arts, with so many opportunities to be active patrons.

The University is concerned with human growth, recognizing that it is the quality rather than the quantity of life to which we must address our concern. Thus The University of Iowa is committed to the advancement of the individual in the contemporary world, so that he may understand it better and relate to it more surely, and that he may affect his own and his world's affairs in positive and more lasting ways.

A STATEMENT BY

PRESIDENT WILLARD L. BOYD
The administrative center of The University of Iowa, "Old Capitol" symbolizes the University's heritage as one of the nation's leading institutions of higher learning.

Built in 1840 as the capitol of Iowa Territory, the structure witnessed Iowa's formal admission to statehood December 28, 1846, and the chartering of the University just two months later, on February 23, 1847.

The University opened in March, 1855. It had no building of its own until 1857, when it acquired Old Capitol following transfer of the seat of state government to Des Moines.

The University now comprises ten colleges with a total enrollment of approximately 39,500 students, on a 1,900-acre campus which spans the Iowa River valley in the rolling, wooded farmland of east-central Iowa. The campus merges with the business center of Iowa City, a community of 48,000 inhabitants near Cedar Rapids, Iowa's second largest city.

The University of Iowa is a major university not primarily because of its size—it is the second smallest of the Big Ten universities, and far smaller than the nation's largest—but because of its eminence as a center of learning.

It was the first state university in the nation to admit women on an equal basis with men. It founded the first law school west of the Mississippi River. It pioneered the development of a university-based medical center in the Midwest, and of health science disciplines, most notably speech pathology and orthopaedic surgery. It was the first state university in the nation to establish an interfaith School of Religion. It was an innovator in accepting creative work—paintings, sculpture, musical compositions, poetry, drama, fiction—for academic credit. It established Iowa City as a national college-prospect testing center. It was a leader in the development of actuarial science as an essential tool of business administration. As a pioneering participant in space exploration it has become a center for education and research in astrophysical science.

In these and numerous other ways the University has been and continues to be a creative contributor to the advancement of knowledge and the improvement of life, through teaching, research, and public service.

The College of Liberal Arts enrolls more than two-thirds of the University's undergraduate population, including all entering freshmen except those who declare engineering majors. Within the College of Liberal Arts there are Schools of Art, Journalism, Letters, Library Science, Music, Religion, and Social Work.

Entering freshmen who declare engineering majors begin their studies in the College of Engineering. Others complete preprofessional work in liberal arts to qualify for admission to the Colleges of Business Administration, Dentistry, Education, Law, Medicine, Nursing, and Pharmacy.

Study toward advanced degrees in all fields is administered by the Graduate College whose enrollment is approximately one-fourth of the University's total.

THE STUDENT BODY

Four-fifths of The University of Iowa's undergraduate students are Iowa residents. The student body represents all Iowa counties, all other states, and more than forty foreign countries. One-third come from rural areas, one-fourth from suburban areas.

Male and female students are in nearly equal numbers among the University's undergraduate population.

Slightly more than half of the University's undergraduate students had B averages or above in high school. Ninety per cent ranked in the upper half of their high school classes, 30 per cent in the upper tenth.

Half of all University of Iowa students have part-time jobs; one-fourth have education loans. One of every ten undergraduates and one of four freshmen have scholarships.

Slightly more than 60 per cent of the University's graduate students are enrolled in the College of Liberal Arts; a little less than half are Iowa residents. Of the nonresidents, a little less than half are midwesterners; 13 per cent are foreign students.

While pursuing degree work in more than 110 major fields, Iowa students also pursue co-curricular interests in more than 300 recognized campus organizations and activities, ranging from
participation in student government and politics to the enjoyment of performances by celebrated stage and concert artists.

THE FACULTY

The University faculty numbers slightly more than 1,000 full-time members. Many among them are nationally and internationally recognized as leading scholars in their fields of interest. Most are engaged to some extent in research which contributes directly or indirectly to their effectiveness as teachers.

Additionally, the University faculty numbers approximately 1,400 part-time members, including graduate assistants. All graduate assistants have master's degrees, at least; some have doctorates. They are appointed on the basis of their competence in the areas in which they teach. Most intend to pursue careers in higher education, and therefore have a primary interest in meeting the University's standards of excellence in teaching. All are tested with and supervised by senior faculty members.

Through elected representatives on the Faculty Senate, Faculty Council, and all University-wide committees, the faculty has a strong voice in the determination of University goals and policies.

EDUCATIONAL GOALS

The University seeks to maintain a healthy balance between undergraduate and graduate professional teaching, and between teaching and research.

At all levels and in all parts, the University aims to develop students who are broadly educated and well cultured, equally prepared for careers, citizenship, and personal fulfillment. It gives emphasis to basic knowledge and viewpoints, toward developing the student's versatility, adaptability, and capacity for independent learning.

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. Various colleges and schools of the University are members of accrediting associations in their respective fields, as follows:

Colleges
Business Administration—American Association of Collegiate Schools of Business
Dentistry—American Dental Association
Engineering—Engineers Council for Professional Development
Law—American Bar Association and Association of American Law Schools

Medicine—Liaison Committee on Medical Education (representing the American Medical Association and the Association of American Medical Colleges)
Nursing—National League for Nursing
Pharmacy—American Council on Pharmaceutical Education

Education, Teacher Education—National Council for Accreditation of Teacher Education

Schools
Journalism—American Council on Education for Journalism
Music—National Association of Schools of Music
Social Work—Council on Social Work Education

Departments
Chemistry—American Chemical Society
Dental Hygiene—American Dental Association,
Council on Dental Education
Physical Therapy—American Medical Association
in collaboration with the American Physical Therapy Association
Psychology—American Psychological Association
Speech Pathology and Audiology—American Speech and Hearing Association

The University is a member of the Association of American Universities. It is associated with Northwestern, Indiana, Purdue, Ohio State, and Michigan State Universities, and the Universities of Minnesota, Wisconsin, and Michigan, in the Western Conference, and it is associated with these "Big Ten" universities and The University of Chicago in the Committee for Institutional Cooperation (CIC).

SESSIONS

The University academic year comprises two semesters of approximately eighteen weeks each. The academic year normally begins in early September and extends to late May. An eight-week summer session begins in mid-June and is followed by an Independent Study Unit of from one to four additional weeks for students in the Graduate College and the College of Law.

CODE OF STUDENT LIFE

University of Iowa students have a large measure of freedom and self-determination because liberal policies affecting the regulation of student life have best served the University's liberal approach to education.

Standards for the conduct of student life are set forth in a code carefully written and regularly reviewed by a committee of students and faculty members. This Code of Student Life reflects the principles expressed in the 1967 Joint Statement on Rights and Freedoms of Students, drafted
and endorsed by the National Student Association and the American Association of University Professors.

Accordingly, the Code relates only to student misconduct which adversely affects some University process or function, or some other distinct interest of the University as an academic community. Students are expected to acquaint themselves with the Code, and to conduct themselves in accord with the standards it sets forth.

HUMAN RIGHTS

The University is guided by the principle that nowhere in the University community shall there be difference in the treatment of persons because of race, creed, color, sex, or national origin, and that all members of the University community shall be afforded equal opportunity and equal access to University facilities. This principle governs admission, housing, and education. It is reflected in policies governing students' extracurricular activities, and in the employment of faculty and staff members. The University works cooperatively with the Iowa City community in furthering this principle. (For the text of the general policy adopted by the University Committee on Human Rights, see Appendix.)

ADMISSION

Correspondence regarding admission to any college of The University of Iowa should be addressed to the Admissions Office, 1 Jessup Hall, The University of Iowa, Iowa City 52240.

The first letter should request an application for admission, briefly describe the prospective applicant's high school and college background, and outline his plans for further study, including the department or general field in which he 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.

In order to register, a student must be officially admitted by the Office of Admissions.

The requirements for admission to the colleges and programs of the University are stated at the beginning of the Catalog sections and subsections describing those colleges and programs.

FOREIGN STUDENTS

A foreign student is defined as a student from another country who does not have an immigrant visa or is not in the process of obtaining permanent resident status and is seeking a student or exchange-visitor visa.

The University welcomes excellently qualified foreign students into its advanced-degree programs provided they possess the level of English proficiency determined to be necessary to their field of study and provided they are financially capable of meeting educational and living expenses during the tenure of study. English proficiency is measured by the Test of English as a Foreign Language (TOEFL), and financial responsibility is approved through the financial affidavit submitted to the Counselor for Foreign Students in the Office of Student Affairs.

In order to register, a foreign student must be officially admitted by the Examiner and have received from the Examiner all government documents necessary for obtaining a visa.

Prospective foreign students should contact the Examiner, Admissions Office, 1 Jessup Hall, The University of Iowa, Iowa City 52246, for detailed information regarding procedures and requirements.

APPLICATION DEADLINES

Applicants for admission must submit the required applications for admission and the necessary official transcripts and other required documents to the Office of Admissions by the deadline dates listed below for the session for which the student is applying. Foreign students have different deadline dates and should follow them regardless of college.

College of Liberal Arts
June 1—Summer Session
August 23—First Semester
January 12—Second Semester
College of Business Administration
May 1—Summer Session
June 1—First Semester
November 15—Second Semester
College of Dentistry
February 15—Summer only
College of Engineering
June 1—Summer Session
August 23—First Semester
January 12—Second Semester
Graduate College
May 15—Summer Session
August 15—First Semester
January 2—Second Semester
College of Law
May 1—First Semester only
College of Medicine
January 1—First Semester only
College of Nursing
April 1—First Semester
November 15—Second Semester (Applications accepted from registered nurses only)
College of Pharmacy
August 23—First Semester only

Dental Hygiene Program
April 1—First Semester only

Teacher Education Program
July 1—First Semester
November 1—Second Semester

Foreign Students
Self-financed students located overseas:
January 1—Summer Session
March 1—First Semester
August 1—Second Semester

Students in the U.S. or Canada, or those who will be sponsored by their government or by a private educational agency or foundation:
June 1—Summer Session
September 1—First Semester
January 1—Second Semester

AMERICAN COLLEGE TESTS
The University of Iowa requires all entering freshmen and undergraduate transfer students to complete the American College Tests (ACT) and have their test scores reported to the University before they register for classes.

This requirement applies regardless of the entering student's grade-point average, and even though he may have taken other similar tests for college or university admission.

The University of Iowa uses ACT scores for:
Admission—As a criterion for admitting some students unconditionally or on probation; for requiring some students to attend a probationary summer session; and for denying admission to students who do not meet minimal standards.
Placement—As a basis for advising some students from certain basic course requirements; for placing others in sections designed to meet individual needs; and for advising students concerning their programs of study and future educational plans.
Scholarship—As a criterion for awarding University-administered scholarships and loans.

Scholastic Aptitude Test (SAT) scores may be submitted with freshman or undergraduate transfer admission applications, and will be used for admission evaluation. However, ACT scores must be submitted in all cases for placement and scholarship purposes.

It is advisable that anyone interested in applying for undergraduate admission at Iowa complete the American College Tests during the fall prior to his anticipated registration.

APPLICATION FEE
An application fee must accompany applications submitted by prospective students not previously enrolled for full-time study at the University during the regular academic year. Graduate College applicants must submit the fee unless they have earned a degree from The University of Iowa. Application fees are not refundable except to Iowa residents who are denied admission.

ADVANCE PAYMENT
All new students admitted to the Colleges of Business Administration, Engineering, Liberal Arts, Nursing, and Pharmacy are required to make an advance payment of $50 within two weeks of their notification of admission, unless the student has received a scholarship, grant, or award for more than $50 and evidence of this has been filed with the University Business Office.

Students newly admitted to the College of Dentistry must make an advance payment of $50.
within two weeks after notification of their admission. Students newly admitted to the College of Medicine must make an advance payment of $50 by March 1, or two weeks after notification of acceptance by the College. Students newly admitted to the College of Law must make an advance payment of $50 by April 1, or two weeks after notification of admission if after April 1. Advance payments for dentistry, law, and medicine are not refundable except under special circumstances beyond the student's control.

Students newly admitted to the Graduate College, and returning students in all other colleges, are not required to make advance payments unless they apply for housing in University residence halls, in which case a $50 advance payment must accompany the residence hall contract.

Advance payments apply toward the student's University costs. They are refundable if the student officially cancels his admission and/or residence hall contract before June 1 for the fall semester, January 1 for the spring semester, or May 15 for the summer session. The advance payment is otherwise not refundable except under special circumstances beyond the student's control.

MEDICAL EXAMINATION

Students newly admitted to the University shall submit medical examination reports by licensed physicians, on University medical examination report forms. Students who do not submit reports to the University's Student Health Service before the beginning of classes will have their registration canceled. A student whose registration is canceled may be permitted to re-enroll after filing the required medical report and paying a $10 reinstatement fee.

REGISTRATION

All persons who attend University classes are required to register and pay the established tuition and fees. The Office of the Registrar distributes directions for completion of registration in each college approximately one month before the opening of each academic session.

At the opening of each session, the instructor of each class receives from the Office of the Registrar a list of all students properly registered for the class. This list serves as the authority to admit the students to his class.

A graduate student may audit courses with the approval of the instructor and the Dean of the Graduate College. If the student's registration is for audit courses only, he is assessed an audit fee.

RECORDS

All academic records are maintained by the Office of the Registrar and will not be released without written permission from the student. However, grade reports will be mailed to the following at the close of each semester without the written permission of the student:

(a) Parents of all unmarried freshman and sophomore students under the age of 21.
(b) High school principal of all unmarried freshman and sophomore students under the age of 21 who graduated from that high school and came directly to the University.
(c) Dean of the junior college of any student who transferred directly to the University from that junior college.

TUITION AND FEES

The following is the University's schedule of full-time tuition and fees, per semester, for the 1970-71 academic year (part-time registration is available):

<table>
<thead>
<tr>
<th>College</th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberal Arts, Engineering, Pharmacy, Nursing, and Business Administration</td>
<td>$210</td>
<td>$215</td>
</tr>
<tr>
<td>Law</td>
<td>$355</td>
<td>$335</td>
</tr>
<tr>
<td>Medicine and Dentistry</td>
<td>$435</td>
<td>$400</td>
</tr>
<tr>
<td>Graduate</td>
<td>$355</td>
<td>$300</td>
</tr>
</tbody>
</table>

This schedule includes such charges established with a view toward possible future reduction. The surcharges are $94 per semester for both resident and nonresident undergraduate students; $312.50 per semester for both resident and nonresident students in the Colleges of Law, Medicine, and Dentistry; and for resident students in the Graduate College; and $15 per semester for nonresident students in the Graduate College.

The University must reserve the right to limit the number of nonresident students it admits, and to apply scholarships requirements which will maintain a nonresident student group with high scholastic aptitude and promise of enriching student life on the campus. Criteria used by the University to classify students as residents or nonresidents for admission and fee purposes are fully stated in the Appendix.

In addition to the above, special fees are charged for private lessons in music, at the rate of $50 per semester for each course (two lessons a week), $95 per semester for two courses carried simultaneously, and for non-music majors, $25 per semester for one course (one lesson a week).
The University, with the approval of the State Board of Regents, reserves the right to change tuition and fees.

General fees provide for the student's use of Iowa Memorial Union facilities, and of libraries, laboratories and gymnasium, free admission to minor sports events, and to student-faculty concerts and plays; admission to major sports events,
and to performances by visiting stage and concert artists, at reduced rates; subscriptions to the student newspaper, The Daily Iowan, on a housing unit basis; free subscriptions to the Hawkeye yearbook the senior year; limited student hospital services; and other activities and services as announced.

PROCEDURE FOR PAYMENT OF STUDENT ACCOUNTS

Tuition and fees, and board, room, and other University residence hall or fraternity/sorority housing expenses are payable on an installment basis, with billing the first of October, November, December, and January for the fall semester, and the first of February, March, April, and May for the spring semester.

Bills are mailed to the student's Iowa City or commuting address. The student is responsible for furnishing a correct address on his registration form. The University strongly encourages payment of student bills by mail. It requires that bills be paid promptly. A $5 penalty is assessed against student accounts not paid by the 12th of the month they are due, and students with accounts overdue on the 20th of the month are reported to the Registrar for cancellation of registration. A student whose registration is canceled shall pay a $10 fee for reinstatement.

If a student cancels his registration, or has it canceled, any refund of University payments will normally be mailed to the student's forwarding address on the next billing date after the date his registration is canceled.

Further information may be obtained from the Cashier's Office, 3 Jesup Hall, Iowa City 52240.

NUMBERING OF COURSES

Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department, or program in which the course is administered. For example, "4:51" is the code for the course numbered 51 in the Department of Chemistry (4), titled "Development of Ideas in Chemistry."

Usually, course numbers below 100 designate "Primarily for Undergraduates"; numbers 100 to 199 designate courses "For Undergraduates and Graduates"; and numbers 200 and above designate courses "Primarily for Graduates."

The University reserves the right to alter its course offerings without further notice.

COLLEGE OF BUSINESS ADMINISTRATION

6A Accounting
6B Business Administration
6C Economics
6D Office Management and Business Education

COLLEGE OF DENTISTRY

81 Crown and Bridge Prosthesis
82 Operative Dentistry and Endodontics

83 Dental Technology
84 Denture Prosthesis
85 Oral Pathology
86 Oral Surgery
87 Dental Hygiene
88 Radiology
89 Periodontology
90 Oral Biology
91 Community Dentistry

COLLEGE OF EDUCATION

7A Adult Education
7C Counselling and Guidance
7D Educational Administration
7E Elementary Education
7F Social Foundations and Comparative Education
7H Higher Education
7I Educational Psychology, Measurement, and Statistics
7J Secondary Education
7L Special Education
7V Educational Media

COLLEGE OF ENGINEERING

91 Engineering
92 Chemical Engineering
93 Civil and Environmental Engineering
94 Electrical Engineering
95 Industrial and Management Engineering
96 Mechanical Engineering
97 Mechanics and Hydraulics

91 COLLEGE OF LAW

COLLEGE OF LIBERAL ARTS

2A Nondepartmental Courses
16 Art Education
16H Art History
16H Art Studio
3 Botany
3 Speech, Pathology and Audiology
3C Child Behavior and Development
3E Chinese
9 French
12 General Skills Courses
12 Core Courses
12 Geology
12 German
12 Greek
9 History
12 Home Economics
12 Indian Studies
12 Journalism
12 Latin
21 Library Science
25 Computer Science
26M Mathematics
29S Statistics
29S Military Science and Aerospace Military Studies
29S Museum Training
29S Music
29S Philosophy
29S Physical Education for Men
29S Physical Education for Women
29S Physics and Astronomy
29S Political Sciences
29S Psychology
29S Religion
30S European Literature and Thought
30S Russian
30S Spanish
30S Speech and Dramatic Art
30S Sociology
30S Spanish and Oriental Studies
30U Japanese
41 Film
42 Social Work
44 Geography
44 American Civilization
48 Comparative Literature
50 Hospital and Health Administration
57 Educational Science
58 Social Studies
<table>
<thead>
<tr>
<th>Program</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban and Regional Planning</td>
<td>122</td>
</tr>
<tr>
<td>Correction Law</td>
<td>123</td>
</tr>
<tr>
<td>Recreation Leadership</td>
<td>124</td>
</tr>
<tr>
<td>School of Letters</td>
<td>128</td>
</tr>
<tr>
<td>Anthropology</td>
<td>129</td>
</tr>
<tr>
<td><strong>COLLEGE OF MEDICINE</strong></td>
<td></td>
</tr>
<tr>
<td>Nondepartmental Courses</td>
<td>60</td>
</tr>
<tr>
<td>Anatomy</td>
<td>61</td>
</tr>
<tr>
<td>Microbiology</td>
<td>62</td>
</tr>
<tr>
<td>Dermatology and Syphilology</td>
<td>63</td>
</tr>
<tr>
<td>Preventive Medicine and Environmental Health</td>
<td>64</td>
</tr>
<tr>
<td>Neurology</td>
<td>65</td>
</tr>
<tr>
<td>Nutrition</td>
<td>66</td>
</tr>
<tr>
<td>Obstetrics and Gynecology</td>
<td>67</td>
</tr>
<tr>
<td>Urology</td>
<td>69</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>70</td>
</tr>
<tr>
<td>Otolaryngology and Maxillofacial Surgery</td>
<td>71</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>72</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>73</td>
</tr>
<tr>
<td>Physiology</td>
<td>74</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>75</td>
</tr>
<tr>
<td>Radiology</td>
<td>76</td>
</tr>
<tr>
<td>General Surgery or Anesthesiology</td>
<td>77</td>
</tr>
<tr>
<td>Orthopaedic Surgery</td>
<td>78</td>
</tr>
<tr>
<td>Radiation Research Laboratory</td>
<td>79</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>80</td>
</tr>
<tr>
<td>Urology</td>
<td>81</td>
</tr>
<tr>
<td>Medical History</td>
<td>82</td>
</tr>
<tr>
<td>Oral Surgery</td>
<td>83</td>
</tr>
<tr>
<td>Medical Jurisprudence</td>
<td>84</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>85</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>86</td>
</tr>
<tr>
<td><strong>COLLEGE OF NURSING</strong></td>
<td>86</td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>46</td>
</tr>
</tbody>
</table>
Housing

University of Iowa students under 21 and unmarried are required to live in University or University-approved housing. University residence halls and married student apartments are available to all University students. Approved accommodations are also available in fraternity and sorority houses, and in privately-operated off-campus units.

FAIR HOUSING POLICY

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

"It is and shall be the firm policy of the University that householders shall rent to all students on the basis of their individual merits as persons, without exclusion or discrimination on the basis of race, creed, color, or national origin." Iowa City has a fair housing ordinance providing for equality of opportunity to secure housing without distinction due to race, religion, or ancestry, except in certain instances involving owner-occupied dwelling units. A Human Relations Commission is responsible for the observance of this ordinance, and for the initiation of redress for violations of it.

UNIVERSITY RESIDENCE HALLS

University residence hall furnishings, facilities, and services are designed to provide a pleasant atmosphere conducive to effective study. Single, double, and triple rooms with full or partial board are available in the Grand Avenue Residence Halls (west campus) which include Hillcrest, Quadrangle, South Quadrangle, and Rienow Hall I and II, and in the Clinton Street Residence Halls (east campus) which include Burge Hall, Currier Hall, Dunn House, and Stanley Hall. A room-only option is available in the South Quadrangle residence hall. Students not living in residence halls may contract for full or partial board.

There are lounges, study rooms, browsing libraries, and recreation rooms in each residence hall; the University Library maintains reserve book stations in the residence halls.

Each residence hall is divided into small living units. Each hall has a full-time head resident, and there is a student resident advisor in each living unit. Each unit has its own student governing body, and is represented in the government of its residence hall.

Student-initiated residence hall programs and activities provide a wide range of opportunity to pursue social, cultural, recreational, and athletic interests.

Graduate Students. Graduate students requesting residence hall accommodations are assigned to areas reserved for them in undergraduate halls. Graduate students who cannot be accommodated in these areas are assigned to other available residence hall accommodations. South Quadrangle residence hall is reserved for graduate students, and students over 21 years of age.

Applications and Assignment. Prospective students receive University residence hall application forms with their admission application forms. A prospective student who wants residence hall housing should read the consent carefully, supply all information requested, and return the completed application to the Office of Admissions.

Applications for residence hall housing are held in abeyance until the applicant has been admitted to the University. The applicant cannot be assured of receiving a room without submitting the application.

Applications are accepted after March 1 for the fall semester. Students are encouraged to select their own roommates; prospective roommates must request assignment together when they apply. The assignment of roommates will not be made until all of the prospective roommates' application materials have been received. Roommate assignment of students in University housing is made without regard to race, color, nationality, or religion in University residence halls are given preference in the assignment of accommodations for the following year.

A University residence hall contract binding for the academic year, unless the student cancels his registration or submits a written notice of his resignation to the University Housing Office before the opening of the semester under contract—by June 1 for the academic year, January 1 for the spring semester, or May 15 for the summer session.

Rates. The basic rate for University residence hall housing for the 1976-77 academic year is $1,040 for a double or triple room with full board. Rates for the several available rooms and board options vary according to the accommodations. Rates are subject to change with thirty days notice; in the event of a rate increase, the student
MARRIED STUDENT HOUSING

There are approximately 1,100 University-operated apartments available to married stu-

dents.

Haukaye Drive Apartments—192 two-bedroom units; unfurnished except for electric range and
refrigerator. Units rent for $105 per month for the 1970-71 academic year. Rent does not include
electricity and telephone.

Haukaye Court Apartments—216 one-bedroom units; unfurnished except for electric range and
refrigerator; 288 two-bedroom units. Each unit has its own gas furnace and electric water heater.
Rates for 1970-71 are $32 for one bedroom, $112 for two bedrooms, unfurnished. Rent does not
include gas, electricity, or telephone.

Parklane Apartments—Forty one-bedroom and thirteen efficiency units; all unfurnished except
for electric range and refrigerator. Each unit has its own gas heater. Rates for 1970-71 are $87 for
one-bedroom units, $70 for efficiency units. Rent does not include gas, electricity, or telephone.

Barrels—Two-bedroom units, available furni-
ished or unfurnished in limited numbers. Ten-
ants provide their own refrigerators. Rates for
1970-71 are $58 unfurnished, $74 furnished. Rent
includes all utilities but telephone.

Prospective students can apply for married student housing before they complete admission,
but will not be assigned housing until they have been admitted to the University.

Advance payments—$10 for a barracks unit,$25 for others—is required before occupancy.

Graduate teaching assistants who have full-
time appointments and enroll for at least 5 semester hours of coursework each semester are
eligible for teaching assistants’ priorities at stu-
dent rates in apartments.

Married student apartments are assigned in the order applications are received. Assignments are
contingent on the applicants meeting all Univer-
sity admission requirements.

To remain eligible for married student housing, the student must carry at least 3 semester hours
of coursework each semester during the academic year, and at least 3 semester hours during the
summer session if occupancy begins in June. However, a student living in married student housing
during one academic year may continue to live in married student housing through the summer
without attending the summer session

OFF-CAMPUS HOUSING

The University Office of Student Affairs, 111 Jessup Hall, provides a listing service for un-
married undergraduate students under age 21 who want to live in University-approved private
housing. The student selects and contracts for private housing directly with the householder.
As a service to undergraduate students over 21, graduate students, and married students, cur-
rently-available rooms and apartments are posted on a bulletin board on the ground floor of Jessup
Hall.

FRA TERNITIES

Twenty undergraduate and seven professional fraternities operate chapter houses at Iowa.
Houses accommodate 33 to 45 men. Undergrad-
uate college fraternities are Acacia, Alpha
Epsilon Pi, Alpha Tau Omega, Beta Theta Pi,
Delta Chi Delta, Delta Tau Delta, Delta Upsilon,
Kappa Sigma, Lambda Chi Alpha, Phi Epsilon
Pi, Phi Gamma Delta, Phi Kappas Phi, Phi Kappa
Sigma, Pi Kappa Alpha, Sigma Alpha Epsilon,
Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Sigma
Xi, and Tau Kappa Epsilon. Two additional fra-
ternities are currently being organized, Theta
Xi and Phi Delta Theta colonies.

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

Detailed information may be obtained from the Men’s Interfraternity Council, 111 Jessup
Hall.

SORORITIES

Each sorority at The University of Iowa main-
tains a chapter house which provides an atmos-
phere for sharing in a small-group living ex-
perience and promotes lasting friendships,

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

The Panhellenic Office, 111 Jessup Hall, may be contacted for additional information.

provided he intends to attend the University the
next academic year.
Current rental rates and further information may be obtained from the University Housing
Office, 163 Jessup Hall.
The University maintains a variety of service agencies to help students make the most effective use of their educational opportunities at Iowa. These agencies include:

ADMISSIONS, RECORDS, AND CONVOCATIONS

The Dean of Admissions and Records is responsible for coordinating the services of the Office of Admissions and the Registrar's Office. Enrollment profiles and the development of enrollment projections are also conducted by the staff of the Dean's Office. The Office is also responsible for commencements and convocation ceremonies, and for publishing the University Catalog.

Admissions

All students planning to enroll in the University must be officially admitted by the Office of Admissions. All inquiries, transcripts, evaluations of transfer credit, and applications for admission into any college of the University should be directed to this Office.

Other responsibilities include teacher certification evaluation, orientation of new students, and foreign student admission counseling.

Registrar

The Office of the Registrar determines the residence status of each student, assesses fees, issues University identification cards, supervises registration procedures, and maintains all students' academic records and official transcripts. It also assists students in determining graduation requirements, processing applications for degrees, and interpreting college and University academic regulations.

The Office of the Registrar provides assistance to students concerning Selective Service and military service matters, helps student veterans with University application and enrollment procedures, and provides administrative supervision of students under Vocational Rehabilitation.

High School-College Relations

This office, administered as a part of the Office of Admissions, coordinates and implements all scheduled relations with secondary schools and institutions of higher education. These contacts relate both to school and college authorities and faculty as well as different levels of prospective students who have an interest in any of the ten colleges of the University.

Educational Opportunities Program

This office, administered as a part of the Office of Admissions, identifies students from educationally and economically "disadvantaged" backgrounds, and arranges financial and academic assistance on the basis of individual need for admitted students. The program was originated as the Martin Luther King Scholarship Program for the purpose of increasing educational opportunities for blacks and other minorities.

STUDENT FINANCIAL AIDS

The Office of Student Financial Aids administers a major program of assistance in the form of scholarships, grants, loans, and student employment. For a detailed description of these programs, see the Catalog section, Scholarships and Loans.

ACADEMIC ADVISORY OFFICES

Each student is assigned a faculty advisor to assist with registration, educational planning, and academic counseling. Students planning to complete preprofessional courses are assigned academic advisers from the areas of their choice.

Students in the professional colleges 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 also serve as general consultants to students, and refer those with special problems to the appropriate areas.

UNIVERSITY HOUSING

Student living facilities at The University of Iowa include University residence halls, housing units for married students, fraternity and sorority chapter houses, and approved rooms in private buildings. Complete information on University housing for students is presented under Housing. All inquiries should be addressed to the University Housing Office, 105 Jessup Hall, Iowa City 52240.
EVALUATION AND EXAMINATION SERVICES

Evaluations and Examination Services administers many of The University of Iowa required and optional tests to entering students. The university is also a test center for many national testing programs, including the American College Test, ACT College Plan, Graduate Record Examination, Admission Test for Graduate Study in Business, Graduate School Foreign Language Exams, Law School Admissions Test, and the Test of English as a Foreign Language.

Evaluations and Examination Services is responsible for administering these and other tests upon request from colleges.

Many course examinations are duplicated, scored, and analyzed by Evaluation and Examination Services. Faculty members may request assistance in developing and improving their classroom tests by evaluating results of examinations. Assistance is also given to faculty or student groups who have particular project requests, such as teacher or course evaluation.

Some institutional research projects as requested by University administration or initiated by Evaluation and Examination Services are conducted by this office.

OFFICE OF STUDENT AFFAIRS

The Office of Student Affairs is a general counseling agency and clearinghouse of information for students, particularly with reference to extracurricular matters. Students wanting any kind of information or having problems of a social or extra-curricular nature can get help from this office, either directly or by referral.

Student Affairs staff members work with individuals and with student groups and organizations on campus, including fraternities and sororities and residence hall governing bodies.

Disciplinary counseling is provided students involved in infractions of University rules and regulations.

STUDENT HEALTH SERVICES

All students currently registered at the University (after they have submitted the completed medical examination forms) are eligible for Student Health Services. Consultations during regular office hours are made with no charge; casual after office hours are subject to nominal fees.

Student infirmity care is provided without charge to those students requiring medical supervision and nursing care. If the student needs hospitalization, such service is available on a clinical-pay basis.

Group-plan student insurance is available on a year-to-year basis at a minimal cost. A special policy is available for coverage of emergency and/or hospital care for students' dependents, at the hospital and by physicians of their choice. These policies are offered at the beginning of the academic year.

DENTAL SERVICE

The University of Iowa College of Dentistry is a primarily a teaching clinic, the purpose of which is education.

Students who are registered in the University may apply for dental treatment at the College and may be accorded the same opportunity for treatment as any other patient.

It should be emphasized that the College of Dentistry is a part of the University Student Health Service, and as such does not render service under the student health hospitalization fund. Fees are established for all services rendered and these will be charged to the student's monthly University bill. Consequently, a student ID card is required when treatment is rendered.

Further information can be obtained at the information and appointment desk near the main entrance to the College of Dentistry.

SPEECH AND HEARING CLINIC

Speech and hearing tests are given to all incoming undergraduate students. Any University student with speech or hearing problems may receive needed clinical services from the Speech and Hearing Clinic without charge. Services include diagnostic examinations, consultations, individual conferences, individual therapy sessions, group instruction in small workshop groups, and referral to other clinics as needed. Students with known speech or hearing problems are requested to consult the Speech and Hearing Clinic staff before registering, so that the most effective possible help may be given in relation to course programs, living arrangements, special adjustments to particular course requirements, and the scheduling of clinical work.

UNIVERSITY COUNSELING SERVICE

The University Counseling Service assists students in vocational and educational planning, personal and social adjustment, and training in study skills.

Staff members are professionally trained counselors, and in their relationships with students, the confidential nature of counseling is respected. This means that students may feel free to discuss any situations or problems which concern them. The University Counseling Service is not connected with and does not report to any disciplinary or administrative agencies on the campus with reference to professional counseling services for students.
STUDENT PERSONNEL SERVICES

Appointments may be made by coming to the offices of the University Counseling Service in the southwest wing of the ground floor of East Hall. Although no referral is necessary for a student to secure counseling services, students may be referred by their faculty advisers or other University officials if this is preferred. Any student may make a first appearance to discuss any question or situation, and then a mutual decision is made as to whether the student would like to have other appointments with his counselor. Every effort is made to see the student as soon as possible after he asks for the initial appointment.

STUDENT RELIGIOUS OPPORTUNITIES

Recognizing the religious interests of University students, various faiths and denominations have established campus religious groups and foundations. The campus ministers from these groups are related through the Association of Campus Ministers. This group stimulates and coordinates inter-religious activities, and promotes a religious consciousness and inter-religious understanding.

STUDENT PLACEMENT

Seniors and graduates may avail themselves of the services of the University's Career Counseling and Placement Office, Educational Placement Office, and College of Engineering Placement Bureau. These offices cooperate with the colleges and departments in counseling students about employment, helping them locate positions, and arranging interviews. A small fee is charged for preparation of the student's credentials.

IOWA MEMORIAL UNION

The Iowa Memorial Union is the center of the University's nonacademic activities. Its facilities include a variety of food services, lounges, meeting rooms, a recreation area featuring bowling and billiards, a television room, art and sculpture display areas, auditoria for lectures and concerts, and in the adjoining Iowa House, 112 guest rooms for parents, University guests, and conference groups. Through the Union Board and its fifty committees, and with the counsel of a professional program staff, students plan and administer all student activities centered in the Union.

INTERCOLLEGIATE ATHLETICS

The University is a member of the Western Conference (the Big Ten), and has intercollegiate athletic programs in football, basketball, track, baseball, swimming, golf, wrestling, tennis, cross country, and gymnastics. Operating policies of the program are determined by the Board in Control of Athletics whose nineteen members include thirteen from the University's teaching and administrative staff, two representing University alumni, one representing the University Staff Council, and three from the student body.

INTRAMURAL AND RECREATIONAL SPORTS

Every interested male student has the opportunity to compete in more than twenty different intramural sports and recreational activities. A wide range of recreational sports activities is provided for women students through the Women's Recreation Association and the Department of Physical Education for Women.

Informal co-recreational sports programs are provided for students, and for staff and faculty members and their spouses and families. Activities include basketball, badminton, darts, table tennis, swimming, handball, paddleball, squash, canoeing, judo, golf, archery, and jogging.
The College of Liberal Arts is the heart and center of the University. Its primary function is to provide a liberal education for the development of well-rounded individuals. Through its curriculum and related activities, the College guides the student in the continued improvement of fundamental intellectual skills, particularly writing, reading, speaking, and quantitative thinking; it guides him toward a mastery of the leading ideas, significant facts, and methods of work in such fields as the sciences, social sciences, language, literature, fine arts, history, and philosophy; it aids him in developing a resourceful and independent mind, and it attempts to provide him with experiences which will help him develop strength of character and a sense of responsibility.

The College enrolls more than two-thirds of the University's undergraduate student body. All entering freshmen, except those with engineering majors, enroll in the College of Liberal Arts to acquire foundations for degree work in one of the College's forty-nine major areas or in one of eight other professional colleges of the University. The College of Liberal Arts also provides a broad range of elective coursework.

**DEGREE PROGRAMS**

**Degrees**

The College of Liberal Arts offers training leading to the following degrees: Bachelor of Arts (B.A.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), Bachelor of Science (B.S.), and Bachelor of General Studies (B.G.S.).

The College of Liberal Arts awards bachelor's degrees in the following areas:

- American Civilization
- Anthropology
- Art
- Astronomy
- Botany
- Chemistry
- Child Behavior and Development
- Chinese Language and Literature
- Classics
- Dramatic Art
- Economics
- Elementary Education*
- English
- Linguistics
- Mathematical Sciences
- Medical Technology*
- Microbiology
- Music
- Philosophy
- Physical Education
- Political Science
- Portuguese*
- Psychology
- Recreation Leadership
- Religion
- Russian
- Social Studies
- Social Work
- Sociology
- Spanish
- Speech and Dramatic Art
- Speech and Hearing Science
- Special Education
- Zoology

The Graduate College awards advanced degrees in all of the above areas except those marked with asterisks, and also awards advanced degrees in the following College of Liberal Arts areas:

- Chemical Physics
- Comparative Literature
- Computer Science
- Cultural Anthropology and Linguistics
- Hospital and Health Administration
- Law Enforcement and Correction
- Library Science
- Museum Training
- Nuclear Science
- Science Education
- Speech Pathology and Audiology
- Statistics
- Urban and Regional Planning

**SCHOOLS AND DIVISIONS**

Seven schools and two divisions have been established within the College of Liberal Arts to coordinate related programs:

The Division of Fine Arts includes the Schools of Art and Music and the Department of Speech and Dramatic Art. Its programs are designed to meet the varying needs of those with unusual creative talent, those interested in the history of the arts, those who expect to teach, those who are interested in art in industry, and those who are capable of becoming professional artists. It also undertakes to stimulate interest in the fine arts on the campus and throughout the state and region, through conferences, festivals, workshops, and the summer all-state program for talented high school students.

Courses offered in art, music, dramatic art, and film are described in the departmental segments of the Catalog.
In the Art Building will be found the art library, two auditoria, teaching studios, seminar rooms, an art lending gallery, and the specialized equipment for such technical fields as photography, metalwork, metal casting, printmaking, and ceramics.

The new Museum of Art, dedicated in 1969, is located in a building contiguous to the School of Art. The Museum has galleries for traveling exhibits as well as for a permanent collection consisting largely of primitive sculpture, modern American paintings, and of modern French and German paintings presented by Mr. and Mrs. Owen Elliott. The Museum has its own auditorium and a public lounge with a view across the river.

The three main music buildings provide classrooms, studios, practice rooms, a music library, student lounges, and two large rehearsal-concert halls. A new Music Building, scheduled for 1970 completion, will house all School of Music activities in one of the finest facilities of its kind in the nation.

The Dramatic Art Building's University Theatre is one of the best-equipped university-based professional theatres in the nation. Its facilities include scene and costume shops, revolving and wagon stages, and an electronic control system. The experimental Studio Theatre permits great flexibility in the relationship of actors to audience. Rehearsal, makeup, and classroom areas are provided with both theatres. In addition, there are film and broadcasting studios and extensive editing facilities.

The Division of Mathematical Sciences comprises the Departments of Computer Science, Mathematics, and Statistics, the latter including the program in actuarial science. The departments share a common undergraduate program affording a variety of course selections which lead to and may include advanced work in one or more areas of specialization.

The School of Journalism, established in 1924, offers courses leading to the Bachelor of Arts, Master of Arts, and Doctor of Philosophy degrees. The Certificate of Journalism is awarded to qualified undergraduates.

Because a student working in mass communications must write on subjects involving behavior of human beings as individuals and as members of groups, as well as about government, business, industry, and other social structures, the curriculum requires that students satisfactorily complete a considerable number of courses dealing with these matters.

The student's ability and skill is developed, not only in the classroom, but also through laboratory experience. These laboratories include The Daily Iowan, University newspaper; Radio Newsroom of Station WSUJ and KSUI; Hearst's, the senior yearbook; Magazine Laboratory; Photographic Laboratory; Typography Laboratory; Newspaper Production Laboratory; Advertising Workshop, University Relations; and Television News Laboratory.

The School of Letters is a federation of the Departments of Chinese and Oriental Studies, Classics, English, French, Italian, German, Russian, Spanish, Portuguese, Linguistics, and Speech and Dramatic Art; and the programs in American Civilization, Comparative Literature, Modern Letters, International Writing, Translation, and Writers Workshop. The Winthrop Press is also part of the School. The School strengthens the degree programs of its component academic units through cooperative planning and joint appointments; makes it possible for a student to pursue a program in two or more language areas; and serves the University as a whole, through interdepartmental course offerings in literature for nonmajors, by sponsoring lectures and conferences on literary topics, and by bringing distinguished scholars and writers to the campus for conferences with students and faculty members.

The School of Library Science provides a basic course of study leading to the degree, Master of Arts in Library Science. It also offers a certificate program for school librarians. Attention is given to preparation for beginning professional positions in various types of libraries including public, school, college, and special libraries. Certain courses in the School may be taken by junior and senior undergraduates. The School utilizes the resources and special facilities of the University Libraries in carrying out its program.

The School of Religion offers undergraduate and advanced degree programs, and provides elective courses for nonmajors. Coursework in the School is intended to help the student gain a knowledge of religion as part of general education including an introduction to the historical role of religion in human culture and to its contemporary expressions in thought and action. Courses offered by the School are also of value to advanced students as refresher studies and opportunities for intensive research in selected fields. The Board in Control of the School is composed of members of the University's teaching and administrative staffs and of representatives of the religious communities of Iowa.

The School of Social Work offers programs leading to the Bachelor of Arts and Master of Social Work degrees. The graduate and undergraduate curricula are accredited by the Council on Social Work Education, of which the School is a charter
The Honors Program

The Honors Program is a College-wide plan designed to give exceptionally promising students opportunities to develop their full potentials. Honors students are assigned to special sections in general studies courses. Honors students 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. For further information, write to the Honors Director, College of Liberal Arts.

The Preprofessional Program

Up to 30 semester hours of credit earned in another college of the University will be accepted toward the bachelor's degree by the College of Liberal Arts, provided all specific requirements for the degree have been met, including the requirements for a major in some department or area of concentration. This makes it possible for the student who enters a professional college of the University, for which the bachelor's degree is not an admission requirement, to obtain a bachelor's degree from the College of Liberal Arts upon successful completion of one academic year in the professional college.

The Liberal Arts Advisory Office

The College of Liberal Arts Advisory Office assigns faculty advisers to students enrolled in the College. These advisers help students with registration and in the progressive development of their educational programs. A student who has declared a major is assigned an adviser from his major department. A student planning to enroll in a preprofessional program is assigned a special adviser in that area.

Academic advisers also serve as general consultants to students, and refer those with special problems to appropriate areas. The Advisory Office staff is available for conferences with students who have questions or problems on academic matters.

The Liberal Arts Advisory Office also administers the Credit by Examination program, changes of majors, and other academic affairs of the College.

Admission Requirements

All students seeking to register for the first time in any college of the University must submit a formal application for admission, and must be officially admitted by the Director of Admissions. This applies to students who have been enrolled
COLLEGE OF LIBERAL ARTS

in other colleges of the University, as well as transfer students. All communications concern-
ing admission should be addressed to the Director of Admissions, The University of Iowa, Iowa City 22540.

A student seeking admission to the College of Liberal Arts must meet the requirements set
out in this section, and in addition must meet any special requirements for the curriculum of
his choice.

Entering Freshmen
An applicant seeking admission as an entering freshman must have the high school from which he graduated provide a certificate of high school credits, including a complete statement of the appli-
cant's high school record, rank in class, scores on standardized tests, and certification of high
school graduation. The applicant must also sub-
mit any other evidence required, such as a certifi-
cate of health. An applicant may be tentatively
admitted after completing his junior year, but his
admission will not be final until he has provided
the required final transcript and certification of
high school graduation.

1. An applicant for admission who is a graduate
of an approved Iowa high school, who has the
proper subject-matter background, who is in the
upper one-half of his graduating class, and who
meets specific curriculum requirements, will
generally be admitted upon certification of
graduation.

A candidate who is not in the upper one-half
of his graduating class may be required to take
special examinations and may, after a review of
his entire record and at the discretion of the ad-
misions officer, be admitted unconditionally, be
admitted on probation, be required to enroll for
a trial period during a preceding summer session,
or be denied admission.

2. A graduate of an accredited high school in
another state shall meet at least the same stand-
ards as a graduate of an Iowa high school. The
options for admission by probation or trial en-
rollment may not be open to these students.

3. A graduate of a nonapproved high school
shall submit all data as required above, and in
addition shall take examinations which will dem-
nstrate his general competence to do successful
college work.

4. An applicant who is not a high school grad-
uate shall submit all data required above, insofar
as it exists, and shall take examinations to
demonstrate general competence to do college
work. Specific competence for admission to a
certain curriculum also will be required.

Undergraduate Students Transferring
From Other Colleges
Students from accredited colleges and univer-
sities. Transcripts of records are given full value
if coming from colleges or universities accredited
by the North Central Association of Colleges and
Secondary Schools or similar regional associa-
tions. For schools not regionally accredited the
recommendations contained in the current issue
of the Report of Credit Given by Educational In-
stitutions published by the American Association
of Collegiate Registrars and Admissions Officers
will be followed.

b. A transfer applicant will be expected to have
maintained a C average (2.0 based on an A
grade being 4 points) for all college work pre-
viously attempted and not be under suspension
from the last college attended. Students who are
not residents of Iowa may be expected to have
maintained a 2.25 grade index.

c. A student who is below the above standard
may be permitted to take entrance examinations.
If the applicant successfully completes the ex-
aminations he may be admitted on probation.

2. Students from nonaccredited colleges. A college
may refuse to recognize credit from a nonac-
credited college or may admit the applicant on a
trial basis and on a probation period for the
validation of some or all of the credit. The vali-
dation period shall not be less than one semester
and will ordinarily be a full academic year. The
college will specify to the student the terms of

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the validation process at the time of provisional admission. Each student from a nonaccredited college will be considered on his merits, and his admission or rejection is at the discretion of the admissions officer.

Transfer of credit from standard junior colleges, colleges, and universities. Credit in standard liberal arts courses, properly certified as having been earned in approved junior colleges, colleges, and universities, is transferred on a year-for-year basis. Regardless of whether the credit as expressed in terms of the credit unit employed by the institution certifying it, appears to be less than, equivalent to, or more than that representing a full year’s work in this college, the further time needed to qualify for a degree will be computed on the basis of the time spent in the first institution provided, of course, that the student has completed a normal full program in the institution from which he transfers. All transferred credits will be included in the student’s record at this college, though only credit in courses which apply on the curriculum finally undertaken at this University will be accepted to apply on that curriculum; and all specific requirements for the degree desired must be completed, even though this may involve more time than that specified at the time of transfer.

For instance, a student who transfers from an approved college, whose full freshman and sophomore years’ work involves 60 semester hours in standard liberal arts courses, will be granted junior standing and required to complete a minimum of 60 semester hours for a bachelor’s degree. Similarly, a student who transfers from an approved college, and whose full freshman and sophomore years’ work involves 68 semester hours in standard liberal arts courses, will be granted junior standing and will need to complete a minimum of 60 semester hours for a bachelor’s degree. However, either of these students may have chosen his courses in such a way during his first two years that he will need to spend more than two years and earn more than 66 semester hours in order to meet the specific degree requirements of the program which he elects at The University of Iowa. Likewise, if he has included in his program at the first institution courses which the College of Liberal Arts does not recognize as applicable toward its degrees, the student will be required at the time of admission to spend an appropriate additional period of time and earn sufficient additional credit to meet the requirements for graduation.

Students who transfer from junior colleges are required to earn a minimum of 60 semester hours in the College of Liberal Arts to qualify for a degree, even though they may have completed excess hours in junior college. This practice is in accordance with standard national policies pertaining to transfer of credit from junior colleges.

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A maximum of 30 semester hours earned through correspondence or extension study can be applied toward an undergraduate degree.

For Iowa State Board of Regents’ admission requirements, see Appendix of Catalog.

SCHOLARSHIP REQUIREMENTS

Marking System. The following marking system is used by the faculty:

<table>
<thead>
<tr>
<th>Mark</th>
<th>Definition</th>
<th>Each Semester Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Superior</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Above Average</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Below Average—Passing</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Failing</td>
<td>9</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn Not used in computing G.P.A.</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>Passing Not used in computing G.P.A.</td>
<td></td>
</tr>
</tbody>
</table>

The cumulative grade-point average is computed as follows: multiply hours of credit in each course by the appropriate grade points; total the grade points earned to date; divide the sum by the number of hours undertaken, excluding courses in which grades of W or P are given. A grade of I is considered as passing until otherwise credited, and it must be replaced with a grade on completed work during the next session of the student’s registration in order not to revert to a grade of F.

Classification of Students

Freshman Less than 28 semester hours
Sophomore 28 to 55 semester hours
Junior 56 to 89 semester hours
Senior 90 or more semester hours

Quality of Work

1. Scholarship Requirements for Graduation

The general requirements for graduation include the element of quality as well as the quantity of work completed.

a. A student satisfies the College qualitative requirement for graduation by earning a minimum grade-point average of C, or 2.0, in all college work attempted, all college work undertaken at The University of Iowa, and all work attempted in the major field including 2.0 in all U of I major work.

b. Students who do not meet the requirements in (a) but who do have a cumulative grade-point average of at least 1.8 in all college work attempted, on all work attempted at The University of Iowa, and an overall C average in the major including 2.0 in all U of I major work may satisfy the requirement by earning sufficient grade points to equal or exceed a figure obtained by multiplying by two the number of hours required for graduation at time of entrance.
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2. Probation and Dismissal
   a. Students who fail to attain the following minimum cumulative grade-point averages at the end of each semester
      for the proper class are placed (or continue to be) on scholastic probation:

      | Class              | Grade-Point Average
      |--------------------|---------------------|
      | Freshmen and unclassified | 1.5                |
      | Sophomores          | 1.6                |
      | Juniors             | 1.7                |
      | Seniors             | 1.8                |

   Students on probation whose cumulative grade-point average (U of I and overall) equal or exceed theminimum grade-point averages listed in paragraph a, above for the four classes are restored to good standing. Students are removed from probation only at the end of a semester or upon completion of courses in any one semester. Grades of D or F shall be dropped from the College for poor scholarship as follows:

   (1) Those admitted on probation: at the close of one semester or term.
   (2) Those admitted in good standing and who were placed on probation at the close of the first semester of their enrollment: after one semester on probation.

   (3) Those of upperclass standing: after two semesters on probation. However, very poor work in any semester may result in dismissal at the close of that semester.

   d. Under special and unusual conditions, students may be granted an additional semester on probation. Petitions should be addressed to the Chairman of the Adjustment Committee, Advisory Office, 119 Schofield Hall. Students who are dropped for poor scholarship at the close of the second semester (in June) will have their cases reviewed at their request if they enroll in the summer session in the College and obtain good standing at the close of the session.

   e. A student dropped from the College for poor scholarship may petition the Advisory Office for permission to register after an interval of one academic year. The petition must present evidence that the student has engaged in work which indicates improved chances of success in college work. A student approved under the provisions of this paragraph will be registered on "strict probation" and may be dropped at any time if his work is unsatisfactory. A student dropped for the second time for poor scholarship may not petition for registration for a period of at least five years. After five years the student may petition the Advisory Office for readmission.

   f. The Advisory Office of the College reviews the scholarship standing of students. A record of each student’s performance is kept by the Registrar, and all records of students who do not meet the minimum academic requirements listed in this section are presented to the Advisory Office for appropriate action. Students placed on probation or dismissed from the College are notified by the Dean in writing, and copies of such notices are sent to parents or guardians of all unmarried students who are under twenty-one years of age.

GRADUATION REQUIREMENTS

A total of 124 semester hours of credit is required for students entering as freshmen, a minimum of 93 for students transferring at the close of the freshman year, a minimum of 60 for students transferring at the close of the sophomore year, and a minimum of 30 for students transferring at the close of the junior year. A year’s work is considered to be a minimum of 30 semester hours. The minimum requirement of credits earned in residence is either the final 30 consecutive semester hours, or 45 of the last 60 semester hours.

The Basic Program

The curriculum of the College of Liberal Arts requires that before graduation all students meet acceptable standards of performance in the following:

Basic skills
   Rhetoric (reading, writing, speaking)
   Physical education
   Mathematics
   Core courses (Literature, Social Science, Natural Science, Historical-Cultural)
   Foreign language
   Area of concentration (including work in the major field and such courses in related fields as are advised by the major department)

Students must consult the Liberal Arts Advisory Office for detailed information about course requirements for the Bachelor of General Studies (B.G.S.) program of study.

The Freshman Program

The subjects of study included in the program of a freshman student differ according to his accomplishments in the basic skills and foreign language tests. If he is not excused from any of the basic skills or from foreign language, on the basis of test results, his freshman program may be somewhat as follows:

   Rhetoric 10:1 4 semester hours
   Physical Education 10:21 2 semester hours
   or
   Physical Education 10:31 2 semester hours
   German 12:11 3 semester hours
   (or any language of his choice)
   Western Civilization 11:31 4 semester hours
   (or any core course of his choice other than literature)
   Elective 3 semester hours

Total 16 semester hours

If he is excused from all skills courses on the basis of test results, his freshman program may be as follows:

   French 9:1 4 semester hours
   Literature Core 11:5 or 11:7 4 semester hours
   Life Science 11:21 4 semester hours
   Religion 11:32 4 semester hours

Total 16 semester hours

The possible variations of the freshman program are many, though the student must include any courses needed to meet his basic skills requirements, and it is well for him to include at least one core course.

Methods by Which Requirements May Be Satisfied

1. Rhetoric Program
   All students. Must register at their initial
enrollment for rhetoric as assigned on the Admission Statement and continue to enroll each semester until the proficiency tests are passed. Students assigned to 10.3 Rhetoric may attempt the essay and speech tests before taking the course, but must enroll for 10.3 until they learn the results of the tests. By satisfactorily passing these tests, a student can earn up to 4 semester hours of credit.

Transfer students. By submitting at the time of entrance an 8 semester hour course from another institution, comparable to the rhetoric course at The University of Iowa; or by transferring 6 semester hours of credit in English composition and 2 semester hours of credit in speech from another institution of good standing; or by transferring 6 semester hours in English Compositics and either completing 2 semester hours of credit in speech (36.25) at this University or satisfactorily passing the speech test for transfer students. A student who transfers less than 6 semester hours in composition must register for the rhetoric course indicated on his Admission Statement and continue until the requirement is satisfied. A maximum of 8 semester hours of credit in the Rhetoric Program will be counted toward the bachelor's degree.

2. Physical Education Skills
All students. By satisfactorily completing during the freshman year 4 semester hours of physical education skills.

By passing the comprehensive test in physical education skills. This test is given each semester at announced times during the closing weeks of the term. Any student, whether or not he is registered for the course in physical education skills, is eligible to take the test. Up to 4 semester hours of credit with a grade of "P" may be awarded for successful completion of the test.

Freshmen who elect to meet the requirements by examination, but who fail to pass, must register for physical education skills for at least one semester before repeating the examination. Students who have not passed the test or met the requirements before the beginning of the sophomore year must register for the course during the sophomore year. Students who wish to do so may take the sophomore course for zero credit.

Veterans. By presenting to the Office of the Registrar official evidence of having completed the basic training program in some branch of the armed forces.

Transfer students. By transferring 40 semester hours of advanced standing.

By transferring 4 semester hours (or the equivalent) of college physical education. By transferring 2 semester hours (or the equivalent) of college physical education, and satisfactorily completing the appropriate 2 semester hour course at U of I in physical education skills. A maximum of 4 semester hours in physical education skills will be counted toward the bachelor's degree. Students who have passed their twenty-third birthdays prior to admission are excused from the physical education skills requirement.

3. Mathematics
By presenting at least two and one-half units of high school mathematics exclusive of such courses as business arithmetic and consumer mathematics.

By satisfactory accomplishment in the placement test in mathematics.

By satisfactorily completing a college-level course in mathematics as defined by the Department of Mathematics.

4. Historical-Cultural, Natural Science, Social Science, and Literature Core Requirements
All students. By satisfactorily completing in each of the four areas one of the 8 semester hour core courses offered in the area, except that students may, with the approval of the department, be excused from the core requirement in the area of the major; or 8 or more semester hours of approved courses in departments in each area where such courses are offered; or one of the comprehensive examinations offered in each area. Literature core courses may not be taken until the Rhetoric Program requirements are satisfied. Offered for fulfilling core requirements and for college credit are the General Examinations of the Undergraduate Examination Program. Three tests are included, covering humanities, natural science, and social science. Permission to take the tests (administered by the University examination service) must be secured from the Liberal Arts Advisory Office, 116 Schaeffer Hall. Information regarding specific student eligibility for the tests may be had by consulting this office.

Additional options for transfer students. Historical-Cultural, natural science, and social science courses: by submitting at the time of entrance from another institution an 8 semester hour course comparable to the corresponding core course at The University of Iowa; or by submitting at the time of entrance, or in combination with courses at The University of Iowa, a total of 8 or more semester hours in each core area from among the following: Historical-Cultural—history, philosophy, religion, and history and appreciation of art, music, or drama.

Natural Sciences—astronomy, microbiology, botany, chemistry, geology, mathematics, physics, physiology, and zoology.

Social Sciences—economics, geography, political science, psychology, sociology, and anthropology.

Literature—by submitting at the time of entrance...
COLLEGE OF LIBERAL ARTS

6 semester hours of college credit in literature from another institution or by submitting 3 semester hours of college credit in literature from another institution and completing 4 semester hours in a literature course in this University. Students transferring less than 3 semester hours must complete one of the 8 semester hour courses in the literature core area.

5. Foreign Languages

Candidates for the Bachelor of Arts degree are to complete a minimum of 4 semesters of college-level study in any one of the foreign languages taught in the University or in another college or university of recognized standing. Their requirement may also be satisfied by:

Completion of 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 at the college level. A student who has completed two years of high school language study and who elects the beginning course in the same language in college will have 4 hours added to his graduation requirements.

Satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained in four semesters of college study in one language.

Candidates for the Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science degrees must complete a minimum of 8 semester hours of approved college-level study in a foreign language. Their requirement may be satisfied by:

Completion of a combination of high school and college study in one language which would be the equivalent of 8 semester hours of study at the college level.

Satisfactory performance in an achievement test measuring proficiency equivalent to that usually attained after one year of college study of a foreign language.

6. Area of Concentration or Major

The head of the department or chairman of the area in which the student wishes to concentrate his studies specifies the requirements in this area. The requirements for the major are stated in connection with the departmental announcements in this Catalog. However, the student should always confer with the head of the department or his appointed representative in outlining plans for a major.

Students who have attempted 60 or more semester hours of courses normally will not be permitted to register as prebusiness students and may do so only with approval of the Dean of the College of Business Administration.

Maximum credit in one department. Not more than 50 semester hours of credit may be earned in one department of study and applied toward the B.A. or B.S. degrees from the College of Liberal Arts.

Maximum student load. Eight semesters or four academic years is the time normally required for the completion of a program leading to the bachelor's degree from the College of Liberal Arts. The normal schedule for the semester is 18 semester hours. When special circumstances warrant, the student may wish to carry as many as 19 semester hours including all work offered for credit. If he exceeds the maximum of 19 semester hours without the permission of the Advising Office, he will be required to earn one extra semester hour for graduation for each semester hour of excess credit in his program.

Graduation honors. High scholastic achievement is recognized at graduation in two ways: graduation with distinction, based on grades only, and graduation with honors in a particular field, based upon both grades and the completion of special work as outlined by the College and the major department.

To be eligible for any form of graduation honors, the student must complete the final 60 semester hours in residence in the College of Liberal Arts at The University of Iowa, at least 65 semester hours of which must have been completed prior to the student's final registration.

The Office of the Registrar certifies to the Dean of the College the names of students eligible to graduate with distinction. The grade-point averages for graduation with distinction are as follows:

- Highest Distinction
- High Distinction
- Distinction

The grade-point average upon which graduation with distinction is determined includes all work undertaken prior to the opening of the final session. Transfer students must also have attained the required grade average on all work undertaken in the College of Liberal Arts at The University of Iowa. Students who enroll in a professional college at The University of Iowa to complete the final 30 semester hours of elective credit to meet degree requirements in the College of Liberal Arts are eligible for the designation "graduation with distinction" as follows:

a. upon the conferring of a bachelor's degree with a grade average as above, and
b. provided at least 60 semester hours prior to enrollment in the professional college have been completed in the College of Liberal Arts at The University of Iowa.

The Director of Honors certifies to the Dean of the College the names of graduating students eligible to graduate with honors. To be eligible for graduation with honors the student must be recommended by his major department and be approved by the Honors Council and the Dean of the College.
The appropriate designation, or designations, are placed upon the student’s permanent record in the Office of the Registrar and upon the student’s transcript.

ADMINISTRATIVE STAFF
Dean: Dewey Bernard Stitt. Associate Dean and Director, Advising Office: Hugh Hall.
Assistant Dean: James P. Sandrock.
Director of Honors: Rhodes Dunlap.
Associate Director of Honors: J. Richard Wilneth.

BASIC SKILLS
The Rhetoric Program
Coordinator, Richard Braaddock
Office, English-Philosophy Building
Speech Supervisor, Donovan J. Ochs

STAFF
Professor: Richard Braaddock.
Associate Professor: William G. Clark.
Assistant Professor: James J. Brades, Margaret B. McPhail.

10:1 Rhetoric: Main Course
Institution to reading, writing, and speaking.
4.0 h.

10:5 Rhetoric: Honors Course
Continuation of 10:1.
4.0 h.

10:3 Rhetoric: Accelerated Course
An intensive, one-semester course in reading, writing, and speaking for students who wish to complete the requirement in one semester.
2.0 h.

10:9 Rhetoric: Special Instruction in Writing
For students who are requested by the Rhetoric Program to obtain special help to improve their writing. The Rhetoric Program maintains a Writing Laboratory where students may obtain individual help with their writing problems, a Reading Laboratory where students may secure help in improving their reading speed and comprehension, and a Speech Laboratory where students may obtain individual help with their speaking problem. Instruction is all three laboratories is offered on a voluntary, no-credit basis.
2.0 h.

Physical Education Skills
Course Chairman, Donald R. Cassady
Office, 125 South House

10:21 Physical Education Skills for Men 1 to 2.0 h.
Scientific foundations of physical education activities and intensive training in sports skills, carry-over sports activities, conditioning, and physical fitness. Participation in recreational activities, and physical conditioning. Students who are unable to satisfy a previous problem test battery in sports skills and physical fitness.
10:22 Physical Education Skills for Men 1 to 2.0 h.
Open only to sophomores who have not satisfied the requirement in Physical Education Skills and who elect to take physical education without credit.
10:23 Physical Education Skills for Men 0 to 2.0 h.

10:24 Physical Education Skills for Men 0 to 2.0 h.
Continuation of 10:23.
10:25 Physical Education Skills for Men 1.0 h.
Open by permission only.
10:26 Physical Education Skills for Men 1.0 h.
Open by permission only.

Course Chairman, M. Gladys Scott
Office, 114 Women’s Gymnasium
10:31 Physical Education Skills for Women 2.0 h.
Intensive work in selected activities from the areas of sports, dance, aquatic, and gymnastics. Emphasis on movement principles.
10:32 Physical Education Skills for Women 2.0 h.
Continuation of 10:31.
10:33 Physical Education Skills for Women 2.0 h.
For first semester sophomore students electing to take physical education without credit.
10:34 Physical Education Skills for Women 2.0 h.
For second semester sophomore students electing to take physical education without credit.
10:35 Physical Education Skills for Women 1.0 h.
Open by permission only.

CORE COURSES
Except where noted, both semesters of a course must be completed if it is taken to satisfy the core course requirement of the College of Liberal Arts. Exceptions are made for transfer students who will only take one semester of a course to fulfill a requirement. Students who have completed requirements in one area may take its core course as on-semester electives.

Literature
Course Chairman, John Huntley
Office, 305 English-Philosophy Building
The core requirement in literature may be satisfied by taking 111, the basic course, and following it with one of the second-semester alternatives. Writing ability as required by the Rhetoric Program is a prerequisite. English majors are exempt from core literature. Others wishing to fulfill the requirement by examination should contact the Liberal Arts Advising Office. Core courses in literature may also be taken for elective credit. Most sections meet three times a week for discussion, and it is advisable to select a section which best fits your schedule.

11:1 The Interpretation of Literature 4.0 h.
The interpretive strategies available to readers of poetry, narrative, and drama, with direct consideration of film as a literary medium.
11:3 Biblical and Classical Literature 4.0 h.
Selections from Old and New Testament literature, Homer, the Greek dramatists, Plato, Virgil, and others.
11:3 Medieval and Renaissance Literature 4.0 h.
Selections from Beowulf, Dante, Chaucer, Shakespeare, and Milton, and others.
11:4 The Tragic Experience 4.0 h.
Major representations of the tragic vision of man’s experi- ence in narrative prose and drama from classical times to the present.
II:15 The Idea of Comedy 4 s.h.
Varieties of the comic idea past and present, including satire, farce, romance, in prose and verse.

II:16 Narrative Literature 4 s.h.
Selected masterpieces as well as recent developments in both fiction and prose.

II:17 Lyric Poetry 4 s.h.
Poetry from major periods of development as well as contemporary work, with emphasis on the distinctive language and major formal patterns of poetry.

II:18 Dramatic Literature 4 s.h.
Selected plays from Shakespeare's time to the present with some consideration of the dramatic motive and form in other genres.

Social Science
Courses in anthropology, economics, geography, political science, psychology, and sociology which will satisfy the social sciences core requirement are listed in the Schedule of Courses.

Natural Sciences
Life Science
Course Chairman, 11:21
Richard D. Bjolund (fall)
Office, 222 Chemistry-Botany Building
Robert W. Crusden (spring)
Office, 506 Chemistry-Botany Building
Course Chairman, 11:22
Barbara A. Snow (fall)
Office, 317 Zoology-Annex Building
Richard V. Rovbjerg (spring)
Office, 224 Zoology Building

II:21 Life Science (first half) 4 s.h.
General principles of structure, function, and evolution of living organisms from molecular to population level. Stress on those principles common to all living things, including Man. Primarily for non-sciences majors. Lecture, laboratory, and discussion. Two-semester sequence may be started in fall or in spring.

II:22 Life Science (second half) 4 s.h.

Earth History and Resources
Course Chairman, Holmoe A. Sennken
Office, 106C Calvin Hall

II:33 Earth History and Resources 4 s.h.

II:34 Earth History and Resources 4 s.h.

Ancient and modern environments on and within the earth and the processes by which they evolved. Evolution of organisms, and man's current use and release of present environments. Either semester may be taken independently of the other.

Historical and Cultural Studies
Course Chairman, James Kittelson (11:31, 11:32)
Office, 206 Schaeffer Hall

II:31 Western Civilization 4 s.h.
Middle Ages to 1815

II:32 Western Civilization 4 s.h.
1815 to Present

The evolution of Western civilization with emphasis on the impact of Europe in relation to the problems of our own time.

Course Chairman
Frank Snare (11:33)
Laird G. Addis (11:34)
Office, 269 English-Philosophy Building

II:33 Philosophies of Man (first semester) 4 s.h.
Some major philosophical theories of man and society

II:34 Philosophies of Man (second semester) 4 s.h.
A philosophical consideration of the impact of key developments in scientific thought on man's conception of himself.

Course Chairman, George W. Forell (11:35, 11:36)
Office, 207 Gilmore Hall

II:35 Religion in Human Culture (first semester) 4 s.h.
Religions in human culture illustrated by examples from pre-Chinese non-Western cultures, historical and systematic study of Hinduism, Buddhism, Islam, Judaism, and Christianity.

II:36 Religion in Human Culture (second semester) 4 s.h.
Interrelationships between religions and culture; relation between religion and science, arts and sciences, religion and politics, religion and ethics, etc. Illustrations chiefly from Western culture. Three lectures and two discussion sections per week. Open to freshmen.

Course Chairman, Robert Alexander (11:37, 11:38)
Office, W142 Art Building

II:37 History and Appreciation of Art 4 s.h.
II:38 History and Appreciation of Art 4 s.h.
Periods, styles, and great personalities in painting, sculpture, and architecture throughout human history. Elements of theory of art and art criticism. Either half may be taken first. Four two-hour lectures and one discussion section.

Course Chairman, Eldon Obrecht (11:39, 11:40)
Office, 10 Music Studio Building

II:39 Masterpieces of Music 4 s.h.
II:40 Masterpieces of Music 4 s.h.
Representative music from the classical repertory of the 18th, 19th, and 20th centuries illustrated through recordings and in programs by faculty, students, and groups, supplemented by lecture-commentary by informed outside readings and reports. Either half may be taken first.

Course Chairman, Paul Gillispe (11:51, 11:52)
Office, 234 Jesup Hall

II:51 Drama in Western Culture 4 s.h.
AMERICAN CIVILIZATION

Computation of two successful long papers which demonstrate command of methods and materials.

For requirements for the Doctor of Philosophy degree in American Civilization:

Course Work and Independent Study. Through a balanced and integrated program of courses and readings, the Ph.D. candidate will develop broad survey knowledge at the master's level in a depth of understanding of the literature of the United States (together with their European backgrounds, and including English Literature). The student will also be responsible for knowledge of any subject his thesis committee thinks relevant for the completion of his dissertation.

Qualification. Before being admitted to candidacy for the degree, the student must demonstrate his training and ability.

Comprehensive Examinations. Since American civilization is too broad a subject to be mastered completely, each student must offer three approved fields for the written part of the comprehensive examination. These will include all of American literature, one field of American history, and one departmental field involving a further discipline. A wide range of objects is possible for this third field, depending upon the student's major interest in the field. The written part of the comprehensive examination is a written examination of three hours each in each field.

In addition, on the oral part of the examination the candidate must demonstrate an acceptable oral command of the total culture of one of the following periods: American Colonial Civilization to 1783 American Civilization 1783-1865 American Civilization 1865-1898 American Civilization 1898-1914

The student must present a satisfactory thesis on a topic which concerns in some way one of the above fields. Before the student is approved, the student must explain his project to a committee and convince it that the topic is one which can be successfully completed.

Final Oral Examination. This examination will be conducted in the student's approval by a committee representing all of the points of view that are required by the student's comprehensive examination.

STAFF

Among the faculty members participating in the American Civilization Program are Professors Baedeker, Caryn, Gerber, Miller, Poe, and Whicker (English); Dykstra, Gellard, Zaboly, James, Mrazek, Popescu, Reber, and Winkler (History); Alexander, Cutter, Sellier (Art); McCarty (Geography); Addo, Bergstrom, Bergstrom (Philosophy); G. Boynton, Davu, Johnson, Schubert, Van Dyke (Political Science); Anderson, Gerson, Vinyl, G. England (Anthropology); Claiborne (Sociology); Deady (Ethnology); Becker (Economics) and Utermohlen (Business Administration).

COURSE DESCRIPTIONS

Primarily for Undergraduates

45:1 American Man and His Civilization 3 A.H. History, thought, institutions, and characteristic expression of American life. Open to freshmen.

45:10 Black Revolution and Its Land-ship 3 A.H.

45:12 Contemporary Black Experience 3 A.H.
45:50 Senior Colloquium  2 s.h.
Exploration of the total culture of an era in historical perspective by applying the disciplines of history, literature, art, philosophy, and the social sciences.

45:97 Honors Colloquium  cr.arr.

45:94 Honors Project  cr.arr.

For Undergraduates and Graduates

45:110 Technology and Responsibility  3 s.h.
Same as Civil Engineering 31:110.

45:115 Afro-American Literature  3 s.h.
Same as English 8:315.

45:150 Individual Rights in an Industrial Society  3 s.h.
Same as Business Administration 65:150.

45:152 American Folk Literature  3 s.h.

45:155 Significant Books in American Civilization I  3 s.h.
Same as English 8:155.

45:156 Significant Books in American Civilization II  3 s.h.
Same as English 8:156.

45:191 Introduction to American Civilization  3 s.h.

45:192 The Frontier and Urbanization  3 s.h.

45:197 The American Renaissance  3 s.h.

45:194 American Civilization in the 1920's  3 s.h.

45:195 American Civilization in the 30's and 40's  3 s.h.

45:196 American Civilization Since 1950  3 s.h.

45:197 Interpretations of American Civilization  3 s.h.

Primarily for Graduates

45:200 Seminar: Problems in American Civilization  cr.arr.
Selected topics studied in depth. May be repeated, prerequisite, consent of instructor.

45:201 Special Studies in American Civilization  cr.arr.

45:210 Culture of Black America: An Interdisciplinary Approach  4 s.h.

45:211 Research in Afro-American Culture  cr.arr.

45:212 Africans in the New World  3 s.h.

45:361 Human Rights and World Order  3 or 4 s.h.
Same as Political Science 30:361. and Journalism 19:360.

45:366 American Criticism and Culture  3 s.h.

45:466 Seminar: American Criticism and Culture  cr.arr.
Same as English 8:466.

45:457 Social Factors in American Literature  cr.arr.
Same as English 8:457.

45:500 Special Project: Graduate  cr.arr.

45:595 Ph.D. Thesis  cr.arr.

ANTHROPOLOGY

Chairman of Department, Nancie L. González
Office, 130 Machteck Hall
Students majoring in anthropology must take a minimum of 25 semester hours of courses. The following courses are required of all majors:

113:10 Introduction to the Study of Culture and Society  4 s.h.
113:11 Introduction to Archaeology and Physical Anthropology  4 s.h.

In addition, each student must take a minimum of one course in archaeology, one course in ethnology, and one course in social anthropology. The remaining hours are to be selected in consultation with the advisor. Related courses in allied fields such as sociology, linguistics, psychology, physiology, and zoology may be recommended by the advisor in consultation with the student.

Hons in Anthropology
Admission. A student must have and maintain a cumulative grade-point average of 3.0 in all courses and a 3.5 in anthropology courses, be admitted to and maintained in the honors program in anthropology. A student may not be admitted to the program beyond the beginning of his senior year.

In addition to the requirements listed for the major in anthropology, a student must take:

113:90 Honors Seminar in Anthropology  2 s.h.
113:97 Honors Research  4 s.h.

Three 4-semester hours are in addition to the 25 semester hours required for a major in anthropology.

The Graduate Program

To enter and to remain (after 25 semester hours) in the graduate program in anthropology, a grade-point average of 3.0 is required. Also, access to the Graduate Record Examination Admission Applicants may be made, with the Graduate School's decision to admit to be made. The advanced GRE test in anthropology is not required or recommended.

The department offers the M.A. degree in anthropology with or without thesis and in cooperation with the Department of Linguistics, the Ph.D. in cultural anthropology and linguistics.

Note: A Ph.D. program in anthropology has been established in the Graduate Council and may be available for student registrations after 1970, pending final approval of Regents approval.

Applicants may enter the anthropology graduate program with either a Bachelor of Arts degree or with a Bachelor of Science degree. Those with a Bachelor of Arts degree may enter without the qualifying examination (see below) with distinction by passing the bachelor's degree and obtaining a grade of A in anthropology when that program has been approved. The qualifying examination is usually taken at the end of the second semester in residence.

The M.A. degree covers either one of two primary purposes. The first, with master's thesis, is preparatory to the Ph.D. in anthropology, at home or elsewhere. The second, without thesis, is a limited professional degree having the value and importance associated with the completion of an academic program generally not involving continuing independent research. This program is general in nature, equipping one to deal with any aspect of anthropology at an introductory level. Although, course choices are one of the traditional subjects of anthropology for special emphasis or concentration, further specialization is neither expected nor encouraged for the M.A.
There are two programs which lead to the Master of Arts degree in anthropology: a 28 to 32 semester hour program plus a master's thesis which will count from two to eight semester hours and for which the student will register in addition to the 28 to 32 semester hour thesis specified, and a 28 to 36 semester hour program without a thesis. The latter program is considered a terminal degree and ordinarily will preclude the student from consideration for candidacy for the Ph.D.

A candidate for the M.A. who enters the program without prior coursework in anthropology will take a minimum of 30 semester hours of coursework or 36 semester hours in anthropology according to which M.A. program he elects. For the candidates who enter with a B.A. in anthropology or other substantial background in the field, the exact number of required semester hours of coursework (no less than 22 semester hours or 24 semester hours, respectively) will be set by the student's advisor in consultation with the student and the faculty. In no case will the student enroll in less than 30 semester hours required by the M.A. program.

In either M.A. program the candidate must pass the qualifying examination in anthropology. This is comprised of two parts: a general examination, over all aspects of anthropology, both biological and cultural, and an "area of concentration" examination, either in social anthropology or in linguistics. The qualifying examination is given three times a year. In addition, a final oral examination may be required.

Requirements for either M.A. program include an approved course in statistics or methods and two courses in linguistics, one of which may be 335-240 Language and Culture. A student without a B.A. degree in anthropology must also take a minimum of two courses in social anthropology, two courses in ethnology, and two courses in archaeology.

Doctor of Philosophy Degree in Cultural Anthropology and Linguistics

Program Advisers
Judy Helm and Edward L. Kosowski
Office, 1021 Washburne Hall
Robert Howren
Office, 546 English-Philosophy Building

The Ph.D. program in cultural anthropology and linguistics is designed to prepare the professional anthropologist and linguist and research in the linguistic and sociolinguistic aspects of anthropology. The principal emphasis is the relationship between them. The program consists of three years of academic work, requiring a thesis and minor in an additional area of concentration, and in most cases, a period of field work. The student is expected to demonstrate an acceptable proficiency in a language other than his native language. In the case of the program the student must demonstrate competence in at least one research tool (another language, computer programming, etc.), pass a comprehensive examination in cultural anthropology, linguistics, and ethnomethodology and successfully complete a dissertation. Courses in linguistics required in the program are 335-240 Language and Culture, 335-219 Methodology and 335-300 Survey of Current Research in Linguistics, and a course in comparative linguistics or historical linguistics. Basic courses required in anthropology are three semester hours in the field of bioanthropology, ethnology, prehistory, and sociocultural history, theory, or research methods. Anthropology, three semester hours of an additional course in the field of specialization, dealing in social institutions, and three semester hours of an ethnographic area course. 113-240 Language and Culture/Linguistics 113-228, and 113-277 Ethnographic Theory/Linguistics 113-230, are required as interdisciplinary courses. By student option or to meet the requirements set by staff evaluation and course, the student shall take additional semester hours in linguistics and/or cultural anthropology to complete a minimum of three years of graduate academic work. A student in the program shall not have taken an undergraduate major in either anthropology or linguistics. Unless a student has taken the undergraduate equivalent, 126-290 Introduction to Graduate Study in Linguistics and 113-240 General Anthropology must be made up as deficiencies. A student in the program may take the M.A. degree in either anthropology or linguistics before proceeding to the joint Ph.D. Previous work in one of the two disciplines will not be credited toward fulfillment of the course requirements in the joint Ph.D. program.

STAFF

Professors: Nancy L. Gonzalez, June Helm, Associate Professor: Thomas H. Charlton, Harvey E. Goldberg, Marshall R. McCurry.


Lecturer: Adrian D. Anderson.

COURSE DESCRIPTIONS

Anthropology

For Undergraduates Only

113:3 Introduction to the Study of Culture and Society 4 s.h.

The comparative study of culture and social organization. This course may be taken in partial fulfillment of the social science core requirement.

113:10 The World's Peoples: An Ethnographic Survey 4 s.h.

Anthropological studies of community life around the world, systems of belief and action by which different peoples live. Anthropological literature and ethnographic films on the Americas, Africa, Europe, and Oceania. This course may be taken in partial fulfillment of the social sciences core requirement.

113:11 Introduction to Archaeology and Physical Anthropology 4 s.h.

Origins and development of man and society from the earliest period of archaeological excavations. Introduction to osteological and cultural remains. Selected theoretical and methodological issues. Prerequisites, senior standing and consent of instructor.

113:35 Individual Study 1 to 3 s.h.

Supervised reading in areas special need or of interest to the student in which the student has had a basic course.

113:90 Honors Seminar: Anthropology 2 s.h.

Seminars of special interest to undergraduate academic records. Selected theoretical and methodological issues. Prerequisites, senior standing and consent of instructor. May be repeated.

Advanced Courses

General Anthropology

113:101 General Anthropology 3 s.h.

Human evolution, prehistory, and race. The major institutions and arts of man as evidenced in prehistoric societies. Primary is for nonsciences with advanced standing. Not open to students having 113:70.

113:146 History of Anthropology 2 or 3 s.h.

Lectures and seminars on the development of anthropology and the relation of the field to other disciplines, including history. This course surveys the history of anthropological thought and the development of anthropological theory and method. It also highlights the course of scientific inquiry, and the principal contributions of the discipline to the ongoing debate about humankind.

Prerequisites: 113:240 or consent of instructor.

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ANTHROPOLOGY

113:201 Advanced Survey of Anthropology 2 or 3 a.h.
Selected aspects of anthropological theory, problems, concepts, and representative thinkers as seen in the contexts of Western sociology and of the social organization of practitioners. For seniors and graduate students.

Social Anthropology

113:140 Social Anthropology 2 or 3 a.h.
Processes of culture and social phenomena as seen through comparative study of middle-class societies and cultures. Prerequisites: 113:120 or 113:121.

113:141 Economic Anthropology 2 a.h.
Anomie and patterns, i.e., the ways in which people relate to one another in the processes of production, distribution, and consumption, their significance and development for analyzing peoples and rural populations in contemporary society.

113:143 Anthropology of Religion 2 a.h.
Religious activity in folk and tribal societies. Focus upon religious thought, myth, ritual, and symbol systems, and upon the application of theories of the origin and function of religion in human affairs. Prerequisites: 113:120 or 113:121 or consent of instructor.

113:143 Cultural Change 2 or 3 a.h.
Historical development of this aspect of cultural anthropology; main emphasis on examination of conceptual schemes currently used to describe and analyze culture change. Case studies from non-Western peoples. Prerequisites: 113:3 or 113:121 or consent of instructor.

113:145 Language and Culture 2 a.h.
Human behavior in its communicative aspects. Language and thought, speech as an e-met, communication networks, language classification, role of language in communication, etc. Prerequisites: consent of instructor.

113:149, 149-L, Compensatory Courses 2 or 3 a.h.
Seminar. Problems and concepts involved in communicating and coordinating behavior, institutions, and ideas of different cultures. For advanced students. Consent of the instructor required. The course content will vary from time to time. It is hoped that the problem of native American culture with its interrelationships, the course content will have an impact on the student's ability to understand and judge the significance of cultural change as it occurs. Prerequisite: 113:144 or 113:149, and 113:140.

113:150 Culture and Personality 2 a.h.
Relationships of cultural and psychological variables in understanding behavior. Cross-cultural differences and similarities in personality and socialization. Same as Sociology 24:196. Prerequisites: 113:3 or 113:121 or Sociology 24:196.

113:151 Social Problems of Underdeveloped Areas 2 a.h.
Economic development as a sociological problem. Social institutions and social organization of underdeveloped areas; social change and the consequences of industrialization and modernization in underdeveloped areas. Same as Sociology 24:191. Prerequisites, an introductory course in sociology, intermediate anthropology and junior standing.

113:150 Primitive Art 2 a.h.
Theories and interpretations of primitive art connotating the archaic art of the New World. The materials and artifacts are related to current problems of interpretation in archaeology and ethnology.

113:201 Seminar: Anthropological Theory 2 a.h.
An examination of the development of modern cultural anthropology and the consequences thereof. Emphasized by a detailed study of the body of work of major figures in 20th century anthropology.

113:202 Methods and Procedures in Anthropological Field Work 3 a.h.
Practical methods and techniques to study cultural phenomena. Prerequisites: 113:201.

113:204 Methods and Procedures in Anthropological Data Analysis 3 a.h.
Practical techniques for analyzing field data and literary materials including HRAP Files.

113:205 Seminar: Political Anthropology 2 to 4 a.h.
Perspectives on contemporary political systems: indigenous and political conflict; political movements; problems of authority and legitimacy.

113:308, 309 Seminar: Complex Societies 3 a.h.
May be taken twice with different instructors.

Ethnology

113:110 The American Indians 3 a.h.
History and culture. Emphasis on North America. Prerequisites: 113:3 or 113:121.

111:111 Indians of the Woodlands and Plains 3 a.h.
Description under Archaeology.

113:114 Spanish Speaking Peoples of the U.S. 3 a.h.
Social and cultural history of Spanish-Americans, Mexican-Americans, Puerto Ricans, and Cuban population components. Emphasis will be on contemporary problems of plural society.

113:115 Native Peoples of South America 3 a.h.
Indigenous peoples of South America and Caribbean area; pre-colonial life. Prerequisites: 113:3 or 113:121.

113:116 Native Peoples of Middle America 3 a.h.
Aboriginal people of Middle America; pre-colonial life. Prerequisites: 113:3 or 113:121.

113:117 Social Structure of Latin America 3 a.h.
Features which distinguish the socially and political systems of Latin America from other areas of the world. The forces that have contributed to the development of these areas and the nature of the political, economic, and social institutions that have developed. Prerequisites: 113:3 or 113:121.

113:118 Social Anthropology of the Caribbean 3 a.h.
Historical background and other factors leading to the contemporary social and cultural situation in the Lesser Antilles and Caribbean region. Emphasis on Afro-American population and cultural components.

113:119 Urban Anthropology 3 a.h.
The development and role of the city in pre-industrial society, processes of urbanization with special attention to the behavior of individuals and small groups in urban environments. Social emphasis will depend upon instructor.

113:130 Peoples of Africa 3 a.h.
Analysis and comparison of traditional African cultures and their development, and the forces which underlie the direction and rate of this development. Same as Sociology 24:128. Prerequisites: 113:3 or 113:121.

113:135 African Social Structure and Social Change 3 a.h.
Same as Sociology 24:128.
112:124 Peoples of North Africa and the Middle East 3 a.h.

112:125 Ethnology of Japan 3 a.h.

112:126 Comparative Prehistory 3 a.h.

112:127 The Greater Southwest 3 a.h.

112:128 Quaternary Geology and Anthropology 3 a.h.

112:129 Field Research in Archaeology 3 a.h.

112:130 Seminar: History of Archaeology 3 a.h.

112:131 Seminar: Historical Method and Theory 3 a.h.

112:132 Languages 3 a.h.

112:133 Ethnobiology 3 to 5 a.h.

112:134 Laboratory Methods in Archaeology 2 a.h.

112:135 High Civilizations of Mesoamerica and the Central Andes 3 a.h.

112:136 Prehistoric Races and Cultures of Europe, Asia, and Africa 3 a.h.

112:137 Ethnobiology Theory 2 to 5 a.h.

112:138 Research in Archaeology 3 a.h.

112:139 Thesis 3 a.h.

113:120 Anthropology 3 a.h.

113:121 Archaeology of the Woodlands and Plains 3 a.h.

113:122 Prehistoric and historic Indians of the Midwest region of North America 3 a.h.

113:123 Old World Prehistory 2 or 3 a.h.

113:124 New World Archaeology 3 a.h.

113:125 Laboratory Methods in Archaeology 2 a.h.

113:126 High Civilizations of Mesoamerica and the Central Andes 3 a.h.

113:127 Prehistoric and historic Indians of the Midwest region of North America 3 a.h.

113:128 Cultural development in the Old World and the New World. Emphasis on developments from pre-agricultural cultures to the appearance of civilizations in both areas. Areas of primary concern are Mesoamerica, the Central Andes, the Near East, Egypt, the Indus Valley, and China.

113:129 The Greater Southwest 3 a.h.

113:130 Presentation and discussion of the archaeology and ethnography of native cultures in the area northwest of Mexico. Special emphasis on ceramic technology and attempts to demonstrate probable routes of diffusion and migration from Mesoamerica to the Southwest. Prerequisite: 112:133, 112:134, 112:135, or 112:136.

113:131 Quaternary Geology and Anthropology 3 a.h.

113:132 Pleistocene stratigraphy, evolution, paleoecology, and problems of the classification of men from geological and anthropological perspectives. Selected readings from site reports. Same as Geology 123,75. Prerequisite, consent of instructor.

113:133 Field Research in Archaeology 3 a.h.

113:134 Seminar: History of Archaeology 3 a.h.

113:135 Seminar: Historical Method and Theory 3 a.h.

113:136 Presentation of techniques for the recovery of archaeological data and theories for their interpretation. Field trips and laboratory analysis required.

113:137 Language and Culture 3 a.h.

113:138 Ethnobiology 3 to 5 a.h.

113:139 Independent Study 3 a.h.

113:140 Research in Archaeology 3 a.h.

113:141 Thesis 3 a.h.

114:122 Prehistoric and historic Indians of the Midwest region of North America 3 a.h.

114:123 Old World Prehistory 2 or 3 a.h.

114:124 New World Archaeology 3 a.h.

114:125 Laboratory Methods in Archaeology 2 a.h.

114:126 High Civilizations of Mesoamerica and the Central Andes 3 a.h.

114:127 Ethnobiology 3 to 5 a.h.

114:128 Ethnobiology Theory 2 to 5 a.h.

114:129 Laboratory Methods in Archaeology 2 a.h.

114:130 High Civilizations of Mesoamerica and the Central Andes 3 a.h.

114:131 Current developments in the Old World and the New World. Emphasis on developments from pre-agricultural cultures to the appearance of civilizations in both areas. Areas of primary concern are Mesoamerica, the Central Andes, the Near East, Egypt, the Indus Valley, and China.

114:132 The Greater Southwest 3 a.h.

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114:138 Seminar: Historical Method and Theory 3 a.h.

114:139 Presentation of techniques for the recovery of archaeological data and theories for their interpretation. Field trips and laboratory analysis required.

114:139 Language and Culture 3 a.h.

114:140 Ethnobiology 3 to 5 a.h.

114:141 Independent Study 3 a.h.

114:142 Research in Archaeology 3 a.h.

114:143 Thesis 3 a.h.
2. State requirements for teacher certification as specified by the American Government. 3a,k

TP 75 Educational Psychology and 3 a,k

78:130 Introduction to Secondary School 3 a,k

78:195 Art Education-Stud. 2 a,k

12:286 Art Education Elementary 2 a,k

78:145 Methods of Elementary School Art 2 a,k

78:195 Methods of Secondary School Art 3 a,k

78:141 and 78:247 Art Conservation and Laboratory Practice (summer year, offered by extension). 2 a,k

3. Electives to complete the minimum 126 semester hours.

IV. suggested minor in art for non-art majors: 11:17, 11:28 History and Appreciation of Art (Core Courses) plus 2 semester hours of art history electives. 11 a,b

12:1 or 2 Elements of Art 2 a,b

12:20 Basic Design 2 a,b

12:28 Painting 2 a,b

12:55 Sculpture 2 a,b

12:58 Graphic 1 a,b

*This course also fulfills 3 semester hours of social science core.

Students must make application for student teaching in the spring of their junior year in order to be assured of an assignment asitters.

Graduate Program

1. Undergraduate prerequisites for graduate work in art.

1. Besides a degree from an accredited college or university, the entering graduate student is expected to have had the minimum coursework in art and art history equal to that of the B.A. in art at The University of Iowa, including advanced work in drawing and at least one other studio area. (See above in Undergraduate Program, 1.) Deficiencies in undergraduate art, if any, will be evaluated following admission, and necessary makeup assigned.

2. A makeup requirement does not preclude the student’s position as a graduate student, but will delay the degree up in the amount of time required to complete the necessary makeup.

3. A grade of C or better will be required in all courses taken as a graduate student, and upon application by the student, qualifying examinations may be taken in these courses. Satisfactory performance in these will obviate the necessity for the corresponding makeup.

2. Undergraduate prerequisites for graduate work in art history.

1. Besides a degree from an accredited college or university, the entering graduate student is expected to have had a minimum of 18 semester hours of coursework in art history and art conservation. Deficiencies in undergraduate art history, if any, will be evaluated following admission, and necessary makeup assigned.

2. A makeup requirement does not preclude the student’s position as a graduate student, but will delay the degree for the amount of time required to complete the necessary makeup, and will be in addition to the minimum semester hour requirement for advanced degree.

3. An alternative to course makeup, and upon application to the committee of the art history faculty, examinations may be taken to correct art history deficiencies.

III. Admission procedure.

1. Application forms for admission to the Graduate College must be submitted. Application forms and necessary information may be obtained from the Committee on Admissions, School of Art, or from the Director of Admissions, Office of Admissions and Records.

The Graduate Record Examination Aptitude Test is required and must be taken during the junior year in residence if not taken prior to registration.

2. Communication regarding program, course requirements, or aid should be addressed to the Director of the School, or to the appropriate colleges for students in their first year of graduate work at the University of Iowa.

3. Prospective majors in studio, in addition to slides or photographs of work in their area of major interest (or actual prints in the case of prints), should send to the Chairmen who supervise graduate students in their first year of graduate work at the University of Iowa.

4. Actual paintings, sculptures, or other works of art, except drawings or prints, are accepted only if students in residence or by special request of the School.

5. Prospective majors in art history should send to the committee on admissions a term paper, thesis, or other writing by them on an art historical subject.

6. Prospective majors in art education should send slides or photographs of studio work plus copies of published or unpublished papers on art or art education.

7. Submitted visual materials or written papers will be returned in this course, following review by the committee on admissions.

IV. Assistantships and Scholarships:

Assistantships paying approximately $500 for twenty hours of departmental duties weekly are awarded to graduate students on a competitive basis. Ordinarily these are granted to students whose performance and potential have been tested during their first year of graduate study at the University of Iowa. Exceptions may be made in favor of entering graduate students who are unusually well qualified. Assistantships at half the work time and pay are also available. Truants, generally paid by the assistant, but the award of an assistantship empowers the student to fulfill an in-state scholarship. Scholarships paying full or partial tuition and enrolling no obligation to the student as a background at least a minimum average of B. A few scholarships may be available for students.

V. Drawing requirements for new students in studio:

Graduate students who have not had drawing at the University of Iowa are required to take at least one course in life drawing during the first year. The instructor in drawing, upon seeing the quality of the student’s work, will recommend graduates for advanced work—which in his judgment will be of maximum benefit to the student.

VI. Master’s degree requirements for all degree candidates:

1. Degree candidates entering the graduate program without the M.A. from another institution will be expected to have the degree at the time of admission. In certain unusual circumstances a student may be chanced for work toward the M.A. without the M.A.

2. Degree candidates entering in M.A. in art from an accredited college or university will not be required to have the degree. If the student at the time of admission is not a student, he must be cleared for candidacy for a higher degree by faculty action. An history student in this category must take a comprehensive examination at the M.A. level before the end of their first year of residence. A studio student already having the M.A. must be approved by a staff committee of at least five faculty members, including his working professor, this may take place in January or May.
VII. The degree candidate's committee and direction of the graduate program:

1. During registration, the student's first-year program will be selected in consultation with the School's Director or his representative.

2. A student advisor who will later serve as chairman of the student's committee, is chosen by the student with that advisor's consent. This is generally done in the second or third semester of graduate work, or as soon as the student knows definitely in what area he desires to do his thesis, and proving his work is then considered to have a thesis potential.

3. Each graduate student major will be reviewed for clearance for M.A. candidacy at his option or at any of the three regularly scheduled clearance meetings, that is, in January, May, and September. The dean of the School may be held responsible for clearing those students who wish to graduate, if possible, in June.

4. The student must be cleared for candidacy for the M.A. degree at least two full semesters, or one semester and a summer session, prior to the beginning of the degree for the degree.

5. If the student is deferred he may come up for review only one more time, which may be at a clearance meeting of his choosing. If cleared at the second review, the student must still follow the regular procedure, that is, he may not receive the degree until two semesters, or a semes-

6. F. A. and summer session, following clearance.

7. Review of the student's M.A. committee may follow clearance.

8. Review of the M.F.A. candidacy will be held in January, May, and September. A student may be invited by his advisor to apply for review following acceptance of the M.A. thesis.

9. As in the case of the M.A. degree, two full semesters, or a semester and a summer session, must elapse between the clearance and the awarding of the M.A. degree.

10. If a student receiving the M.A. degree and leaves the University without having presented himself for clearance, he may re-enroll in the School at the time of his choice, but must be cleared for candidacy before he can be reviewed for M.F.A.

11. M.F.A. degree reviews are conducted by a standing faculty committee which includes the dean of the School with whom he has had the most work.

12. Following review, the standing faculty committee follows clearance.

13. Controversies arising from the review may be referred to the graduate director or the candidate and five members of the School's faculty. This group has the responsibility of reviewing the candidate's progress periodically, advising with regard to the extent of his progress, of revising his degree examinations, and of making a final decision about his readiness for the degree.

14. Deadlines for summer students, insofar as possible, are made commensurate with those es-

VIII. Plan of Study:

Following consultation with his advisor, every graduate degree candidate submits a plan of study with the Graduate College during the semester of his graduation. This plan lists all courses which will count for credit toward the degree. In the case of the Ph.D. candidate the plan must be filed before the comprehensive examination.

IX. Thesis:

1. Majors in studio must submit a thesis of selected studio work. The thesis must be written before graduation, and may be a brief statement by the student of his technical, aesthetic, and/or psycho-

logical approach, unless he is assigned an art history, in technical subject by his advisor. Content, if technical, will be supervised by the studio advisor and if historical, by an art historian. Studio students doing written theses on art his-
torical or technical subjects are exempted from a written paper in the art history seminar.

2. Majors in studio, in consultation with both their thesis advisors, may take 111.099 Individual In-

struction and 33-288 Written Thesis each amount of one semester hour each for their studio and written thesis. Such credits are re-
garded as technical credit, but are in addition to other requirements of the School for the M.A. or M.F.A. degree.

3. Majors in the history of art at the M.A. level may take up to two summer hours in 121-288 Writ-

ten Thesis, following consultation with their ad-

visor. Such credit may apply to the total re-

quired for graduation, but only in addition to other specified course requirements of the School for the M.A. degree.

4. Majors in the history of art at the Ph.D. level, the emphasis on post-comprehensive ex-

amination coursework is decided in consultation with the advisor. Normally a minimum of 8 se-

mester hours or sufficient hours to complete the minimum total of 30 semester hours of graduate credit is taken. These may be devoted entirely to the dissertation or in part to the related studies.

5. All studio and written theses become the prop-

erty of the University. On registering, students automatically accept this condition.

6. Students should obtain regulations concerning the form of written theses, deadlines for sub-

missions, etc. from the Graduate College office. A full draft of written theses is due in the School's office two weeks before the date of the final oral examination when such is required.

X. The Masters of Arts degree (M.A.) in studio:

The M.A. in studio may be taken with a major in painting, drawing, sculpture, prints, design, photo-

graphy, cermaics, textiles or multidisciplinary.

The degree requires:

1. The B.A. or B.F.A. in art equivalent to that offered at the U. of I.

2. A minimum of 12 semester hours of graduate work (a year and one summer session) for stu-

dents with undergraduate degree, and 6 semester hours of graduate credit for those without the undergraduate degree.

3. Undergraduate deficiencies, if any, may be completed in graduate school in addition to, graduate requirements.

4. Studio courses, to be taken to the extent of 26 hrs.

Those must include a minimum of 12 semester hours in a major field.

4. History and Theory of Art 3 hrs.

5. Courses outside the School of Art 0-6 hrs.

6. Studio and written theses, see above under DE.

The degree requires the following:

1. The B.A. or B.F.A. degree (see above in 2), and a minimum of 26 semester hours of graduate work plus a written thesis, or a minimum of 30 semester hours of graduate work.

XI. The Masters of Arts degree (M.A. in art history)

The degree requires:

1. The B.A. or B.F.A. degree (see above in 2), and a minimum of 26 semester hours of graduate work plus a written thesis, or a minimum of 30 semester hours of graduate work.

2. Art history courses (including Methodology and at least one other seminar) 18-20 hrs.

3. Studio courses 0-6 hrs.

4. M.A. candidates having had substantial under-

graduate studio, following consultation with the School's faculty. In studio courses consideration will be given by the School's faculty to lesser prep-

aration and/or aptitude of the history student. History students taking studio under individual instruction on an S/U basis.

5. Ability to read art historical writings in an ap-

propriate foreign language.
6. An examination in art history (in two parts), 3 hours in a major field of choice, and courses of comprehensive examination over the history of art. The examination will be given at the beginning of each semester.

7. For the 30 semester hour program with thesis, a full draft of the written art historical thesis must be submitted by the end of the semester preceding the semester in which the degree is taken.

8. The candidate completing the M.A. degree on a nonthesis plan will offer additional semester hours of graduate work in art history to make a total of 36 semester hours.

XIII. The Master of Arts degree (M.A.) in art education requires:

1. The B.A. or B.F.A. in art equivalent to that offered at the U of I.

2. Courses leading to teacher certification with a major in art.

3. Completion of 36 semester hours of graduate credit as indicated below.

4. An oral and/or written examination in art education and related fields.

5. Eighteen semester hours at studio and art history in a ratio of two to one.

6. Eight semester hours in art education.

7. Twelve semester hours to be specified after the student consults his program.

8. A written or studio thesis. In the case of the latter, it must be accompanied by a brief statement of his technical, aesthetic, and/or psychological approach.

XIII. The Master of Fine Arts degree (M.F.A.): The M.F.A. may be taken with a studio major in painting, drawing, sculpture, prints, design, photography, ceramics, metalworking, or multimedia. The M.F.A. graduate from this University should be capable of working at the professional level of the graduate level. The taking of enough advanced courses to obtain a teaching certificate is also recommended. The M.F.A. is planned toward development of the individual artist who has a dedication to, and special competence in, his art specialty.

It is also fully applicable to the M.F.A. However, students entering the Graduate College with a Bachelor of Fine Arts degree are not considered for a higher degree and must be cleared for M.F.A. candidates by the Director of Graduate Study in Art. The degree requires:

1. A semester in an M.F.A. program by invitation of a standing committee of the faculty which includes the student's advisor and a representative of another faculty with whom he has studied most. This semester usually follows the taking of the M.S. (see above under VII) and may be at the beginning of the second semester.

2. Satisfactory completion of a minimum of two years (60 semester hours) of graduate work by students with undergraduate preparation equivalent to that of the U of I and a minimum of 30 semester hours by those entering with the M.S.

3. Acceptance of studio thesis supervision and advisory responsibility by a member of the staff approved in the Graduate School's Office of Specialization. This usually takes place at the beginning of the third semester at the end of that preceding semester.

4. Acceptance of responsibility for supervising the written thesis, whose work is assigned, by a member of the art history staff.

5. Formation of a faculty committee consisting of the student's advisor as chairman, the thesis advisor, and members of the School's executive committee to make a total of at least five. Additional faculty who have been closely identified with the student may be invited (see above under VII).

6. Review of the candidate's progress by the committee, followed by a seminar, and at least once each semester thereafter by the committee and/or the faculty.

7. Completion of minimum coursework as follows, in addition to removal of any conditions resulting from lack of undergraduate work equivalent to that at the U of I.

   Studio Courses 42 s.h.

   (Required to be a major subject of 12-24 semester hours, and from 12-15 semester hours of electives with at least 6 semester hours in a minor subject. For thesis requirements see above under IX.)

8. Art History and Theory of Art Courses 9 s.h.

   (These must include one seminar, but not Methodology.)

   Courses outside the School of Art 8 s.h.

   (May be reduced, if replaced with art courses, upon consultation with the School's Director.)

9. Final review and acceptance, by committees, of a thesis when submitted during the semester in which the degree is taken.

XIV. The Doctor of Philosophy degree in the history of art. The Ph.D. degree of the School of Art is offered only in the history of art. It is designed for those having a philosophical foundation in the pertinent areas of learning, research, and analysis.

The normal requirements are:

1. A total of 30 semester hours of graduate work, planned with the School's Director and interested faculty.

2. Reading knowledge of two foreign languages, normally French and German.

3. Completion of 12 to 25 semester hours of approved courses outside the School.

4. Satisfactory completion of a general examination to consist of a written and oral portion. The written portion will include a major field of choice (6 hours) and 3 minor fields (6 hours each); the choice of major and minor fields will be made in consultation with the student's committees.

5. Satisfactory completion of a written dissertation that meets the standards of the School and related fields.

6. The emphasis on post-dissertation examination and research culminates in a dissertation that is prepared for the candidate. Normally a minimum of 8 semester hours and a maximum of 15 semester hours will be required; a minimum of 30 total semester hours of graduate credit is taken. These may be approved only by the dissertation or in part to other related studies.

STAFF


Visiting Artists: Tony Underhill.


Librarian: Art Library: Harold Skoford.

Curator, Visual Art: Carolyn Miller.


Art History

Primarily for Undergraduates

1H:2 Introduction to Primitive Art 3 s.h.

Art, architecture, and the arts of primitive cultures in Africa, America, and the South Pacific. Prerequisites, 11:37, 11:38, or equivalent.
11:15 Ancient Art: Early Christian and Byzantine 3 s.h.
Archaeology, sculpture, painting, and mosaic of the 4th to the 7th century in the West and to the 12th century in the East.

11:37 Byzantine Art 3 s.h.

11:40 Medieval Art 3 s.h.
Art of the early medieval period. From the dark ages in Europe through the Ottonian period, including contemporary secular art.

11:41 Medieval Art 3 s.h.
Late Gothic period.

11:44 Northern Renaissance Art 3 s.h.
Art of the International style, Netherlandish and French art to 1550.

11:45 Northern Renaissance Art 3 s.h.
German art of the 15th and 16th centuries; Netherlandish 16th-century art through Bruegel.

11:47 Italian Renaissance Art 3 s.h.
Painting, sculpture, and architecture in Italy from 1250 to 1600.

11:48 Italian Renaissance Art 3 s.h.
Painting, sculpture, and architecture in Italy from 1400 to 1600.

11:49 Italian Renaissance Art 3 s.h.
Painting, sculpture, and architecture in Italy from 1500 to 1600.

11:50 17th Century Masters in Southern Europe 3 s.h.

11:51 French Painting 3 s.h.
From School of Fontainebleau to Bourgeois (1550-1750).

11:52 Spanish Painting 3 s.h.
From El Greco to Goya (1700-1800).

11:53 Baroque and Rococo Art 3 s.h.
Painting, sculpture, and architecture in Italy from 1660 to 1750.

11:54 Baroque and Rococo Art 3 s.h.
Painting, sculpture, and architecture in The Netherlands, France, Germany, and England from 1600 to 1750.

11:56 18th Century Art 3 s.h.
Architecture, sculpture, and painting in the 18th century in France, Germany, and England.

11:59 Early 19th Century Art 3 s.h.
Architecture, sculpture, and painting in Europe and the United States from the late 18th century to the mid-19th century, from Neoclassicism to Realism.

11:60 Late 19th Century Art 3 s.h.
Architecture, sculpture, and painting of the Western world in the second half of the 19th century, Realism, Impressionism, Post-Impressionism.

11:62 Modern Art I 3 s.h.
Architecture from 1900 to the present in Europe and America.

11:63 Modern Art II 3 s.h.
Painting from 1900 to the present in Europe. Fauvism, Cubism, Futurism, Surrealism, and abstract art. Art of Nazi Germany, Fascist Italy, and Communist Russia.

11:66 American Art I 3 s.h.
Architecture, painting, and sculpture in the United States from colonial times through the Early Republic.

11:16 Introduction to Oriental Art 3 s.h.
Art and architecture in India, Southeast Asia, China, and Japan. Prerequisites: 11:57, 11:58, or equivalent. Same as Chinese and Oriental Studies 11:58.

11:26 Introduction to Ancient Art 3 s.h.
Art and architecture of Mediterranean civilizations from Minoan times to the age of Constantine. Prerequisites: 11:57, 11:58, or equivalent. Same as Classics 11:38.

11:40 Introduction to Medieval Art 3 s.h.
Art and architecture in Europe from 300 to 1400 A.D. Prerequisites: 11:57, 11:58, or equivalent.

11:41 Introduction to Renaissance Art 3 s.h.
Art and architecture in Europe from the early Renaissance to 1550. Prerequisites: 11:57, 11:58, or equivalent.

11:53 Introduction to Baroque Art 3 s.h.
Art and architecture in Europe from 1500 to 1750. Prerequisites: 11:57, 11:58, or equivalent.

11:52 Introduction to Modern Art 3 s.h.
Art and architecture in Europe and the United States from the late 18th century to the present. Prerequisites: 11:57, 11:58, or equivalent.

For Undergraduates and Graduates
Note: Courses numbered above 11:500 have as prerequisites an introductory course in the appropriate art history area or permission of instructor.

11:50 Primitives Art: African 3 s.h.

11:55 Primitives Art: American 3 s.h.

11:56 Primitives Art: American 3 s.h.
Indigenous art styles in America from their origins to the Spanish Conquest.

11:10 Egyptian and Mesopotamian Art 3 s.h.
Sculpture, painting, architecture, and minor arts from the Stone Age to Classical times in Egypt and the ancient Near East.

11:15 Oriental Art: India 3 s.h.
Art and architecture of Greater India from the prehistoric period, including the Indus civilization (2500-1500 B.C.), to the 18th century. Prerequisites: 11:57, 11:58, or equivalent. Same as Chinese and Oriental Studies 11:58.

11:17 Oriental Art: India 3 s.h.
Art and architecture of Greater India, from 1000 A.D. to the modern period, in relation to philosophies and religions (Hinduism and Islam). Same as Chinese and Oriental Studies 11:58.

11:19 Art of China 3 s.h.
Art and architecture of China in relation to philosophies and religions (Confucianism, Taoism, and Buddhism). Same as Chinese and Oriental Studies 11:58.

11:20 Chinese Painting I 3 s.h.
Same as Chinese and Oriental Studies 11:50.

11:21 Chinese Painting II 3 s.h.
Same as Classics 11:31.

11:22 Oriental Art: Japan 3 s.h.
Art and architecture of Japan in relation to philosophies and religions (Shintoism, Buddhism, and Zen). Same as Chinese and Oriental Studies 11:50.

11:26 Greek Art I 3 s.h.

11:28 Greek Vase Painting 3 s.h.
Same as Classics 11:31.

11:32 Roman Art 3 s.h.
Roman architecture, sculpture, painting, and mosaics of the Republican, Imperial, and Late Antique periods. Same as Classics 20:119.
15:2 Elements of Art 2 or 3 s.h.

15:3 Art Forms I 3 s.h.

Art Studio

Primarily for Undergraduates
15:1 Elements of Art 2 or 3 s.h.

15:2 Elements of Art 2 or 3 s.h.

15:3 Art Forms I 3 s.h.

15:4 Art Forms II 1 s.h.

15:5 Art Theory II 2 s.h.

15:6 Art Projects IV 2 s.h.

15:7 Life Drawing I 2 or 3 s.h.

15:8 Painting 1 2 s.h.

15:9 Sculpture I 2 s.h.

15:10 Art History and Criticism 1 or 2 s.h.

15:11 Graphic Design I 2 s.h.

15:12 Photography 2 1 s.h.

15:13 Ceramics I 2 s.h.

15:14 Undergraduate Painting 2 or 3 s.h.

15:15 Digital Imaging 1 or 2 s.h.

15:16 Silver and Metalsmithing 1 s.h.

15:17 Printmaking I 1 s.h.

15:18 Ceramics II 1 s.h.

15:19 Printmaking II 1 s.h.

15:20 Ceramics III 1 s.h.

15:21 Ceramics IV 1 s.h.

15:22 Ceramics V 1 s.h.
15:61 Ceramics II 2 or 3 s.h.
Intermediate clay forming techniques; clay and glaze formulation and preparation in kiln firing. Prerequisites: 15:60 or equivalent. May not be repeated.

15:64 Metalworking 2 s.h.

15:65 Multimedia I 2 or 3 s.h.
Prerequisites: 15:63, 15:64, 18:6, 18:7, or equivalent.

For Undergraduates and Graduates

Note: Studio courses numbered between 150 and 199 are offered both semesters and may be repeated except 155: 150. Registration for one 4-clock-hour credit section is for 3 semester hours of credit, and requires 5 clock hours per week of assignments to be completed outside of class. With permission of their advisors, students may take more than one section of any multiple section course.

15:100 Multimedia II 3 s.h.
New media such as styrofoam, plastic, polyester, and others in mutual combination and in combination with conventional media. Plasticas constructions; structured canvas; painted sculpture; light projection on sculpture; and other combinations. Special emphasis on the use of kinetic and environmental elements. Prerequisites: 15:60 or equivalent, and permission of instructor.

15:101 Intermedia 3 s.h.
Prerequisites, permission of instructor. Same as Speech 16:120 and Music 25:134.

15:105 Life Drawing II 2 s.h.
Drawing from figure model in varied media. Prerequisite, 15:61 or equivalent.

15:125 Drawing Workshop 3 s.h.
Compositional drawing for advanced students; varied media. Prerequisite: 6 clock hours of 15:125 or equivalent permission of instructor.

15:111 Watercolor Painting 3 s.h.
Oiled surfaces. Prerequisites: 15:6 or equivalent.

15:115 Painting III 3 s.h.
Oil, gouache, water color, tempera, acrylic, and other media. Prerequisites, 15:46 or equivalent.

15:118 Painting Workshop 3 s.h.
Media, materials, and technical problems of the contemporary painter. Prerequisites, advanced standing and permission of instructor.

15:122 Prints and Composition II 3 s.h.
Registration: evening, day, night, wood cuts, color prints in all media. Experimental studies in intaglio techniques; fine prints; linear techniques. Study of advanced pictorial compositions. Prerequisite, 15:11 or equivalent.

15:120 Design Seminar 1 s.h.
Clarifying studio problems. Guest speakers from various areas are invited to participate in open-forum discussions with students.

15:131 Creative Photography 3 s.h.
Use of photographic tools, cameras, and darkroom, for the purpose of understanding the expressive qualities of the graphic image. Special attention to the individual's personal response to visual elements. Training in critical compositional values. Prerequisites, 15:34 or equivalent, and permission of instructor.

15:132 Film Laboratory 2 s.h.
Fundamental instruction in expressive film making; use of cameras; editing and composing films ideas.

15:133 Graphic Design II 2 s.h.
Advanced problems in graphic communication. Designing for various printing and reproduction processes. Problem in relating image, type, lettering, paper, and color. Prerequisite, 15:12.

15:136 Advanced Problems in Photography cr.arr.
Individual instruction; specialized research in photographic techniques. Prerequisites, 15:12 and permission of instructor.

15:137 Environmental Design I 3 s.h.
Essential technology, including drafting and rendering, employed in architectural and industrial design and related especially to environmental factors, human and geophysical. Prerequisites, 15:7, 15:1, 15:25, or equivalent.

15:138 Environmental Design II 3 s.h.
Essential technology, including drafting and rendering, employed in architectural and industrial design and related especially to environmental factors, human and geophysical. Prerequisites, 15:7, 15:1, 15:25, or equivalent.

15:141 Interior Design I 3 s.h.
Relationship of interior design to its architecture, its environment, and to the human element. The use of color, materials, furnishings, and lighting in selected projects. Prerequisites, 15:1, 15:25, 15:29.

15:142 Interior Design II 3 s.h.
Continuation of 15:141, including display design. Prerequisite, 15:141.

15:145 Industrial Design I 3 s.h.
Preliminary studies of products and how they are designed. This student will develop modeling skills and the graphic communication skills necessary to basic project development. Design considerations related to human factors, methods of manufacture, and marketing. Prerequisites, 15:115.

15:146 Industrial Design II 3 s.h.
Design and development of products for mass consumption. Special attention to new developments in technology and how they relate to human needs. Prerequisites, 15:145.

15:147 Industrial Design III 3 s.h.
Problems related to the future design of the man-machine world; especially ecological responsibility of man to his environment and how science-technology can be applied to enrich and improve our way of living. Prerequisites, 15:145, 146.

15:149 Advanced Problems in Design 3 s.h.
Advanced design projects for advanced students. Prerequisites, permission of instructor.

15:151 Painting Materials I 2 or 3 s.h.
Survey and comparison of painting methods from the 12th to the 20th centuries. Nature of materials. Inorganic, tempera, oil, cold wax, ground, supports, and surface protection. May not be repeated.

15:152 Painting Materials II 2 or 3 s.h.
Continuation of 15:151. May not be repeated.

15:153 Painting Materials III 2 or 3 s.h.
Medieval techniques of tempera and gliding, including technical courses and ink preliminary drawings. Prerequisites, 15:141, 142.

15:154 New Materials Workshop 2 or 3 s.h.
Innovative techniques of gesso and egg-tempera underpainting, with various grounds and glazing media. Prerequisites, 15:130, 122.

15:155 Fundamentals of Conservation and Restoration I 3 or 3 s.h.
Causes of deterioration of materials; cleaning, lining, surface protection; use of scientific equipment (infra-red, ultraviolet, X-rays, etc.). The care, handling, and storage of art objects. Prerequisites, 15:131 or equivalent. May not be repeated.
18:156 Fundamentals of Conservation and Restoration 2 or 3 s.h.
Continuation of 18:155. May not be repeated.

18:162 Sculpture II 3 s.h.
Modeling in clay or plastic; casting in wood or stone, welding. Prerequisite, 18:152 or equivalent.

18:164 Sculpture Workshop 2 or 3 s.h.
Advanced sculptural problems. Prerequisite, 18:152.

18:165 Sculpture III 3 s.h.
Fundamentals of lost wax technique. Molding and pouring of bronze, aluminum, lead, and pewter. Fielding techniques of patina and chiseling. Prerequisite, 18:162 or equivalent.

18:167 Ceramic Sculpture 3 s.h.
Sculptural problems in various clay bodies and glazes. Prerequisites, 18:163 and 18:166.

18:170 Ceramics III 3 s.h.
Individual projects as approved by the instructor. Prerequisites, 18:160, 61 taken consecutively.

18:211 Ceramics Workshop cr.arr.
Prerequisites, 18:170 and permission of instructor.

18:172 Glaze Calculations 1 or 2 s.h.
Empirical and practical methods of glaze formulation; effects of various types of kilns, firing atmospheres, and glazes.

18:174 Kiln Construction 1 or 2 s.h.
Theory and construction of kilns. One semester required for all ceramics majors.

18:193 Metallurgy II 2 or 3 s.h.
Continuation of 18:192; emphasis on conceptual development. Prerequisite, 18:184; recommended, 18:182, 18:183.

18:196 Metallurgy Workshop cr.arr.
Individual projects. Open to majors only. Prerequisite, 18:195.

18:200 Individual Instruction cr.arr.

18:200 Art in Urban Environment 5 s.h.
Summer only. Combination studio and lecture.

Art Education

Students in art education register for courses in methods, supervision, practice teaching, etc., in the College of Education. The following courses are offered. See College of Education for complete announcement.

18:153 Art Projects for Elementary School Teachers 2 or 3 s.h.
Both semesters. Same as Education 78:153.

18:156 Art Education—Elementary 2 s.h.
Projects, techniques, and processes in art for the elementary school teacher or elementary art supervisor. Painting, drawing, sculpturing, architecture, etc. Using tools and materials commonly available in the elementary schools. Junior year.

18:158 Art Education—Secondary 2 s.h.
Projects, techniques, and processes in art for the secondary school program. Drawing, painting, sculpturing, architecture, etc. Using tools and materials commonly available in the secondary schools. Junior year.

For descriptions of the following courses, see College of Education.

18:643 Supervision of Art 2 or 3 s.h.
Same as 18:643.

18:406 Research: Art Education cr.arr.
Same as 78:406.

18:413 Methods of Elementary School Art 3 s.h.
First semester.

BOTANY

18:291 and 18:292 Laboratory Practice in the Elementary School cr.arr.
Both semesters.

18:297 Seminar in Elementary Art Education 2 or 3 s.h.
First semester.

18:295 Methods of Secondary Art Education 3 s.h.
Second semester.

18:293 Observations and Laboratory Practice in High School cr.arr.
Both semesters.

18:295 Seminar in Secondary Art Education cr.arr.
Second semester.

18:296 Art Education: Research Offered both semesters.

ASTRONOMY

(See Physics and Astronomy)

BIOCHEMISTRY

(See College of Medicine and Chemistry)

Students who wish to study biochemistry are directed to the B.S. or B.A. curricula in chemistry. A suggested curriculum is given which leads to a B.S. degree in chemistry with emphasis on preparation for a career in biochemistry. Other students in related fields are urged to plan programs providing equivalent background. For detailed advice, consult faculty of the biochemistry department.

BOTANY

Chairman of Department, Robert L. Hulbary
Office, 312 Chemistry-Botany Building

The aims of the Department of Botany are to offer instruction in the principles of plant biology as a part of students cultural background; to assist in adequately preparing those who are entering careers in fields related to the plant sciences, such as agriculture, forestry, field botany, food science, microbiology, medicine, pharmacy; and to prepare specialists in the various divisions of botany for teaching and research.

Undergraduate Requirements

The Bachelor of Arts Degree. In addition to the general requirements of the College of Liberal Arts (see College of Liberal Arts), students majoring in botany are required to take:

Mathematics through 230:5 Analytical Geometry 4:3, 4, and 4:6 General Chemistry 4:31, 125, and 4:144 Organic Chemistry Twenty-four semester hours of botany to include:

23:1 Introduction to Botany 3 s.h.
(Successful completion of the core course in 11:20, 11:21 Life Sciences may be used to satisfy this requirement.)
21:11 Evolution of Land Plants 3 s.h.
21:12 Algae and Fungi 3 s.h.
21:13 Botany of the Local Flora 3 s.h.
21:102 The Flowering Plants 3 s.h.
At least 7 semester hours to be selected from other botany courses numbered above 110.

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Honor in Botany

A superior student who wishes to major in botany may choose a program commensurate with his ability, leading to a graduate honor.

Prerequisites for admission to Honors in botany are senior standing and a cumulative grade-point average of 3.00, or its equivalent, in botany.

In addition to the requirements for a B.A. degree in botany, candidates shall fulfill:

1. Complete 3 semester hours of research (RE 124: Honors in Botany) during their senior year.
2. Maintain a cumulative grade-point average of 3.00 overall and 3.50 in botany.
3. Pass an honors examination in botany at the end of the senior year.

Graduate Study Requirements

As scientific knowledge and its relation to man and society increases at an exponential rate, young people are recognizing a need for graduate education and the advanced training it provides. The faculty of the Department of Botany devotes much time and thoughtful attention to planning programs toward the advanced degrees it confers. The following indicates the advanced degrees Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) in botany.

The requirements for admission are essentially the same as those listed for the Bachelor of Science degree as stated in the University Catalog. Students who plan graduate study should consult the Graduate College as stated in the University Catalog. Responsibility for strict compliance with these requirements rests with the student.

Doctor of Philosophy

The following general requirements are to be observed by all graduate students in botany.

Master's degree in botany. Advanced study may be taken in one of the following fields: anatomy, botany, cytology, ecology, genetics, mycology, paleobotany, physiology, and systematics. The student's major must be major Conferring of the master's degree is effective upon completion of at least 30 semester hours of graduate credit including 6 semester hours of 525 Research. The preparation of a thesis is optional. In addition, each student must fulfill the following requirements:

(a) Submit a program of study approved by his major adviser and by a guidance committee consisting of his major adviser and two other members of the graduate faculty. Normally, as a guidance procedure, the program of study should be prepared during the first semester in residence as a regular graduate student.
(b) Submit 30 semester hours of botany (of which no more than 18 semester hours may be part of the student's undergraduate work) not including 6 semester hours of research courses from each of the following four areas of study:

Botany—botany, mycology, paleobotany, physiology

Chemistry—botany, mycology

Ecology—ecology, mycology

Microbiology—botany, mycology

Morphology—botany, mycology, paleobotany, physiology

Physiology—plant physiology, experimental mycology

Ecology—plant physiology, experimental mycology

Research projects for the master's degree must be submitted in writing to the student's major advisor, including the proposal. A program of study will be approved by the student's major advisor, with an advisory committee on the basis of the following requirements:

(a) All candidates must complete 30 semester hours of graduate education divided as follows: 8 semester hours of biology and 8 semester hours of research. A general biology course may not be submitted as part of this requirement.
(b) Graduation requirement:

1. With thesis: 18-24 semester hours of botany including 2,525 Research; 8 semester hours of biology electives; 3 semester hours of graduate credit in elective fields.
2. Without thesis: 30-36 semester hours of botany including 2,525 Research; 8-10 semester hours of biology electives; 4-8 semester hours in elective fields.
3. A grade-point average of 3.00 on all course attempted at the time of the final examination.

For options see Ecologic and developmental Botany.

Doctor of Philosophy. The general requirements of the Graduate College (see Graduate Catalog) apply to all students. Specialization may be in any one of the fields listed above. A program of study for the doctor of philosophy is awarded upon the completion of the following requirements:

(a) A student should enter directly into the planning for his degree by discussing a program of study in a guidance committee consisting of his major adviser and two other members of the graduate faculty. Normally, as a guidance procedure, the program of study should be prepared during the first semester in residence following the award of a master's degree.
(b) A student must be proficient in one or more of the graduate courses included above those required for the master's degree.
(c) Successful completion of comprehensive examinations covering all fields of botany. Preparation for comprehensive examinations is the responsibility of the student to review and maintain a complete record of thought concerning his major field of study and his disciplines in his profession.

These examinations require:

1. Reading knowledge of two foreign languages with a dictionary to be listed by written examinations administered by the botany department.
2. Reading knowledge of the foreign language without a dictionary to be listed by written examinations administered by the botany department.
3. Reading knowledge of two foreign languages with a dictionary.
4. Reading knowledge of two foreign languages without a dictionary.

The doctoral thesis should be submitted prior to the final examination and is primarily a defense of the ideas and the methods of obtaining the data herein. The doctoral thesis is a report on original research and will represent an original and independent contribution to the general body of our knowledge of
botany. In addition to its research contribution, it should contain a discussion of related knowledge and the candidate's interpretations, speculations, and generalizations about his specific topic.

Facilities

The department has an excellent library, extensive herbaria, and its main laboratories, all housed in the same building. There is also a special laboratory for plant physiology, with attached greenhouse, on the west campus. A new greenhouse, constructed on the roof of the Chemistry-Botany Building, was put into operation in January, 1961. Approximately 18,000 square feet of space in the Chemistry-Botany Building has been remodeled for classrooms, faculty and graduate student research laboratories, and an electron microscope facility. Special facilities of the Radiation Research Laboratory, the University Computer Center, and the Iowa Lakeside Laboratory at Lake Okoboji (see Directory of Extension and University Services) are available to botany students and staff as necessary.

Inquiries

Qualified students are invited to apply for fellowships and assistantships. Inquiries should be directed to the Chairman of the Department of Botany.

STAFF

Professors: Robert L. Huberly, Robert M. Muir, Martin A. Bungard.
Professor Emeritus: George W. Martin.
Associate Professor: Harry L. Dean, Robert W. Renwicks.
Teaching Assistant: Assistant Professor: Wayne R. Carlson, Robert W. Cradon, Jeffrey S. Schachtman, Richard D. Hjelmstad, Stefan Burenyi.
Librarian in Charge, Botany Library: Pauline L. Mann.

COURSE DESCRIPTIONS

Primarily for Undergraduates

2.16 Introduction to Botany

5 s.h.
A cultural experience with the biology of plant life: structure, function, reproduction, and distribution in plants. Open to all students; recommended for students in general science, zoology, and those preparing to teach science. Three lectures and two laboratory periods per week. May be continued in 211 or 212 or 213 to satisfy the natural science core requirement.

2.11 Evolution of Land Plants

3 s.h.
 Bryophytes and vascular plants including their structure, reproduction, and major phylogenetic relationships. Two lectures and one laboratory period per week. Prerequisite: 2.1 or equivalent.

2.12 Algae and Fungi

3 s.h.
 Biology of the major groups: their development, comparative morphology, and evolutionary relationships. Two lectures and two laboratory periods per week. Prerequisite: 2.1 or equivalent.

2.13 Biology of the Local Flora

3 s.h.
Identification, recognition, and reproduction of angiosperms and gymnosperms of the Midwest will be emphasized; the ecology of the woodland and prairie communities will also be stressed. Two lectures and one laboratory period per week; field work when feasible. Prerequisite: 2.1 or equivalent.

For Undergraduates and Graduates

2.101 Plant Taxonomy

4 s.h.
Principles of plant taxonomy as illustrated by a study of the variation within and the relationships between selected families and orders of angiosperms. Prerequisite: 2.1 or equivalent.
2:116 Botanical Microtechnique 3 cr. Special procedures; preparation of permanent microscopic slides from tissues not embedded in paraffin. Sectioning of undehidroted tissues with the sliding microtome. Decolorization methods and whole mount procedures. Celluloid methods. Modern squash and smear techniques. Prerequisites, 2.1 or equivalent and consent of instructor. Alternate fall in 1970.

2:117 Experimental Techniques 2 cr. Lecture and laboratory work with pdf, sampling, colorimetry, spectrophotometry, chromatography, and selected chemical analyses. Prerequisite, consent of instructor.

2:123 Experimental Techniques 2 cr. Consideration of 2:115, but may be taken as an independent unit. Chemical analysis, enzyme studies, and measurement of photosynthesis and respiration.

2:120 Paleobotany 4 cr. Most important groups of fossil plants; their structure, evolution, phytogeographic relationships, and geological distribution. Prerequisites, 2:11 or equivalent and consent of instructor.

2:114 Honors in Botany cr. Both semesters. Prerequisites, senior standing and grade-point average 3.0 overall, 3.5 in botany.

2:123 Pre-Doctoral Genetics cr. Laboratory projects in the pedigree culture of plants, including microorganisms. Methods used in population studies, plant improvement, and the induction of muta- tion. Analysis of data. Prerequisites, 2.10 or equivalent. Alternate years; offered spring 1977.

2:137 Medical Mycology 4 cr. Basic techniques used in the study of fungi which are pathogenic for man. Registration limited and on consent of the instructor. Same as Microbiology 2:139.

2:151 Field Botany 3 cr. Recognition and identification of plants in the living condition. Study and classification of the various classes of plants as represented in the wild or natural classification as evident under field conditions. Lecture and field work only in the summer session.

2:160 Genetics of Cell Organelles cr. Readings, conferences, and written reports on phases of plant diseases of particular interest to students; plants in relation to various other fields of study.

2:160 Genetics of Cell Organelles cr. Readings and discussion on the function and molecular genetics of cell organelles. Registration of genetics of organelles such as chloroplasts and mitochondria. The relation between nucleic acid and cytoplasm. Prerequisites, 2:105 or Ecology 2:115 and a course in biochemistry.

Primarily for Graduates

2:201 Systematics cr. Evolution, intergradation, polymorphisms, apomicty, cytoplasmy, taxonomy, experimental biogeography, and biochemical systems. Emphasis placed on the utilization of data derived from these areas in the study of taxonomic problems. Two major areas of populations, species, and genera. Prerequisite, consent of instructor.

2:204 Genetics Seminar 2 or 4 cr. Lectures and discussions on selected topics in genetics. A specific topic will be selected each year. Course may be repeated for credits. Prerequisites, 2:106 or Zoology 2:115 or consent of the instructor. Same as Zoology 2:104.

2:205 Morphogenesis Seminar 2 cr. Developmental biology. See literature and current status of cell and tissue differentiation, development of animal and plant morphology of plants. Prerequisites, 2:113 or 2:11 or equivalent.

2:207 Advanced Myology cr. A year-long course of lectures and laboratory work on the classes of fungi as preparation for teaching and research. Prerequisites, 2:108 or consent of instructor.

2:209 Advanced Plant Physiology cr. Normal and abnormal physiology of plants. Reading and reference. Prerequisites, 2:20 or 2:115 or equivalent and one year of college chemistry or physics.

2:214 Electron Microscopy 3 cr. Lectures and laboratory. Introduction for advanced graduate students with a definite plan to use techniques of electron microscopy in their research. Theoretical and practical aspects of these preparations, thin sectioning, light-chem- istry, autoradiography, negative staining and shadow- casting of plant materials. Theory, operation, and mainte- nance of an electron microscope. Enrollment limited. Prerequisites, 2:11 and consent of instructor.


2:217 Proseminar: Myology 1 cr. Readings and discussion of literature. Prerequisite, consent of instructor.

2:219 Proseminar: Plant Physiology 1 cr. Readings and discussion of current American and foreign research literature, monographs, and professional texts. Prerequisites, 2:10 and 2:115 or equivalent and consent of instructor.

2:220 Topics in the Phycology of Vascular Plants cr. Seminar dealing with selected topics of comparative morphology, evolution, and phylogeny of extinct and extant vascular plants. Prerequisites, 2:10 or consent of instructor.

2:221 Seminar: Botany 5 or 21 cr. Required registration for one hour of credit for botany graduate majors. Open to senior majors in botany and to graduate students in other departments.

2:222 Research: Botany cr. 2 cr. 1 cr.

CHEMISTRY

Chairman of Department, Frederick R. Duke

Office, 363 Chemistry-Botany Building

The Department of Chemistry offers programs of study in chemistry on both the undergraduate and graduate levels. Courses are offered in physical, inorganic, organic, and physical chemistry. Courses are designed to give the student an understanding and appreciation of chemistry, as well as a background for a professional career in science, medicine, engineering, medicine, and other scientific fields.

B.S. Curriculum in Chemistry

The B.S. curriculum in chemistry is the professional training program leading to employment in the chemical industry and in government research laboratories. The present and the future demand for B.S. chemists for research, control, or process development work is excel- lent. The B.S. program also provides professional opportuni- ties for graduate work in chemistry or biochemistry.
Chemistry Courses

4-6
Elementary Chemistry Laboratory
4-112. 122
Organic Chemistry
4-111, 112
Analytical Chemistry
4-113, 113
Physical Chemistry
4-141, 142
Intermediate Chemistry Laboratory
4-143, 144
Advanced Chemistry Laboratory
4-179
Advanced Inorganic Chemistry
4-181
Introduction to Senior Research
4-182
Senior Research
150
Chemistry Orientation

*May be satisfied by examination

Mathematics
Selected courses to include integral calculus.

Physics

Two semesters (either 29-1, 2 or 29-17, 18; 29-17, 18 are recommended).

Foreign Languages

German 23-1, 12, 21, or two semesters of German and two semesters of either French or Russian.

Electives

Advanced science elective courses plus credit earned in senior research meet the minimum of 7 semester hours. Advanced science electives may be chosen in the areas of chemistry, mathematics, astronomy, physics, engineering, mineral science, biochemistry, microbiology, pharmacology, botany, zoology, geology, and physiology.

B.S. Curriculum in Chemistry

with Biochemistry Emphasis

This is a modification of the B.S. curriculum which substitutes biochemistry and biological area electives for some of the requirements in the regular B.S. curriculum.

Chemistry Courses

4-1, 4-11, 4-12 or 6-12 Principles of Chemistry
4-6
Elementary Chemistry Laboratory
4-111, 112
Organic Chemistry
4-111, 112
Analytical Chemistry
4-113, 113
Physical Chemistry
4-141, 142
Intermediate Chemistry Laboratory
4-143, 144
Advanced Chemistry Laboratory
4-179
Advanced Inorganic Chemistry
4-181
Introduction to Senior Research
4-182
Senior Research
May be satisfied by examination

Mathematics
Selected courses to include integral calculus.

Physics

Two semesters (either 29-1, 2 or 29-17, 18; 29-17, 18 are recommended).

Foreign Languages

A minimum of 12 semester hours in one language which must be chosen from German, French, or Russian.

Electives

Advanced courses in chemistry, biology, mathematics, physics, or in other scientific areas are recommended.

Teaching Certification. The chemistry courses required for the B.S. or B.A. degrees satisfy the requirements for a major for teaching in secondary schools. Chemistry courses through organic chemistry satisfy the requirements for a teaching minor in Chemistry. The requirements for a minor in mathematics may be satisfied by an additional advanced course in mathematics. A minor in physics requires a minimum of 15 additional semester hours in physics. (See College of Education.)

One and Two-Year Curricula in Chemistry

The following courses are available to students who choose a two-year curriculum in chemistry. 6-1, 4-11, 4-12 or 6-12 Principles of Chemistry
4-6
Elementary Chemistry Laboratory
4-7, 8
General Chemistry
4-11
Analytical Chemistry Laboratory
4-12
Elementary Quantitative Analysis
4-141, 142
Intermediate Chemistry Laboratory
Courses 4-1, 4-12 or 6-12; 8, 9, and 10 (2-13, 12, 13) are designated to fulfill a background in general and in organic chemistry. Biology 101, 4, and 8 are recommended if a one-year curriculum in chemistry is desired.

*May be satisfied by examination

Graduate Study in Chemistry

Admission. The Department of Chemistry requires the completion of a bachelor's degree in chemistry for admission to graduate study in chemistry. Students with a bachelor's degree in engineering, mathematics, or physics may elect to work in chemical physics. The requirements for admission prescribed by the Graduate College must also be fulfilled.

Programs. The department offers a full program of undergraduate and graduate work leading to the B.S. and Ph.D. degrees in the areas of analytical, inorganic, organic, and physical chemistry and in chemical physics. Students seeking the Ph.D. degree in chemistry are required to demonstrate effectiveness in each of four areas of chemistry. This can be accomplished by receiving a minimum 3.25 grade-point average in the courses listed below or by examination. Candidates for the M.S. degree are required to obtain minimum grades of C in three of these courses or to meet the requirement by examination.

4-179 Advanced Inorganic Chemistry
4-171 Advanced Analytical Chemistry
4-172 Advanced Organic Chemistry
4-173 Advanced Physical Chemistry

Receiving students will be given the opportunity to take exemption examinations to demonstrate competence in the
area listed above. These exams will be given at the
opening of the academic year and will never material
amount to that given in the course list.
2.2.2.4. Students with undergraduates of chemistry, mathematics, or physics who do not
achieve acceptable grades in these courses are not
admitted to advanced courses in physical chemistry. These courses are designed for the advanced student. Students who do not achieve acceptable grades in these courses will be enrolled in remedial courses. These courses will be taught by the Chairman of the Department of Chemistry.
M.S. degree with thesis. A Master of Science degree with thesis is offered in the fields represented in the program. The program consists of a minimum of 25 semester hours of graduate study, including a thesis. The M.S. degree is awarded upon successful completion of all requirements. The thesis is to be submitted in the second semester of residence.
M.S. degree without thesis. A program of course corre-
sisting of a minimum of 30 semester hours is required for the master's degree without thesis. A student electing this program should consult with the faculty advisor in the major field of study to ensure that all the required courses are included.
Ph.D. degree. A program of study for the Ph.D. degree is offered in the fields represented in the program. The program consists of a minimum of 75 semester hours of graduate study. The Ph.D. degree is awarded upon successful completion of the above requirements.
Examinations. Although research rather than subjec-
tive examinations (except in chemistry) is emphasized, a minimum number of oral examinations is required for the various advanced degrees.
The oral examination for the M.S. degree requires three members of the Committee to be present. A minimum grade-point index of 3.0 is required for admission to candidacy. The oral examination for the Ph.D. degree is to be conducted by the Committee on the Ph.D. degree without thesis. The oral examination for the Ph.D. degree with thesis may be conducted by the Committee on the Ph.D. degree with thesis.
A thesis proposal in defense of a proposed thesis is required of the Ph.D. degree candidate. A minimum grade-point index of 3.5 is required for admission to candidacy. The proposal must be presented to the Committee on the Ph.D. degree. The proposal must be approved by the Committee on the Ph.D. degree. The proposal must be presented to the Committee on the Ph.D. degree.
A thesis proposal in defense of a proposed thesis is required of the Ph.D. degree candidate. A minimum grade-point index of 3.5 is required for admission to candidacy. The proposal must be presented to the Committee on the Ph.D. degree. The proposal must be approved by the Committee on the Ph.D. degree. The proposal must be presented to the Committee on the Ph.D. degree.
Examination in organic chemistry. For students who plan to take one or two years of chemistry, the examination in organic chemistry is required. Three lectures and one examination weekly. Credit will be given for an additional 3 semester hours of organic chemistry. Students who take the examination in organic chemistry will be awarded a grade of A in addition to the 2 semester hours of advanced college placement credit from high school.
Electoral College. Laboratory work is required. Prerequisite: 4 or 4.5.
General Chemistry 1 .
The course in general chemistry is required for all students majoring in chemistry. Three lectures and one laboratory weekly. Prerequisite: 4 or 4.5.
General Chemistry 2 .
The course in general chemistry is required for all students majoring in chemistry. Three lectures and one laboratory weekly. Prerequisite: 4 or 4.5.
General Chemistry Laboratory 2 .
The course in general chemistry laboratory is required for all students majoring in chemistry. Three lectures and one laboratory weekly. Prerequisite: 4 or 4.5.
Elementary Quantitative Analysis 4 .
The course in elementary quantitative analysis is required for all students majoring in chemistry. Three lectures and one laboratory weekly. Prerequisite: 4 or 4.5.
Chemistry Orientation 0 .
The course in chemistry orientation is required for all students majoring in chemistry. Three lectures and one laboratory weekly. Prerequisite: 4 or 4.5.
Development of Ideas in Chemistry 4 .
The course in development of ideas in chemistry is required for all students majoring in chemistry. Three lectures and one laboratory weekly. Prerequisite: 4 or 4.5.
Inorganic Syntheses 2 or 3 .
The course in inorganic syntheses is required for all students majoring in chemistry. Three lectures and one laboratory weekly. Prerequisite: 4 or 4.5.
C H E M I S T R Y

areas listed above. These exams will be given at the
specified date and time. If you are unable to attend
the final examination in your courses, contact the
instructor of the course for make up exam dates.

Staff

Professor: Herman C. Baminger, Robert K. Buckles,
John R. Doyle, Frederick R. Duke, Gilbert Gordon,
Benjamin T. Paine, John E. Sibley, Stanley Warrack.
Professor Emeritus: Ralph L. Hillebrand.

Assistant Professors: William B. Bennett, Edward B.
Bishenoff, Donald J. Burton, E. David Cation, Lesley Davis,
Daniel F. Crompton, H. Bruce Friedrich, Donald J. Pietsch.
Assistant Professor Emeritus: Joseph Conger.

Assistant Professors: Robert D. Coffman, Daniel N.
Dudley, R. D. Hancox, and V. H. Hare, Kenneth M.
Sando, William C. Stewart, Dwight C. Tandy.

C O U R S E D I S C R I P T I O N S

Primarily for Undergraduates

4:1 Principles of Chemistry I 3 or 4 a.h.
For beginning students who plan to take more than 1 semester of chemistry. Two lectures and one discussion weekly. Engineering students register for 4 semester hours, which includes one laboratory period each week.

4:2 Principles of Chemistry II 3 a.h.
Continuation of 4:1. Two lectures and one discussion weekly. Prerequisite: 4:1 or 4:2.

4:5 Principles of Chemistry 3 a.h.
For beginning students who plan to take more than 1 semester of chemistry and who have had, a good high school chemistry course. Two lectures and one discussion weekly. Prerequisite: Guards space on a chemistry examination for which an additional 3 semester hours of credit will be awarded in addition to a minimum of 3 semester hours of advanced college placement credit from high school.

4:6 Elementary Chemistry Laboratory 2 a.h.
One lecture and one laboratory weekly. Prerequisite: 4:1, corequisite: 4:1 or 4:2.

4:7 General Chemistry I 3 a.h.
For beginning students who plan to take one or two semesters of chemistry. Three lectures and one optional discussion weekly. Prerequisite: 4:1 or corequisite: 4:1 or 4:2.

4:8 General Chemistry II 3 a.h.
Elementary organic chemistry. For students who plan to take one or two semesters of chemistry. Three lectures and one optional discussion weekly. Prerequisite or corequisite: 4:1 or 4:2.

4:9 General Chemistry Laboratory 2 or 3 a.h.
One lecture and one or two laboratory periods weekly. Prerequisite or corequisite: 4:1.

4:11 Elementary Quantitative Analysis 4 a.h.
First principles of quantitative analysis. Two lectures and two laboratory periods weekly. Prerequisite: 4:5.

4:50 Chemistry Orientation 2 a.h.
Chemical credentials. Methods of study. The chemical professors, the fields of chemical specialization. Present and future developments. Required for all majors in chemistry each semester. One meeting per month as arranged. No prerequisite.

4:51 Development of Ideas in Chemistry 4 a.h.
Development of ideas from historical and modern chemists. Ideas for the student projected periodically and tied to a humanistic point of view. Science elective for seniors in chemistry and for seniors or graduate students in chemical engineering. Two lectures and one laboratory weekly.

4:60 Organic Syntheses 2 or 3 a.h.
The presentation of a variety of organic compounds. Two laboratory periods weekly. Prerequisite: 4:1 or 4:5.

4:111 Analytical Chemistry 3 a.h.
Principles of modern analytical chemistry with an emphasis on instrumental methods of analysis. Three lectures weekly. For B.B. and B.A. majors in chemistry. Prerequisite or corequisite: 4:11.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical Chemistry</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Instrumental Methods of Analysis</td>
<td>3 or 4 a.h.</td>
</tr>
<tr>
<td>Organic Chemistry I</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>General principles illustrated by preparation and study of typical representatives of the aliphatic and aromatic series. Three lectures weekly. Prerequisite: 4.135.</td>
<td></td>
</tr>
<tr>
<td>Organic Chemistry II</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Continuation of 4.121, which is prerequisite.</td>
<td></td>
</tr>
<tr>
<td>Introduction to Organic Research</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Synthesis and purification of one compound.</td>
<td></td>
</tr>
<tr>
<td>Methods and techniques of structure determination. Two lectures and one to three laboratory periods weekly. Prerequisites: 4.125 and 4.142.</td>
<td></td>
</tr>
<tr>
<td>Qualitative Organic Analysis</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Identification of pure organic compounds and mixtures. Two lectures and two laboratory periods weekly. Prerequisites: 4.125, 4.128, 4.141.</td>
<td></td>
</tr>
<tr>
<td>Polymer Chemistry</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Elementary Physical Chemistry</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Elements of theoretical chemistry. Effective for premedical and biological science majors. Three lectures weekly. Prerequisite: 4.128.</td>
<td></td>
</tr>
<tr>
<td>Physical Chemistry I</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Application of the laws of physics to chemical phenomena. Three lectures weekly. Prerequisite: Physics 2118.</td>
<td></td>
</tr>
<tr>
<td>Physical Chemistry II</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Continuation of 4.121, which is prerequisite.</td>
<td></td>
</tr>
<tr>
<td>Introduction to Symmetry in Quantum Chemistry</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Elementary symmetry arguments applied to quantum chemistry problems. Prerequisite: 4.120.</td>
<td></td>
</tr>
<tr>
<td>Intermediate Chemistry Laboratory I</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Preparation, purification, and analysis of chemical compounds, principally organic compounds. One lecture and two laboratory periods weekly. Prerequisites: 4.121 and 4.8 or 4.9.</td>
<td></td>
</tr>
<tr>
<td>Intermediate Chemistry II</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Continuation of 4.141, which is prerequisite.</td>
<td></td>
</tr>
<tr>
<td>Advanced Chemistry Laboratory I</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Physical and analytical measurements. One lecture and two laboratory periods weekly. Prerequisites: 4.121 and 4.131.</td>
<td></td>
</tr>
<tr>
<td>Advanced Chemistry Laboratory II</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>Information retrieval from chemical literature and patent literature. Examination of chemical research problems. One meeting weekly. May be repeated once for credit. Prerequisite: senior standing in chemistry.</td>
<td></td>
</tr>
<tr>
<td>Senior Research</td>
<td>1 to 4 a.h.</td>
</tr>
<tr>
<td>May be repeated for credit. Prerequisite: senior standing in chemistry.</td>
<td></td>
</tr>
</tbody>
</table>
CHEMISTRY

4:239 Advanced Organic Preparations 3 a.h.

Dissociation of the preparation of complex organic compounds. Three lectures weekly. Prerequisite, 4:129.

4:231 Statistical Thermodynamics 3 a.h.

Fundamental principles of statistical thermodynamics and elementary chemical kinetics. Prerequisite, 4:129.

4:232 Statistical Thermodynamics 3 a.h.

Advanced topics in statistical thermodynamics. A continuation of 4:231, which is prerequisite.

4:233 Quantum Chemistry 3 a.h.


4:234 Quantum Chemistry 3 a.h.


Current topics.

4:235 Chemical Kinetics 3 a.h.

Chemical kinetics and mechanisms of chemical reactions from a more theoretical viewpoint. Prerequisite, 4:129 or consent of instructor.

4:237 Molecular Spectroscopy 3 a.h.

Application of infrared, microwave, and Raman spectroscopy to chemical problems. Three lectures weekly. Prerequisite, 4:129 or consent of instructor.

4:242 Physical Chemistry Topics 0 or 3 a.h.

Statistics of linear polymers, or high-temperature chemistry, or modern topics. An alternate topic is covered each year the course is offered. May be repeated for credit when topic varies. Three lectures weekly. Prerequisite, 4:129.

4:243 Diffraction Analysis 3 or 4 a.h.

The theoretical analysis of the diffraction of electrons, neutrons, and X-rays by gases, liquids, and solids. Structure determination and computational methods. Two lectures and optical three-hour laboratory weekly. Prerequisite, consent of instructor.

Seminar in Chemistry

The following courses present discussions of latest advances in the various fields of chemistry. Prerequisite, consent of instructor.

4:281 Seminar: Analytical Chemistry 0 or 1 a.h.

4:282 Seminar: Inorganic Chemistry 0 or 1 a.h.

4:283 Seminar: Organic Chemistry 0 or 1 a.h.

4:285 Seminar: Physical Chemistry 0 or 1 a.h.

Research in Chemistry

The following courses present thesis work for advanced degrees. Conference and laboratory work arranged. Prerequisite, consent of head of department and major advisor.

4:291 Research: Analytical Chemistry cr.arr.

4:293 Research: Inorganic Chemistry cr.arr.


4:296 Research: Physical Chemistry cr.arr.

INSTITUTE OF CHILD BEHAVIOR AND DEVELOPMENT

Director, Charles C. Spiker

Office, W513 East Hall

A primary function of the Institute is the training of students for research and teaching careers in the field of child development. In discharging this function the Institute offers an undergraduate major leading to the B.A. degree and graduate programs leading to the M.A. and Ph.D. degrees.

The undergraduate major in child development has the twofold aim of providing a broad general education and of providing a social foundation for later specialization in a chosen area of child development. The Institute offers advanced preparation for careers requiring graduate training in several different behavioral sciences of normal children. Curricular programs are geared toward the M.A. degree in preschool education, the M.A. degree in child behavior, and the Ph.D. degree in child psychology.

Facilities

The Institute operates preschool laboratories for purposes of both research and teaching. The annual enrollment exceeds 150 children from three to five years of age. Other groups of subjects are available for research purposes through the nursery schools and pediatric services of the University Hospital, the elementary and high schools operated by the College of Education, the public and parochial schools of Iowa City and surrounding communities, several orphanages, and institutions for handicapped children.

The Institute maintains a well-equipped workshop staffed with skilled technicians to assist with construction of research apparatus; numerous laboratory courses equipped with one-way vision facilities, audition instruments, physiological recording devices, and an adequate supply of automatic computational equipment for data analysis.

R.A. in child development. In the course of obtaining the general requirements of the College of Liberal Arts, students taking the B.A. degree with a major in child development must complete the following curriculum:

Prerequisites

31:11 Elementary Psychology 4 a.h.

52:13 College Algebra 3 a.h.

52:15 Analytic Geometry 3 a.h.

and one course in physical science:

28:1 College Physics 4 a.h.

28:2 College Physics 4 a.h.

41:1 General Chemistry 4 a.h.

41:2 General Chemistry 4 a.h.

375 Principles of Animal Biology 4 a.h.

371 Principles of Human Genetics 4 a.h.

Required courses

5:151 Introduction to Child Psychology 4 a.h.

5:152 Social Development of Children 3 a.h.

5:153 Language Processes in Children 3 a.h.

5:154 Sensation and Perception in Children 3 a.h.

5:155 Psychophysiology of Children 3 a.h.

5:159 Introduction to Child Development 3 a.h.

5:164 Introduction to Philosophy of Science 3 a.h.

5:214 Introduction to Statistical Methods 3 a.h.

205:151 Probability and Statistics 4 a.h.

Electives credit (9 semester hours required from those listed below of which 6 must be 3 a.h. or above):

5:154 Children's Language Development 3 a.h.

5:219 Observation and Participation in the Preschool 3 a.h.

7:151 Educational Psychology 3 a.h.

17:19 Principles of Nutrition 3 a.h.

31:151 Introduction to Psychology 3 a.h.

31:120 Experimental Psychology I 3 a.h.

31:121 Experimental Psychology II 3 a.h.

31:125 Psychology of Learning 3 a.h.

31:128 Motivation 3 a.h.

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Graduate Admission Requirements

Graduate students are admitted at the same time to the Graduate College, and to the Institute. Application for admission to the Graduate College is made to the Director of Admissions, The University of Iowa, Iowa City 22240. The applicant must submit a formal application and official transcripts of all previous academic work, as well as an essay on the Graduate Record Examination Aptitude Test. Application for admission to the Institute is made to the Chair of Admissions, Institute of Child Behavior and Development, The University of Iowa, Iowa City 22240. The applicant must submit formal applications to a curricular program, official college transcripts, desc-

Propective applicants may obtain the following ma-
terials by writing to the Chair of Admissions at the Institute: all necessary applications forms the brochure, Graduate Training in Child Behavior and Development; and information on graduate assistantships and trainee-

M.A. in preschool education. The M.A. program in pre-
school education provides information regarding child be-
havior theory, opportunity for applying this knowledge in a laboratory preschool, practicing in leading children and working with their parents and experience in preschool administration and supervision 6 teachers in training.

Required courses

3:130 Child Development 3 s.h.
3:201 Methodological Problems in Child Development 3 s.h.
3:215 Sensation and Perception in Children 3 s.h.
3:221 Seminar: Current Trends in Developmental Psychopathology 3 s.h.
3:222 Seminar: Design and Use of Preschool Equipment, Materials, and Facilities 3 s.h.
3:264 Advanced Practicum in Preschool 1-4 s.h.
3:114 Introduction to Statistical Methods 3 s.h.
3:148 Child Behavior Theory 3 s.h.
3:123 Art Projects and Materials for Elementary School Teachers 3 s.h.
3:127 Children's Literature 3 s.h.

Elective courses (9 semester hours from those listed below)

3:201 Methodological Problems in Child Development 3 s.h.
3:148 Sensation and Perception in Children 3 s.h.
3:215 Psychopathology of Children 3 s.h.
3:219 Social Behavior of Children 3 s.h.
3:221 Learnig in Children 3 s.h.
3:263 Motivational Determinants of Child Behavior 3 s.h.
3:258 Philosophy of Science 3 s.h.
3:269 Advanced Statistical Methods 3 s.h.
3:277 Correlation Methods 3 s.h.
3:283 Design of Experiments 3 s.h.
3:297 Readings in Mathematics: Calculus 3 s.h.
3:317 Correlation and Regression in Psychology 3 s.h.
3:307 Sociology and the Child 3 s.h.
3:244 Mathematical Models of Child Behavior 3 s.h.
3:245 Discriminative Learning in Children 3 s.h.
3:221 Laboratory Techniques 3 s.h.
3:129 Fundamentals of Laboratory Instruments 3 s.h.

 Admission to the Ph.D. candidacy requires a minimum grade-point average of 3.0 for all graduate courses taken, completion of an M.A. research thesis at the equivalent of 6 semester hours, proficiency in statistics, ability to analyze data, and an acceptable proposal for the Ph.D. dissertation.

Requirements for the granting of the M.A. degree in preschool education require completion of 33 prescribed semester hours of graduate study with a minimum grade-point average of 3.5, preparation of an acceptable thesis, and satisfactory performance on a final examination con-

M.A. in child behavior. The M.A. program in child behavior provides the student with advanced training in preschool methodology, theory, detailed knowledge in each of several content areas of child development, and opportunities for participation in research activities.

Required courses

5:201 Introduction to Child Psychology 3 s.h.
5:202 Methodological Problems in Child Development 3 s.h.
5:203 Research in Child Development 3 s.h.
5:204 Introduction to Statistical Methods 3 s.h.
5.128 Social Behavior of Children 3 s.h. 

5.230 Preschool Education 3 s.h. Principles and procedures, with emphasis on unique aspects of the preschool years. Prerequisites: 5.230 or equivalent.

5.231 Seminar: Curriculum Development in the Preschool 2 s.h. Principles of curriculum development. Improvement throughout the preschool years. Prerequisites: 5.230 or equivalent.


5.234 Advanced Practicum in Preschool Education 1 to 4 s.h. Directed observation and participation in the preschool laboratories. Prerequisite, consent of instructor.

5.235 Seminar: Preschool Supervision 2 s.h. Teacher evaluation and guidance. Curriculum improvement and preparation of materials for use in preschool groups. Prerequisite, consent of instructor.

5.240 Learning in Children 3 s.h. Review and analysis of experimental research on development of learning processes. Emphasis on generalization, discrimination, learning, and concept formation. Consideration of the role of attention and memory. Same as Psychology 31.934.

5.241 Motivational Determinants of Child Behavior 3 s.h. Motivational vs. associative interpretations of child behavior; child research concerned with anxiety, stress, frustration, conflict, incentive motivation, boredom. Prerequisite, consent of instructor.

5.245 Visual Psychophysics in Children 3 s.h. Analysis of perception relevant to the study of basic visual processes in children. Prerequisite, 5.146 or consent of instructor.

5.243 Verbal Processes in Children 3 s.h. Verbal processes in respect to their role with similar and differential effects on children and adults, and developmental aspects of short- and long-term memory. Prerequisite, Psychology 31.225 or consent of instructor.

5.244 Mathematical Models of Child Behavior 3 s.h. Applications of stochastic models to developmental processes. Emphasis on learning, attention, and memory. Prerequisite, Psychology 31.934.

5.245 Social Behavior of the Child 3 s.h. Theory and research on the influence of social variables on child behavior, with focus on effects of observing behavior on development. Prerequisite, consent of instructor.

5.246 Socialization Process 3 s.h. Influence of parent behavior and related environmental influences on social and personality development. Prerequisite, consent of instructor.

5.248 Advanced Psychophysics of Children 3 s.h. Lectures and laboratory work dealing with neural functioning and psychophysiological techniques. Review and analysis of selected topics with special reference to psychophysiological research on infants and children. Prerequisite, 5.155 or consent of instructor.

5.249 Discrimination Learning in Children 3 s.h. Theory and research on the classification of stimuli into classes of different categorizing in classical and instrumental conditioning and in simultaneous, successive, relational, and

5.128 Social Behavior of Children 3 s.h. Theories, methods, and research findings, with emphasis on a learning analysis of social interaction. Prerequisites, consent of instructor.

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Center for Far Eastern Studies

The Chinese Language and Area Center at The University of Iowa was one of the first fifty-five such centers established in major universities in the country with federal aid provided by the National Defense Education Act. This financial aid has resulted in the strengthening of the faculty and course offerings of the Chinese and Oriental Studies program. Similar expansions in the area of China and the Far East occurred in several other departments of the University, notably the School of Art, the School of Religion, and the departments of Anthropology, Geog- raphy, History, Political Science, and Sociology. The aggregate resources of these and other departments made possible the offering of an undergraduate major in Chinese language and civilization, a graduate program leading to the master's degree in Chinese language and civilization, and an undergraduate major in Japanese language and civilization.

Undergraduate Major Requirements in Chinese Language and Civilization

Undergraduate majors in Chinese language and civilization are required to complete a program of 35 semester hours distributed under the following categories: I. Chinese Language, II. Chinese History and Civilization, III. Literature and General Culture, IV. Related Courses, and V. Ex- ternal Concentration. The "external concentration" requirement is intended to enable the student to achieve, besides the Chinese language and area studies, a certain degree of concentration in an established discipline. It is expected that both the intellectual development and vocational preparation of the student will be thereby enhanced. Some students have also taken advantage of the "external concentration" requirement to work out a double major program and fulfill the requirements of both departments. The following are lists of courses under each category:

I. Language

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:115-116</td>
<td>Elementary Chinese</td>
<td>4-6</td>
</tr>
<tr>
<td>35:105-106</td>
<td>Second-Year Chinese</td>
<td>4-6</td>
</tr>
<tr>
<td>35:107-108</td>
<td>Third-Year Chinese</td>
<td>4-6</td>
</tr>
</tbody>
</table>

II. History and Civilization

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:153</td>
<td>History of China to 1840</td>
<td>3-4</td>
</tr>
<tr>
<td>35:154</td>
<td>History of Modern China</td>
<td>3-4</td>
</tr>
</tbody>
</table>

III. Literature and Culture

<table>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:155</td>
<td>Chinese Literature</td>
<td>3-4</td>
</tr>
</tbody>
</table>

IV. Related Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>35:165</td>
<td>History of China to the West</td>
<td>3-4</td>
</tr>
<tr>
<td>35:166</td>
<td>History of Japan</td>
<td>3-4</td>
</tr>
<tr>
<td>35:167</td>
<td>History of Korea</td>
<td>3-4</td>
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Group A

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>35:155</td>
<td>Literary Tradition of China</td>
<td>3-4</td>
</tr>
<tr>
<td>35:168</td>
<td>Oriental Art: India</td>
<td>3-4</td>
</tr>
<tr>
<td>35:169</td>
<td>Art and Architecture of Japan</td>
<td>3-4</td>
</tr>
<tr>
<td>35:170</td>
<td>General Linguistics</td>
<td>3-4</td>
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Group B

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>35:155</td>
<td>History of China to 1840</td>
<td>3-4</td>
</tr>
<tr>
<td>35:154</td>
<td>History of Modern China</td>
<td>3-4</td>
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Group C

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>35:178</td>
<td>Art and Architecture of Japan</td>
<td>3-4</td>
</tr>
<tr>
<td>35:180</td>
<td>History of Japanese</td>
<td>3-4</td>
</tr>
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Group D

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>35:178</td>
<td>Artistic and Political Life of the Far East</td>
<td>3-4</td>
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Group E

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>35:178</td>
<td>Artistic and Political Life of the Far East</td>
<td>3-4</td>
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</table>

Group F

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>35:178</td>
<td>Artistic and Political Life of the Far East</td>
<td>3-4</td>
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</table>

Group G

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>35:178</td>
<td>Artistic and Political Life of the Far East</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Group H

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:178</td>
<td>Artistic and Political Life of the Far East</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Group I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:178</td>
<td>Artistic and Political Life of the Far East</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Group J

<table>
<thead>
<tr>
<th>Course Code</th>
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Honor's in Chinese Language and Civilization

A candidate for Honors in Chinese Language and Civilization must be a major student in the field and:

1. Have an overall grade-point average of 3.5 or above, and receive favorable recommendations for Honors study from his advisor.

2. Enroll during the senior year in 20:121 and 20:122 Undergraduate Honors Tutorial for 2 semester hours for each of the two semesters; write a doctoral readable essay on Chinese literature or civilization under the supervision of his advisor.

3. Enroll during the senior year in 20:120 Senior Honor Thesis and prepare an Honors thesis on Chinese literature or civilization for 2-4 semester hours.

4. Maintain a B grade or above for all Honors courses, and a B average in coursework throughout the senior year.

A student who has fulfilled all the requirements listed above will graduate and receive the B.A. degree "With Honors" in Chinese Language and Civilization.

Foreign Studies Certificate on China

Students who have successfully (ordinarily with a 3.5 average or above) completed the following program of study will be granted the Foreign Studies Certificate on China:

20:121 Elementary Chinese Language 4 s.h.
20:122 Elementary Chinese Literature 4 s.h.
20:123 Second-Year Chinese Language 4 s.h.
20:124 Second-Year Chinese Literature 4 s.h.
20:125 History of China to 1840 3 s.h. (Same as History 11:034)
20:126 History of Modern China 3 s.h. (Same as History 14:054)
30:188-189 Asian Civilization I and II 3 s.h. (Same as Art 11:118)
30:189 Government and Politics of the People's Republic of China 3 s.h.
30:241 Chinese Literature I 3 s.h.
30:242 Chinese Literature II 3 s.h.
30:249 Art of China 3 s.h. (Same as Art 11:118)

Additional courses as approved by the department chairman 6 s.h.

Recommended as substitutions or additional courses:
30:141 Chinese Literature I 3 s.h.
30:142 Chinese Literature II 3 s.h.
30:249 Art of China 3 s.h.

M.A. Program in Chinese Language and Civilization

Statement of Purpose. Graduate study in the Chinese and Oriental Studies program is designed to train students for continuing study on an advanced level ultimately leading to the doctorate, or for preparation for high school teaching, professional work, or a career in business that requires a general knowledge of Chinese language and culture along with a broad regional background. Therefore, two programs leading to the M.A. degree are offered: Program A: a program of specialized training in Chinese language, literature, and thought, with a thesis. Program B: a prescribed combination of courses of study over a wider choice to provide the best possible training for the type of work he plans to do.

Admission Requirements. Applicants for graduate study should have completed an undergraduate major in Chinese language and civilization of The University of Iowa or its equivalent, and taken the Graduate Record Examination Aptitude Test. Students with dual-majors in their undergraduate major are expected to complete 12 semester hours in addition to carrying the graduate study program, and may be admitted to graduate course registration in Chinese summer institute courses of the Chinese and Oriental Studies and to satisfy their dual major in Chinese Language and Civilization subject to the approval of their college faculty of registration.

Requirements for the M.A. Degree. Mastery of the Chinese language is an essential requirement for the master's degree. Normally students who have had three years of Chinese instruction in their undergraduate courses are expected to fulfill the language requirement by taking Chinese for one additional year. Students enrolled in Program A (with thesis) will also elect a year's study of Japanese and complete a seminar in 20:200 Methods of Sinological Research.

Program A comprises 30 semester hours of coursework and would lead to a terminal M.A. degree. A comprehensive examination will be administered during the candidate's last semester of registration, and an oral examination given on the thesis where a thesis is included in the program.

All candidates are expected to fulfill the general requirements of the Graduate College.

The following are typical programs of graduate study for the two programs:

Program A

1. Advanced Chinese (beyond the first 2 years) 8 s.h.
2. Japanese 8 s.h.
3. Seminar: Methods of Sinological Research 4 s.h.
4. Advanced courses in Chinese Literature and thought 8 s.h.
5. Thesis 2 s.h.

Total 30 s.h.

Program B

1. Advanced Chinese (beyond the first 3 years) 8 s.h.
2. Advanced courses in Chinese Literature and thought 15 s.h.
3. A thesis course, 2 s.h., and one of the following: history, journalism, etc., depending upon the student's interest and objective 15 s.h.

Total 35 s.h.

Undergraduate Major Requirements in Japanese Language and Civilization

Undergraduate majors in Japanese language and civilization, hours distributed under the following categories: I. Japanese Language, II. Japanese History and Civilization, III. Japanese Literature and General Culture, IV. Related Courses and V. Retention Examination. The "enrollment concentration" requirement is made to enable the student to achieve, besides his Japanese language and area studies, a certain degree of concentration in an established discipline. It is expected that both the lateral development and vocational preparation of the student will be enhanced. These students have also taken the advantage of the "enrollment concentration" requirement to work out a double major program and fulfill all the requirements. The following are lists of courses under the five categories:

I. Languages
30:112 Elementary Japanese 4 s.h.
30:113 Elementary Japanese 4 s.h.
30:122 Second-Year Japanese 4 s.h.
30:124 Second-Year Japanese 4 s.h.
30:125 Third-Year Japanese 4 s.h.
30:126 Third-Year Japanese 4 s.h.

II. History and Civilization
30:121 Japanese Civilization: Prehistoric 3 s.h.
30:122 History of Japan to 1868 3 s.h.
30:123 History of Japan in the Meiji A.D. 3 s.h.

(Same as History 11108)
HONORS IN JAPANESE LANGUAGE AND CIVILIZATION
A candidate for Honors in Japanese Language and Civilization is required to complete the following courses under the supervision of his advisor.

1. Have an overall grade-point average of 2.5 or above, and acceptable recommendation for Honors study from his advisor.

2. Enroll during the senior year in 290:152 or 290:153. Undergraduate Honors Tutorial for 3-6 semester hours for each of the two semesters. During the junior year, write a brief, readable essay on Japanese Literature (for civilization) under the supervision of his advisor.

3. Enroll during the senior year in 290:195 Senior Honors Thesis and prepare an Honor Thesis on Japanese Literature. Undergraduate Honors Tutorial for 3-6 semester hours.

4. Maintain a B grade or above for all Honors courses, and a B average in all coursework throughout the senior year. A student who has fulfilled all the requirements listed will graduate and receive his B.A. degree "With Honors" in Japanese Language and Civilization.

FOREIGN STUDIES CERTIFICATE ON JAPAN
Students who have successfully (ordinarily with a 3.5 average or above) completed the following program of study will be granted the Foreign Studies Certificate on Japan:

- 290:150 Elementary Japanese
- 290:151 Intermediate Japanese
- 290:152 Second-Year Japanese
- 290:153 Intermediate History of Japan
- 290:154 History of Modern Japan
- 290:6 Asian Civilizations: Japan

The CIC Far Eastern Language Summer Institute
Under the sponsorship of the midwestern Committee on Institutional Cooperation (CIC), consisting of representatives from the Universities of Chicago, Illinois, Indiana, Iowa, Michigan, Michigan State, Minnesota, Northwestern, Ohio State, Purdue, and Wisconsin, a Far Eastern Language Summer Institute will be held during a rotating basis for a number of years. Intensive courses in Chinese and Japanese at all levels as courses in literature, language, civilization, etc., pertaining to the two languages, are available. The facilities of both the Chinese and Japanese teaching staffs of the midwestern CIC institutions, to whom students from universities outside these are added. Scholarships are available to qualified students at both graduate and undergraduate levels.

Financial Aid to Students
The George Lyttleton Rogers and Richard Pollack Scholarships — two $100 stipend awards — are available each year to foreign language and civilization honors students majoring in Chinese. Application by qualified students should be made with the department of the College.

The University of Iowa also offers other opportunities through the Committee on Student Financial Aid. NTHA and CIC scholarships are available for the intensive Summer Language Institute which provides intensive language study, transportation, and living expenses. NTHA and CIC scholarships are available for the intensive Summer Language Institute which provides intensive language study, transportation, and living expenses. NTHA and CIC scholarships are available for the intensive Summer Language Institute which provides intensive language study, transportation, and living expenses. NTHA and CIC scholarships are available for the intensive Summer Language Institute which provides intensive language study, transportation, and living expenses.

The Oriental Library Collection
The Oriental Library Collection located in the University Library was begun when the Chinese Language and Area Center was established. The collection is estimated to consist of Chinese, 25,000 volumes; Japanese, 4,005.
Chinese and oriental studies

Korean, 506. Besides basic reference materials, the collection has strength in history, literature, philosophy, and art. Among the larger sets in the collection are those of the Sangju Tripitaka, the Ssangyong Seokjeon, the Ku-chih T‘ang-chih Chi-yung, the Fat-tsu Fang-t‘ang Chi-chih, the Fat-t‘ang Tai-chi, the Ts‘ao-y‘ing Dynamic Histories, etc. It is the aim of the collection to become an adequate Chinese library for general basic reference with special collections built around the interests and needs of the faculty and graduate students.

The Japanese collection is being rapidly augmented. Books on China and the Far East in Western languages are shelved as they are acquired under their subject classifications in the general University Library.

STAFF

Professor: P. C. Lee

Professors Emeriti: Y. S. Ko, Y. F. Mei

Associate Professor: H. O. Wang

Assistant Professor: Matsumo Suga, Kam-sung Wong

Instructor: Lillian Yuan

Interdepartmental Faculty: Robert D. Bailey (Rajington), William Barrett (Anthropology), George B. Bagby (Art), David Hamilton (History), Robert H. Hewson (Agriculture), Chao-lien Kuo (Political Science), Stephen Lang (History), W. Passage (Rajington), Winston J. Sears (Rajington), Robert Noree (Art), H. Howard Wambausher (Anthropology).

COURSE DESCRIPTIONS

Note: Upperclassmen and graduate students may receive credit for courses below 100 only with special permission from their advisor and the instructor of the course.

39:5 Asian Civilization: China 3 a.h.

Historical and topical study of Chinese civilization considered in terms of religious, cultural, and philosophical evolution. Prerequisites: to all other courses in Chinese culture.

39:6 Asian Civilization: Japan 3 a.h.

Historical and topical study of Japanese civilization considered in terms of religious, cultural, and philosophical evolution. Prerequisites: to all other courses in Japanese culture.

39:7 Survey of India 3 a.h.

Introduction to Oriental Art 3 a.h.

Same as Art 1311A.

39:46 Living Religions of the East 2 a.h.

Religious thought and practices in India, China, and Japan. Same as Religion 13:46.

Chinese Language

39:101 Elementary Chinese 4 a.h.

Students admitted are required to take 39:102.

39:102 Elementary Chinese 4 a.h.

Continuation of 39:101, which is prerequisite.

39:103 Second-Year Chinese 4 a.h.

Continuation of 39:102.

39:104 Second-Year Chinese 4 a.h.

Continuation of 39:103.

39:105 Third-Year Chinese 3 a.h.

39:106 Third-Year Chinese 3 a.h.

39:107 Readings in Literary Chinese 3 a.h.

39:108 Readings in Classical Chinese 3 a.h.

39:109 Readings in Documentary Chinese 3 a.h.

39:113 Advanced Conservation 3 a.h.

39:114 Study of the Written Character 3 a.h.

39:117 Advanced Composition 3 a.h.

39:119 Chinese-English Translation 3 a.h.

39:131 Language Laboratory Procedures 1 a.h.


39:138 Structure of Modern Chinese 2 a.h.


39:139 History of the Chinese Language 3 a.h.


Primarily for Graduates

39:111 Readings in Chinese Literature 2 a.h.

39:121 Readings in Chinese Literature cr.arr.

39:131 Readings in Chinese History 2 a.h.

39:134 Readings in Chinese History cr.arr.

39:191 Individual Chinese for Advanced Students cr.arr.

39:320 Individual Chinese for Advanced Students cr.arr.

39:39 Seminar in Chinese Linguistics 2 or 3 a.h.

Research in the tradition of Chinese linguistic study and in the problems of applying modern linguistic techniques to the study of the Chinese language. Prerequisites: 39:138, 39:139, and reasonable ability in reading Chinese texts.

Chinese Literature (in English)

39:141 Chinese Literature I 3 a.h.

Development and characterization of Chinese literature from 11th century B.C. to 20th century A.D. Emphasis on poetry.

39:142 Chinese Literature II 3 a.h.

Characterization of Chinese literature from 20th century A.D. to the present with emphasis on fiction and drama.

39:143 Contemporary Chinese Literature 3 a.h.

Works of the "Golden Age" of classical Chinese poetry (7th-10th centuries).

39:144 Chinese Poetry 3 a.h.

39:145 Poetry in Chinese Painting 3 a.h.

39:146 Traditional Chinese Fiction 3 a.h.

Representative novels and short stories.

39:147 Chinese Fiction: Classical Novel 3 a.h.

39:148 Chinese Drama 3 a.h.

39:149 Chinese Theatre 3 a.h.

39:150 Literary Tradition of China and the West 3 a.h.

39:151 Modern Chinese Fiction 3 a.h.


Chinese Thought and Culture

39:320 Chinese Painting I 3 a.h.

Same as Art 13:320.
3:52:121 Chinese Painting II
3 a.h.
Same as Art 12:121.

3:52:153 History of China to Circa 1840
3 a.h.
Origins and development of Chinese civilization through the early Ching period. Emphasis on political, economic, and social rather than intellectual trends. Prerequisite: Junior or senior standing. Same as History 12:153.

3:52:154 History of Modern China
3 a.h.
Political and social development of China, 1840 to present. Emphasis on Western impact and Chinese response. Prerequisite: History 12:154 or 14:154 or equivalent; graduate student by permission of instructor. Same as History 12:154.

3:52:155 Ethnology of China
3 a.h.
Same as Anthropology 11:126.

3:52:172 Chinese Calligraphy and Painting 1 a.h.

3:52:183 Chinese Calligraphy and Painting 1 a.h.
Continuation of 3:52:172.

3:52:189 Art of China
3 a.h.
Art and architecture of China, including aesthetic principles, stylistic developments, relation to philosophies and religions (Confucianism, Taoism, and Buddhism). Same as Art 12:189.

3:52:191 Religion in China
3 a.h.

3:52:253 Topics in Chinese Institutional History cr.arr.
Same as History 12:286. Prerequisite: Consent of instructor.

Same as History 12:286. Prerequisite: Consent of instructor.

3:52:283 Topics in Modern Chinese History cr.arr.
Same as History 12:286.

3:52:290 Seminar in Methods of Sinological Research 3 a.h.
Procedures of research and use of reference materials.

Oriental Culture
3:52:162 Buddhist Sacred Texts 3 a.h.
Mythology and Theravada texts in translation. Same as Religion 22:152.

3:52:182 Indian Religious Texts 3 a.h.
Same as Religion 22:154.

3:52:167 Religion in India 3 a.h.
Movements, doctrines, and religious practices in India both in its history and in its modern expression. Same as Religion 22:153.

3:52:168 Oriental Art: India 3 a.h.
Art and architecture of India and Southeast Asia; aesthetic principles, stylistic development, their relation to philosophies and religions (Buddhism, Hinduism, and Islam). Same as Art 12:154.

3:52:169 Oriental Art: India 3 a.h.
Art and architecture of greater India from 1000 A.D. to the modern period, and their relation to philosophies and religions (Hinduism). Same as Art 12:156.

3:52:171 History of East Asia to Circa 1800 3 a.h.
East Asia from the beginning until the early 19th century and Asian areas connected with Chinese and Japanese civilizations. Development of political institutions and cultural traditions. Not open to freshmen. Same as History 12:151.

3:52:172 History of Modern East Asia 3 a.h.
Continuation of 3:52:171 to recent times, but may be taken as an independent unit. Modernization and relations with the West. Not open to freshmen. Same as History 12:152.

Far East 3 a.h.
Same as Political Science 30:143.

3:52:255 Seminar in Oriental Art 2 or 3 a.h.
Same as Art 12:255.

3:52:263 Seminar: Buddhism 2 a.h.
Research and reading in a selected Buddhist thinker or movement. Same as Religion 22:253.

3:52:267 Seminar: Religion in India 2 a.h.
Research and reading in a selected Hindu thinker or movement. Same as Religion 22:267.

3:52:268 Advanced Oriental Art: India 3 a.h.
Same as Art 12:215.

3:52:191 Undergraduate Honors Tutorial 2 a.h.
3:52:192 Undergraduate Honors Tutorial 2 a.h.
3:52:195 Senior Honors Thesis 2 to 4 a.h.
3:52:201 M.A. Thesis cr.arr.

Japanese Language and Linguistics
Students admitted are expected also to take 3:52:102.

Continuation of 3:52:101, which is prerequisite.

Continuation of 3:52:102.


3:52:113 Advanced Japanese Conversation 3 a.h.

3:52:115 Japanese Composition 3 a.h.

3:52:129 Linguistic Structure 3 a.h.
Same as Linguistics 120:210.

Japanese Literature (in English)
3:52:141 Classical Japanese Literature 3 a.h.
Development of literature from the beginning through the Edo Period; historical and cultural background; readings from translations.

3:52:146 Modern Japanese Literature 3 a.h.
Novels, new poetry, drama, and Japanese literature under Western influences. Readings from translations.

3:52:143 Survey of Japanese Fiction 3 a.h.
Major works from the time of Genji to present novels.

Poetry from Man'yoshu through Court Poetry, Linked Verse, and Baku in modern poetry.

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CLASSICS

393:145 Modern Japanese Novels 3 s.h.
Major works of fiction of 20th century Japan.

393:146 Modern Japanese Poetry 3 s.h.
Major works of poetry of 20th century Japan.

393:159 Japanese Literature and the West 3 s.h.

Japanese Thought and Culture

393:133 History of Japan to 1867 3 s.h.
Japanese history from the beginning through the Tokugawa Period. Feudal system, culture, and economic growth. Present day Japan, junior or senior standing. Same as History 18:15.

393:154 History of Modern Japan 3 s.h.
Continuation of 393:133 to recent times, but may be taken as an independent unit. Modernization and emergence of Japan as a world power. Present day Japan, junior or senior standing. Same as History 16:10.

393:155 Ethnology of Japan 3 s.h.
Human behavior in the social and cultural setting of contemporary Japan. Contacts with pre-modern conditions; developments since 1858. Same as Anthropology 113:10.

393:156 Art and Architecture of Japan 3 s.h.
Art and architecture of Japan; aesthetic principles, stylistic developments, relationships to philosophies and religions. Shintoism, Buddhism, and Zen. Same as Art 15:10.

393:159 Japanese Thought 3 s.h.

393:161 Religion in Japan 3 s.h.
Study of the main religions in Japan. Same as Religion 115:10.

Honors Courses and Theses in Japanese

393:191 Undergraduate Honors Tutorial 3 s.h.

393:192 Senior Honors Thesis 2 to 4 s.h.

CLASSICS

Chairman of Department, Roger A. Hornsby
Office, 115 Schaeffer Hall

To present in as direct and vivid a way as possible to students who are interested in a literature and culture of Greece and Rome and those whose major interests are in other languages and disciplines, Western man; three civilizations; Roman, Greek, Hellenistic; the languages Greek and Latin; and geographical areas including Europe, North Africa, Egypt, and Asia; read and understand and write the contributions of the ancient world to life in the present and the future are the goals of the department.

Foreign Language Requirement

Candidates for the Bachelor of Arts degree who wish to present the foreign language requirement in Greek or Latin may do so by completing a combination of high school and college study in one language which would be the equivalent of 8 semester hours of study at the college level, or by completing a minimum of 8 semester hours of approved college-level study in a foreign language; or by passing the 20th-25th semester tests measuring proficiency equivalent to that usually attained after one year of college study of a foreign language.

Undergraduate Requirements

Major in Greek. Thirty semester hours of which 24 must be in Greek language courses. The following or their equivalents are the normal elementary courses and count toward the 24 semester-hour minimum:

48 Greek 4 s.h.
14:11 and 14:12 Second-Year Greek 8 s.h.
C4871 Elementary Greek Composition 3 s.h.
Electives beyond the 24-semester-hour minimum may be taken in Greek or other related fields.

Major in Latin. Thirty semester hours, of which 24 must be in Latin language courses above 188:15, and which include 20:171 Elementary Latin Composition or its equivalent. Electives beyond the 24-semester-hour minimum may be taken in Greek or other related fields.

Major in Classics (Greek and Latin). Thirty-six semester hours, 24 in one language and 12 in the other. Course requirements for the major language, as above; for the minor language, at least two reading courses (8 semester hours) and composition (3 semester hours). Undergraduate majors in Greek, Latin, or Classics are excused from four semester hours of the literature core requirement, but must complete 11:00.

(For the general requirements of the College of Liberal Arts, see College of Liberal Arts. For the requirements for the Law School's Certificate, see College of Education.)

Honors in Classics

Two courses are required in Honors Reading, one each semester of any 20th-25th semester courses numbered above 188:15, except XIV courses. These credits are not in addition to the 24 semester hours required for the major or minor, but are beyond the requirements of the department. The reading and discussion are on either an ancient author or a field in ancient history or literature. 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.

Graduate Requirements

For the general requirements of the Graduate College including the comprehensive examination, see Graduate College.

Graduate students in Classics may include in their program one or more of the 24-500 level courses numbered 188:15 and above.

M.A. degree in Greek, Latin, or Classics. A minimum of 30 semester hours of courses numbered 248 and above is required. Students in Latin who have had no Greek are normally expected to include at least elementary Greek in their program.

240:180 or 30:380 Prosopomen: Introduction

240:280 Classical Texts and Study 3 s.h.

Special programs will be arranged for candidates who wish to prepare for teaching the Classics in English (general education courses, world literature, etc.), P.A.D. degrees (given only in Classics, i.e., Greek and Latin). Completion of the degree requires an ability to translate and write in Greek and Latin, as tested in qualifying examinations. Greek and Latin, as tested in qualifying examinations, the reading of considerable portions of Greek and Latin texts, and a reading list prepared by the student and his advisor and approved by the department, a text reading and translation of a Latin or Greek work, and French; passing the written comprehensive examinations in ancient history, a special field, and Greek or Latin literature, and a two-hour oral examination on Greek, Latin, a special field, and Greek or Latin literature.
Required courses:
14:201 or 30:601 Preparatory: Introduction to
Advanced Study 3 a.h.
One of each from the following two areas:
a. Ancient Art, Literary Relations 3 a.h.
b. Ancient Linguistics, Paleography 3 a.h.
c. Latin Seminar 6 a.h.
Greek Seminar 6 a.h.
One of the seminars (6 semester hours) will normally be taken before the writing of the comprehensive examinations.

Special Facilities
Excepive collections of classical texts and periodicals in the University Library and Art Library illustrate research in the major areas of Greek and Roman civilization.
The department has a varied and extensive collection of slides on classical subjects.
Associated with the department is the Classical Museum, which contains a valuable collection of miscellaneous pots, vases, and statuettes from Mycenae, Pumpeii, and Heracleum.

The University of Iowa is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the American School of Oriental Research, thereby making available to its faculty and graduates many of the facilities of those schools.

STAFF
Professors: Jonathan Goldstein, Roger A. Horvay, Oscar K. Nygelos.
Associate Professors: Margaret Alexander, Stirte B.
Hailstrom, G. A. Bemey, M. K. Fitchinger, Donald Jackson.

COURSE DESCRIPTIONS
Greek
For Undergraduates Only
Students wishing to satisfy the B.A. foreign language requirement need to study Greek should take the sequence of courses: 1411, 1412, 1413, 1414.
14:13 Elementary Greek 4 a.h.
Fundamentals of Attic Greek and basic concepts of Greek civilization. Five meetings per week.
14:12 Elementary Greek 4 a.h.
Continuation of 14:13. Selections from Greek authors are read.
14:15 New Testament in Greek 2 a.h.
Rapid reading of selections from the Gospels. May be taken in sequence only to 14:16.
14:11 Second-Year Greek 3 a.h.
The reading of selected texts of Greek prose and poetry. Prerequisite: 14:12 or equivalent.
14:12 Second-Year Greek 3 a.h.
Continuation of 14:11, which is a prerequisite for this course.

For Undergraduates and Graduates
14:131 Homer and Herodot 1 a.h.
For third-year Greek students. Selections from Homer’s Iliad and Odyssey and from Herodotus’s Wars and Wars and Themistocles read in Greek; complete works read in English.
14:122 Homer and Herodot 1 a.h.
Continuation of 14:131, which is a prerequisite.
14:161 Greece and Persia 3 a.h.
For students in their fourth year of Greek. Events leading to the Persian war, the course of the war, and its immediate aftermath. Aeschylus’ Persians and selections from Herodotus read in Greek; supplementary readings read in English.
14:162 Fifth Century Athens 3 a.h.
Companion to 14:161, which is a prerequisite. The changing intellectual climate of the late fifth century, and its effects on literature. Selections from Thucydides, Sophocles, Phaedo, Euripides’ Suppliants, and fragments of the Sophists read in Greek; supplementary readings in English.
14:171 Elementary Greek Composition 3 a.h.
Review of morphology and syntax. Greek sentence structure, and the construction of short passages in Greek.
14:172 Advanced Greek Composition 3 a.h.
Review of morphology and syntax. Greek sentence structure, and the construction of short passages in Greek.

14:191, 14:192 Honors Reading 5 a.h.
Supervised readings on special author or topic leading to several short essays in the first semester, a long paper in the second semester. For Honors sending both courses are required.
14:193 Private Tutorial 1 to 3 a.h.
For Classics majors who have completed four years of Greek or the equivalent.
14:199 Private Assignments 2 to 7 a.h.
Supervised individual study. For advanced students who are not majors in the department. May be repeated.

For Graduates
14:201 Preparatory: Introduction to
Advanced Study 3 a.h.
Advanced methods and disciplines: bibliography, textual criticism, paleography, epigraphy, history of classical scholarship. Required of all graduate students.
14:303 Indo-European Philology 3 a.h.
Exposition of comparative method as applied especially to Greek and Latin, and a study of phonology and etymological laws.
14:301 Greek Paleography 3 a.h.
Study of Greek papyri, manuscripts, early printed texts, papyrology, and text-criticism.
14:310 Problems of Ancient Art 2 or 3 a.h.
Same as Art 162.
14:311 Problems of Ancient Art 2 or 3 a.h.
Continuation of 14:310.
14:330 Greek Lyric Poetry 3 a.h.
A detailed and critical reading of selections from Greek lyric poetry.
14:333 Aeschylus: a critical reading of the plays of Aeschylus.
14:334 Aristophanes 3 a.h.
Critical reading of selected comedies.
14:335 Plato’s Republic 3 a.h.
Examination of Plato’s presentation of justice.
14:342 Thucydides 3 a.h.
Reading and critical study emphasizing Thucydides’ intellectual background and the aims of his history.
14:350 Greek Biography 3 a.h.
The biographical writings of Plutarch, Xenophon, and Pausanias.
14:381 Greek Seminar 3 a.h.
In 1971-72 the seminar will concern Byzantine Greek
with readings from the Cappadocian church fathers to the Crusades, with emphasis on the characteristics of each era. (Topic changes annually.) Required of all Ph.D. candidates.
14:282 Greek Seminar 3 s.h. 
Continuation of 14:281. Required of all Ph.D. Candidates. 
14:283 Greek Thesis cr.arr. 
Open to Ph.D. candidates for the writing of the dissertation.

Latin
For Undergraduates Only
Students may elect 20:1 and 3 or 20:15 as part of their language requirement for the B.A. or B.S. degree. Students with some high school Latin should enroll in 20:13. Students who have completed either 20:3 or 20:15 should next enroll in 21:2.
20:1 Elementary Latin 4 s.h. 
Practical application of modern linguistic methods to learning Latin. Prepares for reading Roman literature. Five meetings per week.
20:2 Elementary Latin 4 s.h. 
Continuation of 20:1. Prerequisite, 20:1.
20:15 Latin Review 4 s.h. 
For students who have had some high school Latin for general review. Not open to students who have passed 20:1 or 20:3.
20:16 Intermediate Prose 3 s.h. 
Prerequisite, 20:3 or 20:15 or two years of high school Latin. Reading of Latin prose writers.
20:17 Elementary Latin Poetry 3 s.h. 
Prerequisite, 20:15 or equivalent. Introduction to Latin poetry and rhetoric.
20:18 Aeneid of Cicero 3 s.h. 
Prerequisite, 20:17 or equivalent. The cultural and social life of Rome in the last century of the Republic. Reading in Latin of selected works of Cicero and Catullus. Supplementary readings in English.
20:32 Age of Augustus 3 s.h. 
For Undergraduates and Graduates
20:117 Special Latin Review 3 s.h. 
Offered only in summer semester. A rapid review of the elements of Latin. May not be taken by students who have completed 20:1, 20:3, 20:15, or higher.
20:118 Methods in High School Latin 3 s.h. 
Aims, subject matter, textbooks, and methods in secondary school teaching. Prerequisite: 20:132.
20:128 Caesar 3 s.h. 
Cicero's Commentaries on the Gallic Wars and the Civil War emphasizing his attitude toward Gauls and Romans and his concept of Rome as a great state.
20:130 Latin Lyric Poetry 3 s.h. 
Prerequisite, 20:17 or equivalent. Reading and criticism of selected Latin poems from the writings of Catullus, Horace, Vergil, and later Latin poets.
20:131 Vergil's Aeneid LV1 3 s.h. 
A critical reading of Horace's Odas and Sparses; and their place in the Horatian corpus and in Latin literature.
20:171 Elementary Latin Composition 3 s.h. 
Latin sentence structure and the composition of Latin essays.
20:172 Advanced Latin Composition 3 s.h. 
Advanced writing in written Latin prose, with styles of Caesar and Cicero as models.
20:185 Medieval Latin 3 s.h. 
Reading in authorship chosen for content and as representing important types of medieval Latin.
20:187 Roman Imperial History 3 s.h. 
Crises and recovery of the Roman Empire, from 46 to 79 A.D. as seen in Tacitus' Histories and Suetonius' Life of Augustus.
20:191 Honors Reading 3 s.h. 
Supervised reading on special author or topic leading to several short essays.
20:192 Honors Reading 3 s.h. 
Continuation of 20:191 and requiring a long paper.
20:193 Private Tutorial 1 to 3 s.h. 
For Classics majors only who have completed four years of Latin or the equivalent.
20:199 Private Assignments cr.arr. 
Supervised individual study. For advanced students who are not majors in the department. May be repeated.

For Graduates
20:201 Proseminar: Introduction to Advanced Study 3 s.h. 
Same as Greek 14:201.
20:202 Advanced Reading cr.arr. 
Open only to graduate students in the department.
20:224 Cicero's Letters 3 s.h. 
Readings from Cicero's letters which illustrate the political and social life of Rome from 63 to 43 B.C.
20:232 Advanced Vergil I 3 s.h. 
The first term will include Vergilian Bibliography, the Aeneid, Eclogues, and Georgics.
20:233 Advanced Vergil II 3 s.h. 
The second term will concentrate on the Aeneid.
20:243 Livy 3 s.h. 
Selections of literary, historical, and cultural interest from Livy's narrative.
20:273 Survey of Latin Literature 3 s.h. 
History and character of the literature of the Roman Republic. Assignments mainly in works not read previously.
20:274 Survey of Latin Literature 3 s.h. 
Literature of the early Empire: continuation of 20:273.
20:275 Roman Drama: Republic 3 s.h. 
Three or more plays, with the history of the Roman theatre and the development of comedy.
20:276 Roman Drama: Empire 3 s.h. 
Selections from the works of Seneca, with a study of the development of Roman tragedy and related problems.
20:279 Roman Satires 3 s.h. 
The history and nature of the genre with detailed analysis of the writings of Horace, Persius, Juvenal.
20:281 Latin Seminar 3 s.h. 
In 1970-71 the seminar will be an examination of the definitions of familial relationships found in the Roman poeticae, lexigraphers, and grammarians, and the reason for any lack of conformity between the definitions and actual usage. (The topic changes annually.) Required of all Ph.D. candidates.
Classics Courses in English

(No Knowledge of Greek or Latin Required)

For Undergraduates and Graduates

14:26 Introduction to Ancient Art 3 s.h.
Same as Art 12:26. Art and Architecture of Mediterranean civilization from Minoan times to the age of Constantine. Prerequisites: 11:37, 11:38, or permission of instructor.

14:101 Greek and Roman Civilization 2 to 3 s.h.
Life, art, and literature of the ancient world, and their relevance to modern times. Emphasis on Greece.

14:102 Greek and Roman Civilization 2 to 3 s.h.
Continuation of 14:101, but may be taken as an independent course.

14:107 Odysseus and the West 3 s.h.
Odyssesy as a figure in European literature.

14:108 Greek Drama in Translation 2 to 3 s.h.
Greek drama as an art form, with analysis of selected plays and history of the Greek theater. Same as Dramatic Art 16:108.

14:109 Greek Legacies 3 s.h.
The literature of ancient Greece, their discovery and influence for understanding Greek culture.

14:110 Greek Art and Archaeology 3 s.h.
Painting, sculpture, architecture, pottery, painting, and minor arts. Same as Art 11:128.

14:111 Greek Art and Archaeology II 3 s.h.
Continuation of 14:110. Same as Art 11:127.

14:112 Classical Mythology 3 s.h.
Lectures on classical myths and legends for comparative purposes; monumental mythologies are mentioned.

14:114 Greek Vase Painting 5 s.h.
A survey of Greek painted pottery from Protogeometric to Hellenistic times. Same as Art 11:128.

14:115 Scientific and Medical Thought in Greek and Latin 2 s.h.
Principles in the derivation of scientific and medical terminology in Greek and Latin.

14:116 Byzantine Art 3 s.h.
Same as Art 11:137.

20:101 Greek and Latin for Vocabulary Building 2 s.h.
Analysis of Greek and Latin elements in English words. Emphasis on usage in English and in romance.

20:107 Roman Erotic Poetry 3 s.h.
The love poetry of ancient Rome, its antecedents and influences.

Comparative Literature

Chairman of Program, Frederic Will Office, 425 English-Philology Building

The purpose of the Program of 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 critical method.

Admission

Admission is subject to approval by the Committee on Comparative Literature. Interested students who meet the requirements for admission to graduate study in the University should consult Prof. Frederic Will, chairman of the committee. Formal application is made to the University Office of Admissions.

Master of Arts Degree

The optional degree of Master of Arts in Comparative Literature may be granted to a student in the Program who has completed 45 semester hours of graduate coursework, at least 24 of them at The University of Iowa, with a grade-point average of 3.0 or better and in accordance with a plan of study approved by the Comparative Literature Committee. He shall have passed the qualifying examinations for the Ph.D. In Comparative Literature, and has been admitted to the doctoral program.

Doctor of Philosophy Degree

A student seeking a doctorate in comparative literature will study one literature in depth, for his major professional concentration, and one minor, before a limited area of specialization in two other literatures. A third portion of his program is devoted to comparative study which brings his minor and minor into focus. A total of 90 semester hours (including any work done for the M.A. degree) is required.

Languages

A study of literature across linguistic boundaries requires special training in languages. According to the thorough knowledge of at least two foreign languages is essential to the literary curriculum. Students should have advanced knowledge of one foreign language (approximately three years of college work or equivalent). They are expected to be able to communicate in this language, in all its forms, within two years after admission to the program. A high degree of competence should also be developed in reading and analyzing texts in the second foreign language. Some reading skill must be demonstrated in a third foreign language, to be used as a tool of scholarship as required by the Graduate College. Doctoral candidates ordinarily offer courses in Old English, Old or Middle High German, Old Norse, Old French, Old Spanish, etc., or in a classical language and literature. They may, however, substitute a literary course in a fourth modern foreign language if they wish.
COMPARATIVE LITERATURE

Course of Study
The major should comprise about half of the student's graduate work in Comparative Literature. Courses should range over the entire history of literature, and the student should also involve a close study of the most important literary genres. The minor, required in the first year of a full four-year course, may include studies in literary history, an aspect of classical literature, a medieval or early modern literature, or a modern literature. Proficiency in French, German, Italian, or Spanish is also required. Students may elect a minor in one or more of these languages.

Comparative study consists of work in comparative literature courses and seminars. A reasonable knowledge of literary traditions and an understanding of the comparative method in scholarship and criticism should be obtained in these courses. Although the student's training in comparative literature involves an understanding of the European tradition as a whole, it is expected that he will apply his comparative method within his area of concentration (e.g., French, English, or German novel, or the 18th century, or romanticism).

Examinations
By the end of his first year of graduate study, the student should be able to write a substantial paper on a literary author or period. He should also be prepared to pass a written examination in one or more of the major literary periods of his choice. The examination is administered by the Department of English, and the student may elect to take it in French, German, Italian, or Spanish.

Dissertation
The candidate's dissertation should demonstrate his ability to write a substantial paper of scholarly interest. The dissertation may be written in any major language, or it may be written in English, provided that it is translated into English. The dissertation should be based on research in a secondary or primary source, and it should be written in English.

Concentration in Comparative Literature in Other Programs
A concentration in comparative literature, roughly equivalent to a minor within the regular Ph.D. degree in English, is also available. For this alternative, consult the brochure Graduate Study in English.

Special Programs
Available to Graduate Students in Comparative Literature

Two special programs are also available to students in comprehensive literature. The Doctoral Workshop offers a workshop course which permits students to develop a special program in the theory and practice of literary criticism.

STAFF

Faculty Committee directing the program:
- Professors: Alexandre Aeppli (French and German), Stefano Bertolucci (Italian), Mario Botta (Italian), Hélène Brasseur (French and Italian), Oscar Fernandez (Spanish and Portuguese), Fred R. Philip (German), Marvin Rapport (English and Comparative Literature), Robert Horacek (Classics), John C. Heatley (English), Richard O'Brien (French and Spanish), Frederick Will (English and Comparative Literature), Curt A. Zimmerman (English and Comparative Literature), Robert W. Lamb (English), Carmen Magnago (Italian), and Robert H. Teske (German and Comparative Literature).
- Associate Professors: Gary Speck (English), John M. Donnelly (English), and John W. Carver (English and Comparative Literature).

Other members of the faculty taking part in the program:
- Professors: S. Rhodes Dunlap (English), W. B. Irwin (English).
- Associate Professors: David Chamberlain (English), Janice G. Hartnack (French and Italian), David Kraus (Speech and Dramatic Art), Robert Webster (English).
- Assistant Professors: Rudolph J. Knauff (English and Comparative Literature).

COURSE DESCRIPTIONS

European Literature

Primary for Graduates

4:221 Medieval Drama
3.0 h.

4:222 Continental Drama: 1500-1700
3.0 h.
Same as Speech 30-242.

4:226 Continental Drama: 1700-1875
3.0 h.
Same as Speech 30-272.

4:263 Critical Theory: Plato to the Romantics
3.0 h.
Same as English 35-302.

4:264 Coleridge to Croce
3.0 h.
Same as English 36-235 and Speech 30-272.

Comparative Courses

4:203 The European Renaissance
3.0 h.

4:204 Horace and Neoclassicism
3.0 h.

4:205 Age of Enlightenment
3.0 h.

4:206 European Romanticism
3.0 h.

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European Fiction 3 a.h.
Critical treatment of major European fiction writers. Prerequisite, reading knowledge of at least one of the following languages: French, German, Italian, Spanish. Same as English 280T, French 200T, and Spanish 200T.

Recent European Poetry 3 a.h.
Critical treatment of major European poets. Prerequisite, reading knowledge of at least one modern European language. May be repeated indefinitely for credit with the permission of the chairman. Same as English 220T, French 200T, and Spanish 200T.

Literary Movements in European Literature 3 a.h.
Historical and critical study of selected literary movements in Europe. Prerequisite, reading knowledge of one modern foreign language. May be repeated indefinitely for credit with the permission of the chairman. Same as French 212 and Spanish 222.

Literary Genre in Europe 3 a.h.
Theory and practice of selected genres. Different genres: epic, lyric, drama, novel will be treated at various times. Prerequisites will vary. Permission of instructor required. May be repeated indefinitely for credit with the permission of the chairman.

Literary Modes in Europe 3 a.h.
Theory and practice of modes as exemplified in major works: epic, tragic, lyric, romance, etc., selected historically and critically with reference to the major theoretical positions. Prerequisites will vary. Permission of instructor required. May be repeated indefinitely for credit with the approval of the chairman.

Patterns of Myth and Literary Forms 3 a.h.
Comparative presentation of selected topics involving at least three bodies of myth and exploring thematic patterns in individual mythologies and literatures. Lectures open to all students of the University and seminars restricted to those who wish to work for credit.

Translation Workshop 3 a.h.
Prerequisite, at least two classical or modern foreign language (Pet the German, Spanish, Italian). Same as English 350T.

Types of Modern Criticism 3 a.h.
Recent European and American criticism. Prerequisite, reading knowledge of one foreign language. Same as French 212.

Comparative Seminars
A fluent reading knowledge of at least one foreign language is prerequisite for 401T; for all other seminars, general students should also have a reading knowledge in a second foreign language.

Literary Relations 3 a.h.
The concept of "influence" and its applicability to literary relations between periods, movements, and styles in various countries.

Comparative Topics in Medieval and Renaissance Literature 3 a.h.
Comparative problems in medieval and Renaissance literature. Topics will differ from year to year.

Neo-Latin Literature 3 a.h.
Studies in 17th and 18th century literature, with particular emphasis on Greek and Latin influences on European neoclassicism.

Teaching of Comparative Literature 3 a.h.
Methods and problems in the teaching of comparative literature. Class discussion, directed reading, and occasional participation in teaching comparative literature courses, under the supervision and with the consent of the regular instructor, as circumstances permit.

Computer Science
(See Mathematical Sciences, Division of)

Micro-Economics 3 a.h.
Chairman of Department, Calvin D. Siebert Office, 671 Phillips Hall
Economics is the study of how individuals and societies choose to allocate scarce productive resources to produce various commodities and distribute them for purposes of current or future consumption among various individuals and groups in society. The study of the basic allocation problem involves the examination of individual human behavior, pricing and optimizing methods of allocating resources and products, and consideration of the institutional and organizational forms employed in market and nonmarket economies. Economics provides a framework in which to analyze economic policy problems in our society relating to unemployment, growth, and inflation and stabilizes the role of market, price, and competition in the promotion of economic welfare. The undergraduate major in economics provides the student with a general background which is useful in further graduate study, in business or government careers, or in the study of business or government. A student may provide a foundation for advanced training in economics by taking graduate courses in business or government.

Undergraduate Requirements
Besides providing electives for students with majors in other areas and courses which allow a student to broaden his undergraduate program, two bachelor's degrees, the B.A. and B.S., are available for students in economics. The B.A. degree is a more general degree and is designed for students who want a more flexible and broader undergraduate program. The program for the B.S. degree is a more intensive one, and is suggested for students contemplating graduate study in economics, and for business students. The student should elect one of these two degrees programs with the aid of their advisor.

Program for the B.A. Degree
In addition to the general College of Liberal Arts' requirements relative to the skills and core courses, including at least two years of one foreign language, the following requirements for the B.A. major in economics must be fulfilled:

Introductory Courses
21-222 Principles of Economics
21-223 Intermediate Micro-Economics
21-224 Intermediate Macroeconomics
21-225 Business and Economic Statistics 1
21-226 Elementary Probability and Statistics
21-227 Introduction to Mathematical Economics

100-Level Courses
101-110 credits of credit in 100-level economics courses including 21-102 Micro-Economics and 21-105 Macro-Economics.

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ENGLISH

Program for the B.S. Degree

The major in economics for the B.S. degree must, in addition to meeting the general College of Liberal Arts requirements relative to skills and core courses, including one year of one foreign language, include credit in the following courses and electives:

4101 History of Economic Thought
4149 Economic Systems
4190 Comparative Labor Movements
4202 Economic Method, Logic, and Ethics
4211 Quantitative Methods in Business and Economics
4212 Business and Economics Statistics I
4215 Introduction to Mathematical Economics I
4216 Introduction to Mathematical Economics II
4250 Statistics and Mathematical Economics
4270 Seminar in Economics

4275 Readings and Independent Study in Economics

*Courses 62-106 and 62-109 are intended to be an invitation to students in the Humanities. *By registering for 62-106, a full-time qualified undergraduate student may be permitted to work in courses listed for graduate students.

EDUCATION
(See College of Education)

ENGLISH

Head of Department, John C. Gerber
Office, 306 English-Philosophy Building

The basic curriculum for undergraduates wishing to specialize in English is expressed in general terms so that a student, with the help of advisors, can design a pattern of courses to augment his previous experience and to satisfy his educational needs. By spanning a broad spectrum within this curriculum, students who wish to do so may satisfy requirements for the English major in Creative Writing or for the English House Program. Leadsheets are available in the departmental office describing these programs in detail. A pamphlet on general principles for designing your major in English is also available. For general requirements see College of Liberal Arts.

The English Major

The general purpose of the major is to provide a program of courses which will develop the student's abilities in written and oral expression, critical thinking, and reading in the English language and related areas. The major is designed to give serious majors an opportunity to study English as a language and literature, as a component of the liberal arts education, and as a foundation for careers in law, business, and other professions. Since the student is given considerable freedom in working out a program to achieve these goals, he should submit a plan of study to his advisor by early in his junior year for review and approval.

The pamphlet on designing an English major gives detailed help in preparing such a plan. Each student should consider a broad chronological range in his study of literature, a sampling in several genres, background material in literatures of other nations, and especially in biblical and classical literature. He should also choose some close experience with language itself in advanced courses in writing and literature. In general, he should include at least one core required by the college, he should select work that enhances his intellectual background, and he should see that his program includes the study of his major field. The planning of his studies under the guidance of his advisor is essential to planning graduate work or careers in teaching should be especially careful to include experience relevant to their later work.

The first year of study consists of 36 credits. Students who are entering the College of Liberal Arts without college course credit in English or a major in English at another college or university may be placed in this major after reviewing existing courses. The official requirements for the major are 30 semester hours.
In addition to the 30 semester hours of English, the student is required to take Methods of Teaching High School English in the College of Education. While this program provides extensive requirements for certification, the department believes that anyone desiring to teach English should have considerably more training in the field.

HONORS IN ENGLISH

The Honors Program in English is open to junior and senior undergraduate majors who obtain a 3.5 average in all work undertaken. As part of their required work for the major, and perhaps in addition to it, they must participate in an Honors Seminar, write an Honors paper, and pass an Honors examination over a previously announced reading list. In addition, they must have a program of study approved by the Honors Committee. Those interested should consult with the Director of English Honors.

THE ENGLISH MAJOR IN CREATIVE WRITING

Students who are majoring in English and who excel in creative writing may seek certification for excellence in writing. Although any major may include in his program credit for up to 4 semester hours in 310 Fiction Writing and 4 semester hours in 319 Poetry Writing, only students who are admitted to a competitive basis to the Undergraduate Fiction or Poetry Workshops (310 and 319) may be considered for certification. Students in the Workshops, if they wish the citation, must submit a collection of poems or stories to the Undergraduate Creative Writing committees at least six weeks before the end of their final semester.

GRADUATE DEGREES

Detailed information on requirements for advanced degrees may be obtained in the office of the Department of English. The following outlines the nature of the degrees offered.

1. Completion of at least 30 semester hours of graduate study, of which 24 semester hours must be earned in residence, with a grade-point average of at least 3.5. (2) Completion with a grade of B or A of at least one seminar or advanced composition course in the major.

2. Satisfactory performance on a four-hour written final examination in the major, including a paper. Such application must be filed with the Department of English not more than two months before the time of graduation.

The program for the M.A. degree presupposes a strong undergraduate background in the major. In addition, it requires a course in research methods, one course in 20th century American literature, expository writing, linguistics, and for those interested in creative writing, courses in the major that involve writing. The student interested in creative writing may seek certification for excellence in writing. Although the major may include 4 semester hours each in 310 Fiction Writing and 319 Poetry Writing, certification in creative writing may be obtained only by students who have been selected for participation in the Undergraduate Fiction Writers Workshop (310) and the Undergraduate Poetry Workshop (319). Students in the Workshops, if they wish the citation, must submit a collection of poems or stories to the Undergraduate Creative Writing committees at least six weeks before the end of the final semester.
Master of Fine Arts. This is a degree normally re- quiring 3 years for students who desire ability in imaginative writing. The thesis is a book-length collection of original prose, or a novel from a novel. Candidates ordinarily do a considerable part of their work in the Writers Workshops and must spend 1 or more years in study in another art or in a foreign language. The final examination deals largely with technical and aesthetic matters and with recent criticism relevant to the candi- date’s form of writing.

Doctor of Philosophy. To be admitted to full candidacy for this, the highest professional degree, the applicant must, in a qualifying procedure undertaken soon after he begins his studies, show the department of his ability to complete the degree. Before the comprehensive examina- tions he must demonstrate a high level of competence in a modern foreign language and some knowledge of its liter- ature, and a good knowledge of another of English, or of Latin, or of Old and Middle English, and (either in course or by examination) establish his competence in general guidelines and the history of the English language. He must demonstrate his knowledge of English and American literature by a balanced program of coursework and by passing a comprehensive examination. The dissertation may be a scholarly study or a piece of imaginative writ- ing. The final oral exam centers on the dissertation and its background.

For the comprehensive examination and later work, a candidate may select a concentration not only in a period of literary history but also in some major area of litera- ture, comparative literature, literary criticism, or modern letters. [See also Graduate College.]

STAFF


Assistant Professor Emerita: Alona A. Hevay.


Instructors: Adeline Bryer, Richard Huctman, Gis- Martin, Larry W. Martin.

8/5 Literature and Composition I 4 a.h.

For freshman engineering students only.

8/6 Literature and Composition II 4 a.h.

For freshman engineering students only.

8/10 Chaucer 3 a.h.

8/11 Representations English Works of the Renaissance 3 a.h.

Twelve to fifteen major works or collections of short poems to represent the principal genres and ideas of the period, including at least one selection from Dryden, Cow- grove, Swift, Pope, Fielding, Goldsmith, and Johnson. 8/25, 8/26, 8/27, 8/28 English

Semester I 3 a.h. each

All four courses must be taken concurrently. English Literature from Chaucer to 1800, including fiction, literary nonfiction, drama, and poetry. Class format for both English Semester I and English Semester II requires fre- quent discussion, weekly papers, bimonthly informal or similar exercises, play readings and other performances, and cooperative classroom presentations. "Some instruc- tors are ordinarily present. Class size is limited, so pre- liminary interviews and prequalifications are necessary. English Semester I fulfills the requirement of 3 semester hours of Literature written before 1800. Students receiving credit for English Semester I must have special per- mission to receive credit for 8/25, 8/26, or 8/27.

8/31 English Romantic Poetry 3 a.h.

Twelve to fifteen major works or collections of short poems to represent the principal genres and ideas of the period. Readings will normally include selections from Wordsworth, Scott, Byron, and Keats. 8/32, 8/33 Victorian Poetry and Prose 3 a.h.

Twelve to fifteen major works or collections of short poems to represent the principal genres and ideas of the period. Readings will normally include selections from Browning, Tennyson, Arnold, Newman, and Ruskin. 8/35, 8/36, 8/37, 8/38 English

Semester II 3 a.h. each

All four courses must be taken concurrently. English Literature from the beginnings to the present and British Literature from 1800 to the present, including fiction, literary nonfiction, drama, and poetry. See description about English Semester I concerning special permission. Ordinarily, students receiving credit for English Semester II must have special permission to also receive credit for 8/32, 8/33, 8/34, or 8/35. 8/41 Representative American Works, 1800-1900 3 a.h.

Twelve to fifteen major works or collections of short poems to represent the principal genres and ideas of the period, including at least one selection from Frost, Holmes, Thoreau, Hawthorne, Melville, Whitman, Melville, Twain, and Stegner. 8/42, 8/43, 8/44, 8/45

8/43 Representative Works since 1900 3 a.h.

Twelve to fifteen major works or collections of short poems to represent the principal genres and ideas of the period, including at least one selection from Yeats, Eliot, Hemingway, Faulkner, Joyce, and Conrad. 8/40, 8/41, 8/42, 8/43

8/75 Classical and Biblical Literature 3 a.h.

Readings in Biblical, Greek, and Roman literature, sepa- rately arranged to show the influence of the English and American lit- erature.

8/81 Understanding Fiction 2 a.h.

Lectures on understanding and appreciation of fiction: practice in writing fiction.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:22</td>
<td>Understanding Poetry</td>
<td>2.0h</td>
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<tr>
<td>8:35</td>
<td>Undergraduate Writers Workshop: Fiction</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:46</td>
<td>Undergraduate Writers Workshop: Poetry</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:51</td>
<td>Honors Proseminar I</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:52</td>
<td>Honors Proseminar II</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:53</td>
<td>Expository Writing</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:54</td>
<td>Theories of Rhetoric</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:95</td>
<td>Technical Writing I</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:96</td>
<td>Technical Writing II</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:98</td>
<td>Undergraduate Honors Project</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:99</td>
<td>Special Project for Undergraduates</td>
<td>3.0h</td>
</tr>
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</table>

Courses of General Interest

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>8:101</td>
<td>Chaucer</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:103</td>
<td>The English Novel: Defoe to Austen</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:104</td>
<td>The English Novel: Scott to Butler</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:111</td>
<td>American Poems</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:113</td>
<td>The American Short Story</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:114</td>
<td>American Humor and Satire</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:115</td>
<td>Afro-American Literature and Thought</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:118</td>
<td>The Southern Novel</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:117</td>
<td>American Jewish Writers</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:118</td>
<td>The Literature of Iowan</td>
<td>3.0h</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>8:122</td>
<td>English and Scottish Ballads</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:124</td>
<td>American Poetry</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:125</td>
<td>Modern Jewish and American Poetry</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:131</td>
<td>Tudor-Stuart Drama</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:133</td>
<td>Restoration Drama</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:134</td>
<td>English Drama of the 18th Century</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:135</td>
<td>Modern Drama: Ibsen to Shaw</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:137</td>
<td>Drama Since Pirandello</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:138</td>
<td>Modern American Drama</td>
<td>3.0h</td>
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Literature in Translation

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>8:141</td>
<td>European Literature: St. Augustine to Dante</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:142</td>
<td>European Literature: St. Augustine to Dante</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:143</td>
<td>Dante’s Divine Comedy and Medieval romances</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:144</td>
<td>Medieval English Literature</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:145</td>
<td>English Drama</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:146</td>
<td>European Literature in Translation</td>
<td>3.0h</td>
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</table>


<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>8:151</td>
<td>Masterpieces of the Renaissance</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:155</td>
<td>Significant Books in American Civilization I</td>
<td>3.0h</td>
</tr>
<tr>
<td>8:156</td>
<td>Significant Books in American Civilization II</td>
<td>3.0h</td>
</tr>
</tbody>
</table>
Linguistics
8:160 Introduction to Linguistics 3 a.h.
Linguistic theory and methodology, including descriptive and historical linguistics. Prerequisites: general principles recommended by previous work in English.

8:161 Modern English Grammar 3 a.h.
Prerequisite: English Grammar. Introduction to modern English grammar. Same as Linguistics 108:142.

8:162 History of English 3 a.h.
Principles of comparative linguistics and phonetic and semantic changes in English from approximately the tenth century to the eighteenth. Prerequisite: English Grammar. Same as Linguistics 108:120.

8:163 Introduction to Historical Linguistics 3 a.h.
Principles of comparative linguistics and phonetic and semantic changes in English from approximately the tenth century to the eighteenth. Prerequisite: English Grammar. Same as Linguistics 108:120.

8:167 Language Teaching and Linguistic Behavior 3 a.h.
Principles of comparative linguistics and phonetic and semantic changes in English from approximately the tenth century to the eighteenth. Prerequisite: English Grammar. Same as Linguistics 108:120.

Writing
8:171 Advanced Expository Writing 3 a.h.
Theories of style; writing in various styles; minimum knowledge of standard English. Prerequisites: English Grammar or equivalent. Credit will be given for English Grammar or equivalent. Prerequisite: English Grammar. Same as Linguistics 108:120.

8:172 Advanced Expository Writing 3 a.h.
Theories of style; writing in various styles; minimum knowledge of standard English. Prerequisites: English Grammar or equivalent. Credit will be given for English Grammar or equivalent. Prerequisite: English Grammar. Same as Linguistics 108:120.

8:173 Advanced Technical Writing 3 a.h.
Writing papers on scientific subjects. Restricted to graduate students in engineering or science.

8:175 Extended Essay 3 a.h.
Methods of seeking, ordering, and presenting information. Use of sources. The course consists of the preparation of an extended paper or report, but various kinds of minor reports and lectures will be required.

8:181 Fiction Writing cr.arr.
No more than 6 semester hours of credit may be applied toward fulfillment of the undergraduate major requirements. May be taken for up to 6 semester hours with consent of instructor.

8:182 Poetry Writing cr.arr.
No more than 4 semester hours of credit may be applied toward fulfillment of the undergraduate major requirements. May be taken for up to 4 semester hours with consent of instructor.

Printing
8:181 The Hand-Printed Book: Problems in Design and Production cr.arr.
Prerequisite: consent of instructor.

English-Education
8:197 Methods in Teaching High School English 3 or 6 a.h.
Prerequisite: consent of instructor. Same as Education 70:104.

8:198 Literature for the Adolescent 3 a.h.
Same as Education 70:120 or 71:120.

Master's Level Courses
8:201 Critical and Scholarly Approaches to Literature 6 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:210 Studies in Genre: Fiction 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:211 Studies in Genre: Poetry 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:212 Studies in Genre: Drama 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:220 Rhetorical Theory and Application 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:255 Teaching Literature in the Two-Year College 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:256 Seminar in English in the Two-Year College cr.arr.
Group and individual conferences. Prerequisite: consent of instructor.

8:280 Bibliography of Modern Poetry cr.arr.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:288 International Writers Workshop cr.arr.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:291 Form of Fiction 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:293 Form of Poetry 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:285 Seminar in Problems in Modern Fiction cr.arr.
Group and individual conferences. Prerequisite: consent of instructor.

8:296 Seminar in Problems in Modern Poetry cr.arr.
Group and individual conferences. Prerequisite: consent of instructor.

8:301 Elementary Old English 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:303 Middle English Language and Literature 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:304 Old Norse 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:305 The Poetic Edda 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:370 Chaucer: Major Poems Other Than the Canterbury Tales 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:384 Precursors of the Renaissance, 1400-1522 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:391 The Age of Spenser 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:392 Shakespeare: Early Plays 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:393 Shakespeare: Later Plays 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:395 17th-Century Literature, 1600-1660 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.

8:398 Milton 3 a.h.
Prerequisite: consent of instructor. Credit will be given for English Grammar or equivalent. Prerequisite: consent of instructor.
8.320 Restoration Literature, 1660-1700 3 s.h.
8.321 Augustan Literature, 1700-1740 3 s.h.
8.322 Later 18th-Century Literature 3 s.h.
8.325 Neoclassical Literary Forms 3 s.h.
8.327 Neoclassical Literature and Intellectual Movements 3 s.h.
8.331 English Romantic Literature 3 s.h.
8.332 British Literature, 1830-1870 3 s.h.
8.333 British Literature, 1870-1914 3 s.h.
8.334 British Literature, 1914-1945 3 s.h.
8.335 British Literature, 1945 to the Present 3 s.h.
8.341 Early American Literature 3 s.h.
8.342 American Romantic Literature of the 19th Century 3 s.h.
8.343 American Realistic Literature of the 19th Century 3 s.h.
8.344 American Literature, 1914-1945 3 s.h.
8.345 American Literature, 1945 to the Present 3 s.h.
8.351 European Fiction 3 s.h.
8.352 Recent European Poetry 3 s.h.
8.353 Modern Anglo-European Literary Relations 3 s.h.
8.355 Dramatic Theory 2 or 3 s.h.
8.356 Dramatic Theory 2 or 3 s.h.
8.357 Classical and Renaissance Rhetoric 2 to 3 or 4 s.h.
8.358 Modern Rhetoric 2 or 3 s.h.
8.360 Contemporary Rhetoric 3 s.h.
8.361 History of Criticism: Plato to the Romantic 3 s.h.
8.362 History of Criticism: Coleridge to Croce 3 s.h.
8.365 American Criticism and Culture, 1900 to 1930 3 s.h.
8.371 Literary Periods and Movements in Criticism 3 s.h.
8.376 Intellectual Backgrounds of Literary Periods 3 s.h.
8.378 Literary Genres and Modes 3 s.h.

8.381 Articulatory and Acoustic Phonetics 3 s.h.
8.382 Linguistic Analysis I Same as Linguistics 102:111.
8.383 Linguistic Analysis II Same as Linguistics 102:112.
8.384 Dialectology Same as Linguistics 102:116.
8.385 Syntaxic Theories 3 s.h.
8.386 Syntactic Analysis: Generative Grammar 3 s.h.
8.388 Introduction to Language Data Processing 2 s.h.
8.390 Literary Tools and Research Methods 3 s.h.
8.394 Literature and Psychology 2 s.h.
8.395 Literature and Society 2 s.h.
8.396 Literature and the Arts 2 s.h.
8.397 Literature and the Cinema 2 s.h.
8.398 Literature and Science 2 s.h.
8.405 Seminar: Renaissance Nonrealistic Literature 3 s.h.
8.406 Seminar: Renaissance Dramatic Literature 3 s.h.
8.407 Seminar: Shakespeare 3 s.h.
8.408 Seminar: 17th-Century Nonrealistic Literature 3 s.h.
8.409 Seminar: 17th-Century Dramatic Literature 3 s.h.
8.410 Seminar: Milton 3 s.h.
8.411 Seminar: Neoclassical Prose 3 s.h.
8.412 Seminar: Neoclassical Poetry 3 s.h.
8.417 Seminar: Edmund Burke 3 s.h.
8.418 Seminar: Romantic Literature 3 s.h.
8.419 Seminar: Victorian Literature 3 s.h.
8.420 Seminar: 19th-Century Fiction 3 s.h.
8.421 Seminar: 20th-Century British Literature 3 s.h.
8.441 Seminar: 18th-Century American Literature 3 s.h.
8.442 Seminar: American Realism 3 s.h.
8.443 Seminar: American Romance 3 s.h.
8.444 Seminar: American Realism Literature of the 19th Century 3 s.h.
8.445 Seminar: American Realism Literature of the 19th Century 3 s.h.

Graduate Seminars
Open only to Ph.D. candidates and to other graduate students with adequate background in the field of its seminar. Permission of the instructor must be obtained before registering for an 600-level course.

8.462 Seminar: Medieval Literature 3 s.h.
8.463 Seminar: Middle English Literature 3 s.h.
8.464 Seminar: Chaucer 3 s.h.
8.465 Seminar: Renaissance Nonrealistic Literature 3 s.h.
8.466 Seminar: Renaissance Dramatic Literature 3 s.h.
8.467 Seminar: Shakespeare 3 s.h.
8.468 Seminar: 17th-Century Nonrealistic Literature 3 s.h.
8.469 Seminar: 17th-Century Dramatic Literature 3 s.h.
8.470 Seminar: Milton 3 s.h.
8.471 Seminar: Neoclassical Prose 3 s.h.
8.472 Seminar: Neoclassical Poetry 3 s.h.
8.473 Seminar: Edmund Burke 3 s.h.
8.474 Seminar: Romantic Literature 3 s.h.
8.475 Seminar: Victorian Literature 3 s.h.
8.476 Seminar: 19th-Century Fiction 3 s.h.
8.522 Seminar: 20th-Century British Literature 3 s.h.
8.561 Seminar: 18th-Century American Literature 3 s.h.
8.562 Seminar: American Realism 3 s.h.
8.563 Seminar: American Romance 3 s.h.
8.564 Seminar: American Realism Literature of the 19th Century 3 s.h.
8.565 Seminar: American Realism Literature of the 19th Century 3 s.h.
EUROPEAN LITERATURE AND THOUGHT

8:457 Seminar: Social Factors in American Literature cr.arr.
8:460 Seminar: Problems in Aesthetics and Literary Theory cr.arr.
8:461 Seminar: Literary Criticism of Antiquity cr.arr.
8:464 Seminar: Continental Criticism cr.arr.
8:466 Seminar: American Culture and Criticism cr.arr.
Prerequisites: 8:388, 8:467 Seminar: Problems in Semiotics cr.arr.
Same as Speech 8:385
8:418 Seminar: Literature and Other Intellectual Disciplines cr.arr.
8:460 Seminar: Problems in Linguistics cr.arr.
8:490 Seminar: Analytical Bibliography and Textual Criticism cr.arr.

Independent Study

Students registering for independent study courses must have the consent of an instructor for a topic and the number of credit hours prior to registration.
8:500 Readings in Medieval Literature cr.arr.
8:505 Readings in 16th-Century Literature cr.arr.
8:510 Readings in 17th-Century Literature cr.arr.
8:515 Readings in 18th-Century Literature cr.arr.
8:520 Readings in 19th-Century Literature cr.arr.
8:525 Readings in American Literature cr.arr.
8:530 Special Project for Graduate Students cr.arr.
Prerequisite, consent of instructor.
8:550 Colloquium: Teaching of Freshman Composition 2 or 3 h.
8:560 Colloquium: Teaching of Literature in College cr.arr.
Limited to those holding teaching assistantships in the literature core program.
8:590 M.A. Thesis cr.arr.
8:595 Ph.D. Thesis cr.arr.

EUROPEAN LITERATURE AND THOUGHT

Chairman of Program: Joseph E. Baker
Office, 442 English-Philosophy Building

European literature and thought courses are open to juniors, seniors, and graduate students from any department. A variety of opinions is brought to bear upon these upper-division courses. The technical background in history, philosophy, or literature is necessary. The classes meet three hours a week, and each course may be taken independently.

These courses are conducted by round-table discussion. Some of the important issues of contemporary times are explored and evaluated through a basic reading list of outstanding works. Two or more instructors from various departments, such as literature, philosophy, history, fine arts, and the sciences, guide the discussion, drawing on their specialized knowledge and particular methods.

Undergraduate Major

A major in European Literature and Thought serves as a basis for a liberal education and to equip a student for further work in the special area of his choice. The major is set up to provide broader training than is ordinarily obtained under the specialized requirements of a single department.

Most students can major in this area and still have room for earning teaching certificates in one or more of the related departments. Many can satisfy the requirements for a double major, in this program and in some single department also.

Requirements for the Major. These specific requirements are in addition to the general requirements of the College of Liberal Arts as to core, foreign languages, etc.

European Literature and Thought (round-table courses) 3-6 h.
History, social sciences 12 h.
Philosophy, religion, history of science 12 h.
Literature of England and of the Continent 12 h.
Fine arts (excluding studio courses) 6 h.
Foreign languages: European. One semester beyond major requirement. Foreign literature in the original language may also be used to satisfy the requirement in literature. 6 h.

Students considering a major in European Literature and Thought should consult with the chairman before the end of the sophomore year.

Honors in European Literature and Thought

The degree of Bachelor of Arts with Honors may be earned by superior students who undertake a further program of independent study. To be admitted as a candidate for Honors, the student must have the endorsement of the chairman of the Program in European Literature and Thought.

STAFF

Professor: Alexandra Angel (French and Italian), Armand Baker (English), Rita Borghero (Law), David (Political Science), Frederick Duke (Chemistry), Stanley (Philosophy), (German), Hamilton Oberst (Music), Robert Schallerman (Philosophy), R. P., Frank Schilder (Art), Dewey Stutt (Psychology), John Washko (Political Science), J. Richard Whelan (Economics).

Associate Professor: Kenneth Cannon (Speech and Dramatic Art), Hugh Douglas (English), Benjamin Hopkins (Law), John Stonely (English), John R. Her (German).

Assistant Professor: William Klink (Phylosophy).

COURSE DESCRIPTIONS

31:101 The Pursuit of Happiness 2 to 4 h.
Feasibility of individual happiness in various types of human experience by Aristotle, Freud, Fells, Montaigne, Voltaire, Rousseau, Goethe, etc.
31:111 Myth and Reason 2 to 4 h.
Interplay between myth and reason as significant patterns in Western thought. Reading from Sophocles, Plato, Milton, Nietzsche, anthropologists, novelists.
31:131 The Good Society 2 to 4 h.
Man's life in society, and its potentialities, as seen in works by Plato, Rabelais, Machiavel, Shakespeare, Locke, Gibbon, Marx; recent fiction and nonfiction.
31:142 Virtue and Stress 2 to 4 h.
The literature of war (Field, Caesar, War and Peace, Dante, etc.). In 1968-69, the course was included in 31:132.

68
FRENCH AND ITALIAN

The department provides facilities for the study of French and Italian at the undergraduate level and French at the graduate level. There are courses for the B.A. degrees in French and Italian and for the M.A. and Ph.D. degrees in French. The offering of foreign training in the language, literature, and civilization of the countries represented, and the provision for the fulfillment of many vital requirements in graduate and undergraduate programs held by other departments of the University.

Foreign Language Requirement
Candidates for the Bachelor of Arts degree who wish to meet the foreign language requirement in French or Italian may do so by completing four years of high school study in one language, performing satisfactorily in an achievement examination, intended to measure proficiency equivalent to that usually attained in four semesters of college study in one language, completing a minimum of four semesters of college-level study in any of the languages offered by the department, or qualifying a combination of high school and college study in one language which would be the equivalents of four semesters of study at the college level. If the four semesters are taken at The University of Iowa, the series of courses will total 14 semester hours. In the case of the last two options, the student must complete the second semester of the second-year course.

Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science degree candidates who wish to meet the foreign language requirement in French or Italian may do so by completing a combination of high school and college study in one language which would be the equivalent of 8 semester hours of study at the college level, by completing a minimum of 8 semester hours of approved college-level study in the language, or by giving satisfactory performance in an achievement test measuring proficiency equivalent to that usually attained after one year of college study of the language. Courses may be taken on a Pass/Fail basis.

Undergraduate Requirements for Majors

French

The following courses constitute the minimum major requirements:

<table>
<thead>
<tr>
<th>Language</th>
<th>15 semester hours in literature and civilization</th>
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</thead>
<tbody>
<tr>
<td>Literature</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>9211, 9212</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>9215 or 9217</td>
<td>1 or 2 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>17 or 18 s.h.</td>
</tr>
</tbody>
</table>

Seats preparing for the secondary teacher’s certificate should elect the course in civilization.

The following courses constitute the minimum major requirements:

<table>
<thead>
<tr>
<th>Language</th>
<th>20 or 22 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature</td>
<td>1810, 1812</td>
</tr>
<tr>
<td>18110, 18120</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>18101 or 18102</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>Departmental electives</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>28 or 30 s.h.</td>
</tr>
</tbody>
</table>

Honors in French

The requirements for Honors in French are 8 semester hours beyond the French major requirements, a senior paper written in French on a literary topic, and a minimum overall grade-point average in French of 3.2. For the 3 semester hours, students must elect three of the following courses:

<table>
<thead>
<tr>
<th>Language</th>
<th>12 s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9211, 9212</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Honors Composition</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>Honors Literature</td>
<td>8 s.h.</td>
</tr>
</tbody>
</table>

The major paper may pertain to the literature of any period.

69
COURSE DESCRIPTIONS

French

Primarily for Undergraduate Students who have had any experience with French through study or foreign residence are required to take placement tests. If students have two years of high school French at the college level, they may elect 5 hours of advanced composition and conversation, or 4 hours of French literature. If students have four hours of high school French at the college level, they may elect 4 hours of advanced composition and conversation, or 3 hours of French literature.

3. Recommended for students who plan to terminate their study of French with the second-year requirement. Prerequisite, FR 228 or equivalent.

3.12 Intermediate French 
Prerequisites, FR 213 or equivalent.

3.13 French Pronunciation 
I or equivalent. May be taken in conjunction with 213, 236, 2111, 2122. 

3.27 Second-Year Composition and Conversation 
May be taken as a prerequisite to 3.14 French Pronunciation and 3.15 French Literature. 

3.28 Second-Year Composition and Conversation 
May be taken as a prerequisite to 3.14 French Pronunciation and 3.15 French Literature. 

9. Continuation of 3.11. Prerequisite, 3.11 or equivalent.

9.5 French Pronunciation 
I or equivalent. 

10. Special Work 
I to 3 hours. Prerequisites, 3.2 or equivalent.

For Undergraduates and Graduates

9.105 Introduction to French Literature 
I or equivalent. This course is designed for students who wish to improve their active command of the French language. 

9.120 French Composition 
I or equivalent.

9.130 French Literature 
I or equivalent.

9.140 French History 
I or equivalent.

9.150 French Civilization 
I or equivalent.

9.165 Special Topics 
I to 3 hours. Prerequisite, 3.2 or equivalent.

For Undergraduates and Graduates

9.105 Introduction to French Literature

9.120 French Composition

9.130 French Literature

9.140 French History

9.150 French Civilization

9.165 Special Topics

For Undergraduates and Graduates

9.105 Introduction to French Literature

9.120 French Composition

9.130 French Literature

9.140 French History

9.150 French Civilization

9.165 Special Topics

For Undergraduates and Graduates

9.105 Introduction to French Literature

9.120 French Composition

9.130 French Literature

9.140 French History

9.150 French Civilization

9.165 Special Topics

For Undergraduates and Graduates

9.105 Introduction to French Literature

9.120 French Composition

9.130 French Literature

9.140 French History

9.150 French Civilization

9.165 Special Topics

For Undergraduates and Graduates

9.105 Introduction to French Literature

9.120 French Composition

9.130 French Literature

9.140 French History

9.150 French Civilization

9.165 Special Topics

For Undergraduates and Graduates
9:106 Introduction to French Literature 3 a.h. Continuation of 9:206, but may be taken as an independent unit. From 15th century to the present.

9:111 Third-Year Composition and Conservation 4 a.h. Prerequisite: 9:212 or equivalent.

9:112 Third-Year Composition and Conservation 4 a.h. Continuation of 9:111. Prerequisite: 9:212 or equivalent.

9:113 French Civilization 3 a.h. Given in French. From the Middle Ages to 19th. Prerequisites: 9:110 or 9:110, and 9:228 or equivalent.


9:115 Literature of French Classicism 3 a.h. Given in French. Prerequisite: 9:212 or equivalent.

9:116 Literature of the Enlightenment 3 a.h. Given in French. Prerequisite: 9:228 or equivalent.

9:117 Novel of the 19th Century 3 a.h. Given in French. Prerequisites: 9:112 or equivalent.

9:118 Novel of the 20th Century 3 a.h. Given in French. Continuation of 9:117, but may be taken as an independent unit.

9:119 Critical Approaches to French Literature 2 or 3 a.h. Given in French. Prerequisite: 9:228 or equivalent.

9:120 Aspects of French Poetry 3 a.h. Given in French. Prerequisite: 9:212 or equivalent.

9:121 Honors: Composition 3 a.h. or cr.arr. Prerequisite: 9:212 or equivalent.

9:122 Honors: Composition 3 a.h. or cr.arr. Continuation of 9:121.

9:123 Honors: Literature 3 a.h. or cr.arr. Given in French.

9:124 Honors: Literature 3 a.h. or cr.arr. Continuation of 9:123.

9:126 Drama of the 20th Century 3 a.h. Given in French. Prerequisite: 9:212 or equivalent.

9:130 Methods in High School Modern Foreign Languages 3 a.h. Ordinarily elected as Education 75:130.

9:131 Language Laboratory Procedures 1 a.h.

9:152 Contemporary France 3 a.h. Prerequisite: 9:113 or equivalent.

9:153 Fourth-Year Composition and Conservation 3 a.h. Given in French. Prerequisite: 9:212 or equivalent.

9:154 Fourth-Year Composition and Conservation 3 a.h. Given in French. Continuation of 9:213, but may be taken as an independent unit.

9:157 French Pronunciation and Diction 2 or 3 a.h. Prerequisite: 9:112 or equivalent. Recommended for teachers.

9:158 French Pronunciation and Diction 2 or 3 a.h. Prerequisite: 9:112 or equivalent. Intensive practice in pronunciation.

Courses offered in Rouen, France, under Iowa and Illinois Year Abroad Program.

9:175-176 Political Institutions 2 to 3 a.h.

FRENCH AND ITALIAN

9:179 Phonetics 3 a.h.

9:180 Diction 3 a.h.

9:181 Syntax 3 a.h.

9:182 Advanced Oral French 4 a.h.

9:185-186 History of Art in France 2 a.h.

9:187-188 History of France 2 to 3 a.h.

9:189-190 Human Geography 2 a.h.

9:191-192 17th Century French Literature 3 a.h.

9:193-194 18th Century French Literature 3 a.h.


9:197-198 20th Century French Literature 3 a.h.

Primarily for Graduates

9:200 Advanced Composition and Conservation 4 a.h. Prerequisite: 9:112 or equivalent. Emphasis on syntax as means of expression.


9:211 Literature of the 19th Century I: Realism and Naturalism 3 a.h. Given in French. Romantic prose, poetry, and drama.

9:212 Literature of the 19th Century II: Realism and Naturalism 3 a.h. Continuation of 9:211, but may be taken as an independent unit. Flaubert, Flaubert, Flaubert, Flaubert, Flaubert.

9:213 Literature of the 18th Century* 3 a.h. Given in French. Liberal ideas in France, study of the masterpieces by Montesquieu, Voltaire, Diderot, and Rousseau.

9:214 Literature of the 18th Century* 3 a.h. The literary genres. Continuation of 9:213, but may be taken as an independent unit.

9:215 Literature of the 16th Century* 3 a.h. Given in French. Rabelais, humanism, and poetry to 1560.

9:216 Literature of the 16th Century* 3 a.h. Continuation of 9:215, but may be taken as an independent unit. Montaigne, theater, and poetry of late Renaissance.

9:218 Literature of the 16th Century III: Symbolism 3 a.h. Continuation of 9:215, but may be taken as an independent unit.


9:222 Literature of the 20th Century 3 a.h. Continuation of 9:221, but may be taken as an independent unit. Proust, surrealism, existentialism, and contemporary trends.


9:231 Literature of the 17th Century 3 a.h. Continuation of 9:227, but may be taken as an independent unit.

9:232 Literary Movements 2 or 3 a.h. Given in French. Selected major literary movements in French literature.

*Not offered every year.
9:233 Seminar in Teaching 1 s.h.
Problems and techniques of foreign language teaching at the
college level. Ordinarily elected as Education 192:233.
9:251 Old French* 3 s.h.
Phonology. Readings in Old French.
9:252 Old French* 3 s.h.
Phonology. Readings in Old French. Prerequisite: 9:251.
9:253 Literature of the Old French Period 3 s.h.
Development of vernacular literature in Northern France.
9:254 Literature of the Middle French Period 3 s.h.
Continuation of 9:253.
9:255 Old Provençal* 3 s.h.
Phonology and morphology. Selected literary texts. Prerequisite,
reading knowledge of modern French.
9:256 Old Provençal* 3 s.h.
Prerequisite, 9:255.
9:277 Thesis cr.arr.
9:279 Special Work cr.arr.
9:351 Seminar in French Civilization 3 s.h.
9:353 Seminar: Explication of Texts 1 s.h.
Given in French. Methods and practice of "Explication de Textes."
9:354 Seminar: Explication of Texts 1 s.h.
Continuation of 9:353, but may be taken as an independent unit.
9:355 Seminar: Methodology 3 s.h.
Given in French. Methods of research in literary history
and criticism.
9:356 Seminar: Stylistics 3 s.h.
Continuation of 9:355, but may be taken as an independent unit.
9:357 Seminar 2 or 3 s.h.
9:358 Seminar 2 or 3 s.h.
Attention of graduate students in French is called to the
following courses offered in the Program of Comparative
Literature:
48:203 The European Renaissance 3 s.h.
48:204 Baroque and Neoclassicism 3 s.h.
48:205 Age of Enlightenment 3 s.h.
48:206 European Romanticism 3 s.h.
48:207 European Fiction 3 s.h.
48:208 Recent European Poetry 3 s.h.
48:212 Literary Movements in European Literature 3 s.h.
48:225 Types of Modern Criticism 3 s.h.

ITALIAN

Primarily for Undergraduates

18:1 Elementary Italian 4 s.h.
18:2 Elementary Italian 4 s.h.
Prerequisite, 18:1 or equivalent.
18:11 Intermediate Italian 3 s.h.
Prerequisite, 18:2 or equivalent.
18:12 Intermediate Italian 3 s.h.
Prerequisite, 18:11.
18:13 Consolational Italian 1 s.h.
Prerequisite, 18:2 or equivalent.
18:53 Special Work cr.arr.
18:311 Advanced Composition and
Conservation 4 s.h.
Prerequisite, 18:23 or equivalent.
18:312 Advanced Composition and
Conservation 4 s.h.
Prerequisite, 18:311.

For Undergraduates and Graduates

18:101 Literature of the 19th Century 3 s.h.
Given in Italian.
18:102 Literature of the 20th Century 3 s.h.
Given in Italian.
18:103 Elementary Italian:
Intensive Course 3 s.h.
Open to undergraduates with a minimum of two years
in another foreign language and to graduate students.
18:104 Elementary Italian:
Intensive Course 3 s.h.
Prerequisite, 18:103.
18:105 Introduction to Italian Literature 3 s.h.
From earliest writings to end of 18th century. Given in
Italian. Prerequisite, 18:12.
18:106 Introduction to Italian Literature 3 s.h.
Continuation of 18:105, but may be taken as an independ-
ent unit. From 17th century to the present.
18:116 Petrarch and Early Italian Lyric 3 s.h.
Given in Italian.
18:117 Literature of the 16th Century 3 s.h.
18:118 Dramatic Theory and Practice of
the Renaissance 3 s.h.
Given in Italian.
18:119 Dante and His Times 3 s.h.
Given in Italian.
18:120 Dante and His Times (2nd part) 3 s.h.

Primarily for Graduates

18:219 Special Work cr.arr.

GENERAL SCIENCE

Head of Program, Robert E. Yager
Office, 4585 Physics Research Center

The general science major is designed primarily for stu-
dents interested in a professional area requiring a back-
ground in more than one science discipline. Specific pro-
grams exist for each professional area which meet the
academic requirements for graduation. Students not
interested in one of the professional areas must meet with
an advisor for structuring a specific program. Completion
of random courses will not meet the requirements.

The minimum requirements for the general science
degree involve selection of courses 2-3, three of the
following science departments: chemistry, geology, physics
and astronomy, biology, zoology, and mathematics. Two
options are available to the student: completion of 20
semester hours in one department and 8 semester hours
in each of two other departments; or completion of 18
semester hours in one department, 15 semester hours in
a second department, and 5 in a third. Earth sciences and
life sciences core courses may not be used as part of the
18, 15, or 20 semester hour sequence, but either may be

*Not offered every year.
GENERAL SCIENCE

Other Science Requirements
72.13 Introduction to Human Anatomy 4.0h
17.502 Introductory Radiation Biology 4.0h
99.015 Biochemistry 4.5h

Total required courses 46 to 51 h.

Physical Therapy Coordinator: Terry Jones

Chemistry
4.1 Principles of Chemistry I 3.5h
4.2 Principles of Chemistry II 3.5h
4.3 General Chemistry Laboratory 3.5h
4.3 Quantitative Analysis 3.5h
4.4 Organic Chemistry I 3.5h
4.5 Organic Chemistry II 3.5h

Zoology
27.110 Principles of Animal Biology 3.5h
27.115 Principles of Human Genetics 3.5h
27.116 Vertebrate Embryology 4.0h
27.117 Fundamentals of Genetics 3.5h
28.100 Human Anatomy 3.5h
28.101 Human Anatomy 3.5h
28.102 Mammalian Physiology 3.5h

Total required courses 36 h.

Predentistry Coordinator: Richard M. Jacobs

Chemistry
4.1 Principles of Chemistry I 3.5h
4.2 Principles of Chemistry II 3.5h
4.3 General Chemistry Laboratory 3.5h
4.4 Quantitative Analysis 3.5h
4.5 Organic Chemistry I 3.5h
4.6 Organic Chemistry II 3.5h

Mathematics
22M.3 Mathematical Techniques I 3.5h
22M.3 Mathematical Techniques II 3.5h

Elective: two advanced courses in Department of Zoology

Total required courses 40 h.

Premarked
Coordinator: George E. Brousseau, Jr.

Chemistry
4.1 Principles of Chemistry I 3.5h
4.2 Principles of Chemistry II 3.5h
4.3 General Chemistry Laboratory 3.5h
4.4 Quantitative Analysis 3.5h
4.5 Organic Chemistry I 3.5h
4.6 Organic Chemistry II 3.5h
4.7 Intermediate Chemistry Laboratory 3.5h
4.7 Qualitative analysis may substitute 6.5 Principles of Chemistry for 6.3 and 6.4.

Zoology
27.110 Principles of Animal Biology 3.5h
27.115 Principles of Human Genetics 3.5h
27.116 Vertebrate Embryology 4.0h
27.117 Fundamentals of Genetics 3.5h
28.100 Human Anatomy 3.5h
28.101 Human Anatomy 3.5h
28.102 Mammalian Physiology 3.5h

Total required courses 36 h.

Note: 15 semester hours must be in either zoology (with above courses) or in chemistry with 12 semester hours completed in the other.

Total required courses 36 h.

Preprofessional Science Coordinator: Bernard J. Homans

Chemistry
4.1 Principles of Chemistry I 3.5h
4.2 Principles of Chemistry II 3.5h
4.3 General Chemistry Laboratory 3.5h
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Minors in Science Teaching
Coordinator: Robert E. Yager
The teaching sciences in science are also available for
preparation with teaching majors in other academic areas.
Only three combinations of courses will qualify a person
for certification in the areas specified with each heading.

Biology—28 h.
21. Introduction to Botany
27. Principles of General Biological Science
97.128 Meaning of Science
97.130 History of Science
Elective in Botany and Zoology
Chemistry—24 h.
4.1 Principles of Chemistry I
4.4 Principles of Chemistry II
4.6 Elementary Chemistry Laboratory
1.1 Biochemistry
1.4 Organic Chemistry I
1.5 Physical Chemistry
97.128 Meaning of Science
97.130 History of Science

Physical Science—24 h.
4.1 Principles of Chemistry I
4.4 Principles of Chemistry II
4.6 Elementary Chemistry Laboratory
22.1 College Physics
22.2 College Physics
Elective in Chemistry or Physics
97.128 Meaning of Science
97.130 History of Science

General Science—24 h.
21. Introduction to Botany
37. Principles of Animal Biology
28.61 General Astronomy
13.3 Principles of Geography (Physical)
of 12.4 Principles of Geology (Historical)
of 4.1 General Chemistry
22.1 College Physics
22.2 College Physics
97.128 Meaning of Science
97.130 History of Science

Earth Science Programs in Science Education
Coordinator: Robert E. Yager
Graduate Education Center

The fundamental purpose of the various plans of study in the science education programs is to improve science teaching through strengthening the content knowledge and professional competence of the student. The programs are centered for science instruction at all academic levels—kindergarten through graduate—as well as research in science education. The department is the center for several in-service efforts, research projects, curriculum committees, and professional societies.

Current research being carried out at the Science Edu-
cation Center includes: philosophical and historical found-
ations of science education; learning theory and science education; evaluation of current programs in science education; science curriculum design in the elementary school; science curricula at all education levels; teacher characteristics and student learning; and teaching ap-
proaches and their effects on learning. The graduate programs are sponsored jointly by the College of Liberal Arts, the College of Education, and the Graduate College.

The general requirements mean a grade-point aver-
age for admission to the Graduate College apply. A minimal grade-point average of 2.3 is needed for science
to and graduation from a master’s program; 3.7 is re-
quired for the Ed.S. and Ph.D. degree programs. The
Master of Arts is Teaching degree. The M.A.T. degree
is useful for anyone seeking a master's degree in a discipline
designed for persons who want to become teachers after
they have completed a bachelor's degree. In general,
psychology and American government should have
been completed before applying for this degree. Eighteen semester hours in each, life, or physical sciences
are required. Credit for 411.383 Teaching Science and
EI210 History of Science must be included in the 18
semester hours unless equivalent courses were a part of
the undergraduate program of the candidate. Credit in
emphasis can be approved by the advisor. In addition,
31 semester hours are required for those who have
completed 24 or more semester hours of undergraduate
education courses. One three-hour, comprehensive ex-
amination in a science area and one three-hour, compre-
sensive examination in science education are required. The
graduate committees must consist of the science edu-
cation advisor, a professor from a science area, and a
third person from a social science area or from science
education.

Master of Science degree without thesis. The nonthesis
program is the one which is most appropriate for teachers
who plan to remain in the classroom. It is not a research
degree and is not recommended for students who plan
to continue their education beyond the master's degree
level. A total of 36 semester hours is required for the
nonthesis program. The program consists of 24 semester
hours of two science areas chosen from astronomy, biology, botany, chemistry, earth science, mathematics, psychology, and the physical sciences. The remaining 12 semester hours of science education courses are re-
quired.

Master of Science degree with thesis. The thesis pro-
gram is the appropriate one for candidates who plan
to continue for the specialist degree or the Ph.D. A total
of 36 semester hours is required for the thesis program.
It consists of 18 semester hours of graduate level science
courses taken from the areas selected for the nonthesis
program. Two areas of science must be selected where
at least 3 semester hours are taken from each area.
Thirteen semester hours of professional education
hours are required. At least 3 semester hours of credit
must be included in an area of science education, and
may be counted as part of the 24 semester hours of science credit or the 10 semester hours in science education.

Note: Both of the above-listed master's programs require:
graduate committee participation in the student's area of
science education, a professor from a science area, and a
professor from a second science area or a social science
education. Comprehensive written examinations are re-
quired of the student seeking either the nonthesis or the
thesis degree. The comprehensive examination consists of examinations in the fields in which
the candidate has demonstrated competence. The exams
are intended to be comprehensive examinations and are sub-
ject to the approval of the student's advisor. All students
must pass a comprehensive examination before they are
considered to have completed the work (graduate committee
members). In general, 4 hours will be spent writing in
science areas and 2 hours in science education. An oral
examination may be required by the examining committee. All students in the thesis program oral defenses of
thesis must be scheduled and approved by the graduate faculty.

Specialist degree. This is an intermediate degree between
the master's and the Ph.D. program. It is recommended for supervisors, state or local, and for people who are interested in the teaching of science. The program is offered in four-year liberal arts colleges. The degree consists of 36 semester hours of work before the student's degree, of which 36 semester hours are in supportive sciences, 10 semester hours in related fields, and 32 semester hours in science education including research and internship credit.

The comprehensive consists of a three-hour examination in a science area, a three-hour examination in a support-
ive science area, and a three-hour examination in science education. The graduate committee must be composed of the science education advisor, a professor from a science area,
SPECIALIZED COURSES IN SCIENCE EDUCATION

97:55 Science Foundations I 4 s.h.
Interdisciplinary laboratory approach to some of the more fundamental principles of natural science. Placement upon individualized curricula of major science content areas. Enrollment restricted to elementary education majors.

97:56 Science Foundations II 4 s.h.
Continuation of 97:55 which is prerequisite, but with increased emphasis placed upon student-designed experiments. Controlling variables, formulating hypotheses, interpreting data, and drawing valid conclusions are but a few of the processes of science which are emphasized. Enrollment restricted to elementary education majors.

97:108 Laboratory and Field Study in Earth Science cr.arr.
Primarily for teachers with minimum training in earth sciences. Brief systematic review of the principles of geology with emphasis on laboratory and field work dealing with minerals, rocks, fossils, maps, and local geology.

97:109 Laboratory Study in Biological Science cr.arr.
Specially designed for teachers to familiarize students with modern theories of molecular biology. Careful consideration will be made of the new materials of the Biological Sciences Curriculum Study.

97:134 Laboratory Techniques in Biology cr.arr.
Special techniques involved with laboratory preparations, including solutions, cultures, and organizations.

97:105 Concepts in Contemporary Physics cr.arr.
Provide background for a consideration of modern physics, emphasizing the role of the scientist. Emphasis will be made to the various "national programs" in physics and physical science.

97:106 Modern Concepts in Chemistry cr.arr.
Updates and strengthens the content background of teachers. Emphasis will be made to the various "national programs" in chemistry and chemical education.

91:110 Seminar: Research in Science Education cr.arr.
Review of research in the field with special reference to its applicability in teacher education.

97:112 Advanced Science Foundations 4 s.h.
A composite of elements of 97:55 and 97:56. Required of all science education majors who have not had prior science education or have not obtained advanced standing in science education.

97:119 Directed Study cr.arr.
Provision for independent study.

97:138 Meaning of Science 2 or 3 s.h.
Explores the elementary philosophy and logic which characterize science. Emphasis on the use of such concepts in teaching.

97:139 History of Science 2 or 3 s.h.
Major steps in the development of 20th-century American science. Effect of early Greek, Roman, and modern European science upon current concepts of the scientific enterprise.

GENETICS
(See Botany, Microbiology, Zoology, and Geology-Interdisciplinary Programs)
An undergraduate major in geography should be regarded as part of a liberal arts program, and not necessarily as preparation for a specific profession. However, opportunities for undergraduate majors in geography do exist in various branches of government and in business. There is a demand for persons capable of dealing with resource management, production potentials, economic development, market area analysis, and other problems related to the distribution of physical, economic, social, and political phenomena in the world as a whole and in major parts of it. There is also a growing demand for young people concerned with many aspects of human and economic geography.

The undergraduate major in geography offers two courses of study: 

- Courses in geography are especially required of students planning teaching professions at the elementary and secondary school levels, and of those who desire to work in urban and regional planning.

- Graduate training, culminating in the M.A. and Ph.D. degrees, is essential for those who expect to make a career of college teaching. Also, many of the governmental and private offices in positions in geography are available only to those who have completed graduate work in the discipline. The Association of American Geographers publishes monthly a bulletin entitled Jobs in Geography. Copies of this bulletin may be reviewed in the departmental office.

Social Science Core Requirement

The social science requirement may be fulfilled by the completion of 441 and 442, which may be taken in either order or simultaneously.

Undergraduate Requirements

Students majoring in geography may qualify for either the B.A. or the B.S. degree. The requirements for either degree are:

- Twenty-eight semester hours in geography including:
  - 441-442 Geography and Human Activity 4.5h
  - 445-450 Undergraduate Seminar for Geography Majors 4.5h
- A major in a foreign language must be maintained from any of the 100-level courses offered by the department.

For the B.S. degree, students must also complete:

- 20 hours from the following:
  - Electronics Environment and Man

For the general requirements for the B.A. degree see College of Arts and Sciences. All students majoring in geography are urged to complete the requirements for the B.A. degree. If a major in foreign language is contemplated, at least three years of the appropriate foreign language should be completed.

Graduate Study

Reflecting modern trends in geographic research and instruction, the faculty of the Department of Geography is actively engaged in research and teaching in the following major areas, especially as they are related to urban and regional systems analysis; behavioral theory, location theory, and the interaction of environment and human behavior.

Human behavior will be studied in its spatial context. Problems of population, agriculture, and transportation development will be treated in the context of models of environmental perception; the construction of models for the analysis of urban systems; and public policy implications of behavior patterns and urban growth.

In the development of location theory, special attention will be given to the mapping of behavioral theory, the integration of behavioral theory and processes in locational theory; and the application of theory to the location of public services and the design of undisturbed areas.

In studying the interaction of man and his environment, social specialization will be given to the evolution and analysis of the natural resource bases; regional problems in resource and human decisions; regional problems in rural and urban growth; environmental hazards and stress; environmental pollution and control; landform processes; and landscape systems.

Admissions to departments. In addition to the general rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, the Department of Geography will not accept any student whose undergraduate grade-point average is lower than 2.5 (3.0 basis), unless special consideration of a particular student is merited. A student's Graduate Record Examination Aptitude Test should total 1100. All new students must be recommended by at least two instructors familiar with their graduate work, or in the case of students admitted with advanced graduate credit, by two instructors familiar with their graduate work.

Students whose undergraduate grade-point average is between 2.5 and 2.75 will be admitted on a conditional basis only. They must achieve a grade-point average of 3.0 or better on their first 12 hours of graduate work as approved by the department in order to remain as graduate students.

The student will be considered for a graduate assistantship or fellowship whose grade-point average during his presence and prior years was lower than 3.0 on a four-point scale. Geographers with advanced graduate credit, whose graduate grade-point average was maintained at an A average for continued support.

For the recent requirements for MAT, MAT, and Ph.D. degrees in Geography candidates for the M.A. and Ph.D. degrees in Geography will be advised regarding the structure of the terminal Master of Arts degree program in general examination and the following:

Students who plan to complete their graduate work in the M.A. or Ph.D. degree must attain a grade-point average of 3.0 semester hours of graduate work, including 445, 446, 448, and 449, and be completed during their first year in residence. Students entering for the first time will be permitted to satisfy the requirements by successfully completing written examinations covering the courses 445, 446, 448, and 449 for the degree in the first year of their studies. The first year of the degree is the official beginning of the program. The student entering the program must complete at least 12 hours of the appropriate foreign language before the degree is completed.

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one semester hour of credit will be awarded each semester on an S-U basis for 44:356 (field semester).

Requirements for the Ph.D. degree. Doctoral candidates are required to complete all the requirements for the M.A. degree, including the general examination; the re- search and requirements outlined below; and a qualifying examination, which will be presented in final form. All doctoral candidates are expected to have supervised research experience in the classroom and in the field, and are expected to complete one of the following: Mathematics 2216 Introduction to Linear Algebra, or Mathematics 2321 Introduction to Probability, or 2213-2216 Introduction to Probability, or 2213-2216 Introduction to Probability and Statistics. By demonstrating competence in a foreign language.

To become a candidate for the Ph.D. a student is re- quired to pass a comprehensive examination consisting of written and oral parts, in which he must demonstrate analytical proficiency with respect to a major area of specialization (approved in advance by the faculty) and a general knowledge of the discipline including both content and methodology. Upon passing the comprehensive ex- amination, the doctoral candidate must prepare a research design to be presented before final seminar. After the design has been approved by the faculty, the candidate will conduct the necessary research and analysis, and pre- sent his findings in a dissertation which he must defend in a final oral examination.

STAFF

Professor: Cyril F. Kahn, Professor Emeritus, Donald H. McCarty, Associate Professor: Kenneth J. Dunker, Frank E. Horton, James R. Lintzberg, David R. Reynolds, Gerald Rashkin, Neil E. Saltzburg, Assistant Professor: James Gardner, John Marcus, Michael McPherson.

COURSE DESCRIPTIONS

Primarily for Undergraduates

44:1 Geography and Human Activities 4.0 s.h.

Geography and the analysis of human behavior. Application of the dual process theory to contemporary social, economic, and political problems. One in four-year sequence.

44:35 Natural Environment and Man 4 s.h.

Geography and the natural environment. The interaction of the natural environment with water, landforms, soils, vegetation, and minerals. Man's use of the environment and the effects of man on the natural resources. Problems in resource use, environmental pollution, and natural hazards. One in four-year sequence.

44:56 Seminar Seminar for Geography Majors 2 s.h.

Nature of geography as a social scientific field, geographic methods of analysis, research in geography. Students will prepare written papers. Required of all undergraduate majors in their senior year. Open only to undergraduate majors in geography.

For Undergraduates and Graduates

44:56 Readings in Geography 2 cr.

Prerequisite: consent of department.

44:101 Introduction to Weather and Climate 3 s.h.

Spatial distribution of weather elements, wind circulation, air masses, storms, and general climate conditions of the world, including air pollution and climate change. Labora- tory work in the study of weather maps and climatic data.

44:106 Geography and the School Curriculum 3 s.h.

New concept and content of geography essential to effec- tive educational programs. Methods of geographic inquiry. Examination of media effective in teaching geography.

44:308 Quantitative Methods 3 s.h.

Mathematical and statistical techniques in current re- search in geography.

44:111 Geographic Analysis of Social Behavior 3 s.h.

Spatial distribution of population, including density, com- ponents of growth, and migration. Spatial organization of social systems, including religion, education, welfare, and medical services; introduction to diffusion and migration models.

44:135 Political Behavior and Urban Structure 3 s.h.

The political organization of urban areas and the prob- lems and impact of reform. The spatial aspects of voting behavior and the relations with urban spatial structure. Distribution of social and political decisions and conflict situations in metro- politan areas.

44:158 Political Ecology 3 s.h.

Analysis of temporal and spatial variations in the relation- ship between political behavior and social, political, and geographical space at different levels of the society and the polity.

44:120 Natural Hazards 3 s.h.

Definition, classification, and world distribution of natural hazards. Examination of causes and consequences through study of the spatial and temporal covariation of selected physical, social, and cultural elements in a series of case studies.

44:132 Natural Habitats of the United States 3 s.h.

The nature, pattern, and interdependence of elements of the natural resource base.

44:139 Location of Economic Activities 3 s.h.

Principles of spatial organization and their application to the location patterns of agriculture, manufacturing, trans- portation, and services.

44:137 Industrial Location 3 s.h.

Theory of manufacturing location, and its application to different industries and types of economy, with investiga- tion of case studies.

44:135 Internal Spatial Structure of Urban Areas 3 s.h.

Models of urban growth and urban forms. Spatial pat- terns of selected activities. Processes that generate these patterns, and current problems.

44:126 Geographic Analysis of Inner City Areas 3 s.h.

Residential segregation of minority groups. The spatial structure of "ghetto" areas. Environmental quality of inner city neighborhoods. Special aspects of problems of economic and social stress.

44:138 Areas Analysis 3 s.h.

Theory of regions, methods of analysis, geographic sys- tems, interpretation and preparation of reports for various types of area studies.

44:141 United States and Canada 3 s.h.

Methods of analysis of regional economic development, with special attention to the regions of the United States.

44:161 Africa 3 s.h.

Spatial aspects of development in Africa. Geographic interpretations of selected problems confronting the African nations.

For Graduates Only

44:101 Geography and the School Curriculum 3 s.h.

Past and present philosophies of geography in light of philosophical developments in science in general. Critical review of the research literature of the past.

75
44:302 Geographical Analysis II 3 s.h.
A critical examination and evaluation of recent methodological and theoretical developments in geography. Prerequisites: 44:301.

44:308 Advanced Quantitative Methods 3 s.h.
Mathematical and statistical techniques in current geographical research with emphasis upon the employment of the computer and the development of research designs. Prerequisites: a knowledge of computer programming and 44:108, its equivalent, or consent of the instructor.

44:311 Spatial Organization of Society 3 s.h.
Process and Behavior 3 s.h.
Spatial aspects of diffusion processes as applied to the spread of culture traits and ideas; diffusion of innovations; human migrations; growth and spread of rural and urban settlement; changes in the spatial characteristics of social phenomena in urban plans.

44:315 Location Analysis of Political Behavior 3 s.h.
Locational basis of political and quantifiable behaviors at the individual and regional system levels. Spatial dimensions of electoral behavior; aspects of political modernization; urban political policy making. Prerequisites: 44:308, 44:309, or consent of the instructor.

44:319 Behavioral Analysis in Geography 3 s.h.
Various behavioral model-building strategies pertaining to spatial behavior and spatial structure with an emphasis on environmental perception approaches. Prerequisites: 44:108, 44:203, or consent of the instructor.

44:321 Florial Morphology and Landscape Systems 3 s.h.
The role of running water and mass movement in shaping the form of the land. Systems of description and explanation of landscape form.

44:320 Elements of Natural Hazards 3 s.h.
Physical and human elements that combine to produce natural hazards with emphasis on the frequency and distribution of the natural processes. Man as catalyst, as controller, cultural and social adjustments, and prediction.

44:325 Economic Behavior of Areas 3 s.h.
Development and testing of normative and descriptive models for the location of economic phenomena. Prerequisites: 44:203, 44:308, or consent of the instructor.

44:325 Spatial Structure of Residential Areas 3 s.h.
Behavioral processes as related to spatial patterns of residential area growth and special site selection and the attributes of residential areas. Linkages between residential areas and other elements of urban area. Prerequisites: 44:108, 44:203, or consent of instructor.

44:326 Travel Behavior in Urban Areas 3 s.h.
Travel behavior in industrial and residential settings. Evaluation of current models of travel behavior, interaction between intrasystem spatial structure and travel behavior, new research strategies and experimental behavioral settings in gaining insights into urban travel behavior processes. Prerequisites: 44:108, 44:203, or consent of the instructor.

44:327 Macro Models of Urban Growth and Development 3 s.h.
The development of urban models which attempt to predict urban growth and activity location patterns. The theoretical and operational aspects of these models, statistical methods employed, and new concepts in urban macro-modeling strategies. Prerequisites: 44:203, 44:209, or consent of instructor.

44:328 Spatial Implications of Public Policies 3 s.h.
The impact of public policies at national, regional, and local levels on the location of a range of physical and social phenomena, with emphasis on international comparisons. Urban renewal, regional growth policies, transportation systems, and conservation policies. Prerequisites: 44:108, 44:203, or consent of instructor.

44:339 Spatial Aspects of Urban Renewal 3 s.h.
Process of public urban renewal in American cities from current perspective. Siting of projects, economics of urban renewal, social impacts and systems of relocation, political decisions, evaluation of programs, and legislative frameworks of urban renewal with consideration of programs in selected countries. Prerequisites: 44:108, 44:203, or consent of instructor.

44:361 Geographic Perspectives on Development 3 s.h.
Theoretical and empirical studies of the development process with special emphasis on spatial implications of socioeconomic change. Annual upon development. Prerequisites: 44:108, 44:203, or consent of instructor.

44:380 Field Techniques in Physical Geography 3 s.h.
Sampling procedures, and the collection of field data in physical geography, together with the laboratory analysis of data.

44:306 Research Seminar: The Teaching of Geography 3 s.h.
44:308 Research Seminar: Quantitative Methods, Computer Methods, and Modeling 3 s.h.
44:311 Research Seminar: Geographic Analysis of Social Behavior 3 s.h.
44:315 Research Seminar: Location Analysis of Political Behavior 3 s.h.
44:316 Research Seminar: Spatial Perception 3 s.h.
44:318 Research Seminar: Pleistocene 3 s.h.
44:319 Research Seminar: Physical Geography 3 s.h.
44:320 Research Seminar: Natural Hazards and Problems 3 s.h.
44:330 Research Seminar: Geographic Analysis of Economic Behavior 3 s.h.
44:331 Research Seminar: Location Theory 3 s.h.
44:335 Research Seminar: Urban Housing, Redevelopment, and Renewal 3 s.h.
44:336 Research Seminar: Urban Behavior 3 s.h.
44:337 Research Seminar: Urban Macro Models 3 s.h.
44:338 Research Seminar: Urban Transportation Issues 3 s.h.
Same as Urban and Regional Planning 102:228.
44:339 Research Seminar: Urban Information Systems 3 s.h.
Same as Urban and Regional Planning 102:227.
44:350 Staff Seminar 3 s.h.
44:380 Field Seminar 3 s.h.
44:406 Research: The Teaching of Geography 3 s.h.
44:408 Research: Quantitative Methods, Computer Methods, and Modeling 3 s.h.

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44.413 Research: Physical Geography cr.arr.
44.440 Research: Environment and Behavior cr.arr.
44.451 Research: Locational Analysis cr.arr.
44.442 Research: Models of Spatial Behavior cr.arr.
44.450 Thesis cr.arr.

GEOLOGY

Chairman of Department, Brian F. Glenden
Office, 106 Calvin Hall

The Department of Geology instructs students in the fundamental principles of geology for purposes of general education and prepares specialists for careers in academic, public, and industrial work. Courses are offered for the general liberal arts student, for those pursuing curricula on the undergraduate and graduate levels, for those planning to teach in secondary schools, and for those planning to enter professional work.

Two undergraduate degrees are offered, the Bachelor of Arts in geology and the Bachelor of Science in earth science.

Because geologists need a thorough background in related sciences, the Master of Science degree is highly desirable for any geological vacation. Therefore, successful majors in geology are required to take 24 semester hours or more of graduate courses leading to the Master of Science degree.

The Bachelor of Science degree is designed to prepare majors of earth science in the secondary schools and junior colleges. To complete the requirements necessary for Iowa secondary teaching certification in this field, the student must take the equivalent of the one-year program leading to the Master of Arts in Teaching degree at this University.

Undergraduate Requirements

With the current explosion of knowledge and the breakdown of traditional disciplinary boundaries, professional geologists need a broad background in mathematics, natural science, and social science, as well as competence in geology. These two goals can no longer be realized in the traditional four-year undergraduate program. Therefore, practically all students wishing to become professional geologists should earn a master's degree. The B.A. program is designed primarily to prepare students for graduate study. Employers of geologists are primarily interviewing advanced-degree candidates.

Required courses in the B.A. program fall into three categories:

1. Liberal Arts. The student enters the course sequence in foreign language, rhetoric, and mathematics at a level appropriate to his general performance and previous examinations. Geology majors should elect French, German, or Russian. To complete the B.A. program requirements, it is suggested that the social science requirements be fulfilled by approved courses selected from economics, geography, and anthropology. Maximum semester hours in this first category will be 22, most students will require less.

2. Supporting sciences. Mathematics, chemistry, physics, and biology courses are required by the geology department to give the student an understanding of principles and techniques valuable to advanced geological investigations. At least seven courses in the supporting sciences are required. In this category the student's major department will have considerable latitude concerning the student's high school science background and his career aspirations. We recommend the following principle courses.

A. Most students will take two semesters of chemis-

try, physics, calculus, and one or two semesters of biology, to obtain minimum breadth of exposure.

B. Some students will be able to demonstrate the need for additional coursework in one area in place of work in another area. For example, a student definitely committed to paleontology might take two additional semesters of biology rather than calculus; a potential geophysicist might elect additional mathematics and physics in place of biology. In all cases the seven-semester-courses requirement should be fulfilled.

C. A few students may find it advantageous to substi-
tute specialized graduate courses for one of the more traditional sciences. Courses in en-
geering, statistics, computer science, astronomy, or anthropology are examples. Again, the seven-
semester-course requirement will be fulfilled.

2. Geology courses. Thirty semester hours are required to acquire the undergraduate student with the funda-

mental and broad scope of general natural sciences. Courses required of all geology majors are:

12-12 Physical Geology I 4 cr.
12-12 Physical Geology Laboratory 1 cr.
12-13 Geology I 4 cr.
12-13 Field Methods I 4 cr.
12-13 Geology II 4 cr.
12-13 Field Methods II 4 cr.
12-13 Principles of Paleontology 4 cr.
12-13 Summer Field Course 4 cr.
12-18 Senior Seminar 4 cr.

Recommended elective to complete the 20-semester-hour minimums are: stratigraphy, geomorphology, sedimentology, unconformity, geology, and paleontology. 12-12 and 12-13 Field, History and Resources may be substituted for 12-12 and 12-13 Physical and Historical Geology.

4. Research. Many students in the junior or senior year will be ready to pursue some aspect of original investiga-
tion for credit. This work will be considered individually. The student may select a faculty member or graduate student with a current research project, or he may initiate a small-scale project involving a combination of field laboratory, and library investigation. Such work will be in addition to the required 20-semester-hour minimums.

The requirements for a Bachelor of Science in earth science are the same as those for the B.A. except that the language and mathematics requirements are increased by one year each, with substitution of an appropriate number of semester hours in astronomy, geography, and psychology.

Graduate Requirements

Ample facilities are available within the department for research. Students may elect to work with students who plan to take graduate work in geology should have completed, as undergraduates, geoscience equivalent courses equivalent to those required of U of I undergraduate geology majors, as well as advanced-level courses in chemistry, physics, geology, and mathematics. Deficiencies in back-
ground may be remedied in the initial graduate years. Applicants must meet the general requirements for ad-
mission to the Graduate College.

The Graduate College requires a minimum of 20 semester hours of graduate work for the M.S. degree; at least 24 semester hours must be completed in residence. For the Ph.D. degree at least three academic terms must be completed altogether, during which the candidate earns a minimum of 24 semester hours of graduate credit in residence.

All graduate study in geology are required to perform either teaching, research, or other services for the program, such as teaching of some courses of the degree pro-
grams.

Master's Degree with Thesis

1. Candidates should, as undergraduates and graduates, complete courses in mineralogy, optical mineralogy, stra-
tigraphy, geomorphology field geology and field course, stratigraphy, paleontology, and some courses in aquatic, en-
geology, and petrology. All completed courses in the requirements must meet the requirement.

2. Graduate students are expected to complete the required supporting courses required of department undergraduate (one year of college chemistry, physics, and biology, plus mathematics through calculus). Some
12:232 Sedimentary Petrology; Carbonates 3 a.h.
Research-oriented field, laboratory, and lecture-seminar course treating the genetics, diagenesis, classification, and varying techniques of study of carbonate rocks. Prerequisites: optical mineralogy and sedimentation.

12:234 Sedimentary Petrology; Sandstones 3 a.h.
Research-oriented field, laboratory, and lecture-seminar course treating the provenance, the transportation, depositional, and diagenetic history of the detrital clastic rocks. Prerequisites: optical mineralogy and sedimentation.

12:551 Igneous Petrology 3 a.h.
Lecture, seminar, and laboratory course. Fall of even-numbered years. Petrogenesis of igneous rocks from experimental, chemical, field, and microprobe observations. Prerequisites: 12:132, 12:15A, and Mathematics 256/5.

12:253 Thermodynamics and Phase Equilibrium 3 a.h.
Principles of physical chemistry applied to origins of igneous and metamorphic rocks. Prerequisites: 12:15A, college chemistry; calculus recommended.

12:255 Metamorphic Petrology 3 a.h.
Lecture, seminars, and laboratory course. Fall of odd-numbered years. Structural and mineralogical transformations which accompany the metamorphization of igneous and sedimentary rocks. Prerequisites: 12:132, 12:15A, and Mathematics 256/5.

12:263 Advanced Isotopic Geology 3 a.h.
Principles and methods of isotopic geology; correlation, with emphasis on evaluation of current techniques. Prerequisites: 12:180 and 12:182.

12:271 Advanced Geomorphology 3 a.h.
Prerequisites: 12:171.

12:294 Seminar: Economic Geology 2 a.h.
Prerequisites: consent of instructor.

12:298 Economic Geology: Petroleum 2 a.h.
Methods of exploration and development. Typical structural features and reservoirs. Offered in alternate years. Prerequisites: 12:182 and 12:183.

12:394 Advanced Structural Geology 2 a.h.
Rock deformation and structural analysis. Offered to 1970-71 and in alternate years. Prerequisites: 12:181 and Mathematics 256/5.

12:296 Seminar: Structural Geology 2 a.h.
Offered in 1971-72 and in alternate years. Prerequisites, consent of instructor.

12:300 Research: Summer Field and Laboratory 2 a.h.
13:360 Research. Stratigraphy 2 a.h.
12:390 Research: Structural Geology 2 a.h.

GERMAN

Chairman of Department, Edward Dvoratsky
Office, 188 Schaeffer Hall

The primary function of the Department of German is to train American students of the liberal arts a knowledge of the language and literature, the civilization, and cultures traditionally designated as German.

University graduates with a major in German frequently enter the teaching profession. (For teacher certification requirements, see College of Educ.-Arts.) They may also find positions in government, foreign services, and commercial enterprises, where their specialized knowledge of the language and literature, the history, and culture of Germany is indispensable.

Undergraduate Requirements

Students majoring in German are normally required to complete, in addition to the general requirements of the College of Liberal Arts (see College of Liberal Arts), a minimum of 38 hours for the advanced major. In the absence of 38 hours, students may petition to have the advanced major requirement waived.

Basic Program

First and Second Year
13:11 First Semester German 3 a.h.
13:12 Second Semester German 3 a.h.
13:21 Third Semester German 3 a.h.
13:22 Fourth Semester German—Reading 3 a.h.
13:23 Fourth Semester German—Composition and Conversation 3 a.h.
*13:23 and 12:25 may be taken concurrently, if desired, or tandem.

Third Year
13:24 German Classics 2 a.h.
13:25 Third Language 2 a.h.
13:33 Intermediate Composition and Conversation 1 a.h.
13:34 Intermediate Composition and Conversation 1 a.h.

Fourth Year
13:20 Advanced Compositions and Conversation 3 a.h.
13:210 German Cultural History 3 a.h.
**13:111 Survey of German Literature 3 a.h.
13:112 Survey of German Literature 3 a.h.

*An eight-week intensive course of 12:11 is offered. Only students accepted after who seek the teaching certifies and are enrolled for the professional semester

Third courses are to be taken in sequence (after bachelor's degree); some permission to vary the sequence is

Students who wish to go for an advanced degree are encouraged to add: 13:130 German Philology (3 semester hours) to the above.

German majors, graduates as well as undergraduates, are advised to supplement their degree programs with either semester at 16:149, 160 History of Germany or preferably both.

If a student who handles German with native proficiency desires to major in German, he may do so, but since most of the undergraduate course requirements are waived in such a case, it will be necessary for him to declare German as a second major. The student is expected to earn a complete first major in a subject in which he has no such obvious advantage over his peers.
### Table of Required Courses* for the Master of Arts Degree in German

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<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
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<td>13:108</td>
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<td><strong>13:205</strong></td>
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</tbody>
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*The candidate will receive graduate credit for these courses, but this credit will not normally be counted toward the degree.**

**All M.A. and Ph.D. candidates must include 13:202 in their graduate work.**

### Table of Required Courses* for the Doctor of Philosophy Degree

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
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*The candidate must demonstrate reading knowledge of French or Russian, and of a modern Slavic language other than English required of all doctoral candidates in Germanic linguistics; a candidate concentrating in literature must demonstrate a reading knowledge of French and another language which has been certified by his advisor as pertinent to the research interests of the student. 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, in each of the languages, or through testing by the appropriate department. Following completion of the comprehensive exams, the advisor must approve the student's plan of study, which will then be carried out to completion.*
Table of Required Courses for the Doctor of Philosophy Degree with a concentration in Germanic linguistics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>15:110</td>
<td>Germanic Linguistics</td>
<td>3.0</td>
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<tr>
<td>15:120</td>
<td>Advanced Germanic Linguistics</td>
<td>3.0</td>
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<tr>
<td>15:121</td>
<td>Second Semester Germanic Linguistics</td>
<td>3.0</td>
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<tr>
<td>15:131</td>
<td>Third Semester Germanic Linguistics</td>
<td>3.0</td>
</tr>
<tr>
<td>15:141</td>
<td>Fourth Semester Germanic Linguistics</td>
<td>3.0</td>
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</tbody>
</table>

Course Concentration in one period of Germanic Linguistics 2.0

Note: These requirements may be modified for individual students, and not all classes are required, depending on the approval of the graduate advisor.

The candidate will receive grade credit for these courses, but this credit will not be counted toward the degree.

All M.A. and Ph.D. candidates must include 15:125 in their graduate work.

STAFF

Professor: Edward Doverspike, Ph.D. Feiling
Assistant Professor: Judith Felsch, Ph.D.
Associate Professor: John A. A. (Henry) S. Spigel
Assistant Professor Emeritus: Herbert O. Lyte
Assistant Professor: David C. G. Miller
Assistant Professor: Matthew R. Young
Assistant Professor: William L. Winkler

COURSE DESCRIPTIONS

Normally for purposes of quick placement, two units of high school German language instruction are considered equivalent to one unit on the college level. For example, a student who has completed two years of high school German language instruction is ordinarily expected to register for the second year of college German (15:121), but if such a student is sufficiently prepared for 15:121, he can earn permission to register for 15:123 or even 15:125. If the latter, however, 2 semester hours are added to his general education requirement. Proficiency-placement exams are given to students in whose cases the routine placement exams above do not seem adequate.

Students electing to satisfy an 8-semester-hour minimum foreign language requirement in German, i.e., B.A., B.F.A., or B.M. degree candidates, may do so by completing the basic course which consists of the following sequence: 15:111, 15:112, and 15:123, for a total of 9 semester hours.

Students who elect to satisfy in German their 14-semester-hour minimum foreign language requirement for the B.A. degree, may do so by completing, in addition to the 8-semester-hour basic course sequence above, a fourth-semester course. For this fourth-semester course the student has an option of taking either 15:123 or 15:125. See below for particulars.

A student may not take or repeat, for either credit or quality points, any course if he has already completed a higher-level course, which assumed the earlier course, or its equivalent, to be a prerequisite.

Primarily for Undergraduates

15:11 First-Semester German 3.0
     First unit of three-semester course sequence. Emphasis on reading and the basic structure of the German language.

15:12 Second-Semester German 3.0
     Second unit of a three-semester course sequence. Study of the basic structure of the German language continued.
     Emphasis on vocabulary building and reading ability.

15:21 Third-Semester German 3.0
     Third unit of a three-semester course sequence. Study of the basic structure of the German language reviewed.
     Emphasis on simple conversation, composition, and exact use of grammar.

Note: A student who has had all three of the units of the basic course sequence or equivalents has an option of taking either 15:123 or 15:125 for his fourth semester. Courses 15:123 and 15:125 in no way duplicate each other, so they may be taken concurrently or tenanted for full credit.

15:22 Fourth-Semester German: Reading 3.0
     Standard fourth-semester course for students satisfying their foreign language requirement for a B.A. degree. Thorough sketch of German literature. Reading of short stories and representative literary works.

15:23 Fourth-Semester German: Elementary Composition and Conversation 3.0
     Fourth-semester course for the German language requirement for the B.A. degree. Recommended for those who wish further training in the active use of the language. Emphasis on writing compositions, and on conversations in German.

15:31 German Classics 3.0
     Representative works of Lessing, Goethe, and Schiller studied in their relation to the classical period of German literature.
     Prerequisites: 15:23 or equivalent.

15:32 German Classics 3.0
     Continuation of 15:31. Representative works of 19th- and 20th-century authors. Prerequisites: 15:23 or equivalent.

15:33 Intermediate Composition and Conversations I 3.0
     Practice in the translation of selected English texts, paraphrasing of German texts, the learning of German vocabulary, and conversational practice with verbal expression and oral expression. Prerequisites: 15:23 or equivalent.

15:34 Intermediate Composition and Conversations II 3.0
     A continuation of 15:33, with emphasis on written composition and aural comprehension. Prerequisite: 15:33.

15:51 Ph.D. Reading 0 to 3.0
     Courses 15:51, 15:52, 15:53, and 15:54 (see below) comprise a four-credit service course for graduate students seeking research tool competence in German as required by the respective department. 15:51 is intended for close students who have had no previous experience in the language for those who wish a complete review of prior experience with the language.

15:52 Ph.D. Reading (Second Semester) 0 to 3.0
     Continuation of 15:51. However, students with adequate
GERMAN

experience may enter the course which is oriented to- ward reading for comprehension. Prerequisite, 12.12 or equivalent.

13.53 Ph.D. Reading (Third Semester) cr. Continuation of 13.52. Students with a good background in German may enter at this level. Emphasis on variously building, reading, and practical translation experience. Prerequisite, 12.12 or equivalent.

13.54 Ph.D. Reading (Fourth Semester) cr. Continuation of 13.53. Students with an excellent back- ground in German may enter at this level. Emphasis on comprehension of reading of sophisticated texts in German with special attention to research materials in the stu- dents' own area of specialization. Prerequisite, 13.52 or equivalent.

15.90 Honors Program in German cr.arr.

For Undergraduates and Graduates

13.100 Individual German cr.arr.
Open only to German majors and minors.

13.101 Advanced Composition and Conversation 3 cr.
Required for undergraduate German majors and minors Prerequisite, 12.12 or equivalent.

13.102 Advanced Composition and Conversation 3 cr.
Primarily for first-year graduate students. Permission of instructor required. Prerequisite, 12.12 or equivalent.

13.301 German Phonology 3 cr.
Analysis of the structure of the sound-system of the Ger- man language and an introduction to the problems of German morphology and syntax. A basic linguistic course.

13.105 German Cultural History 3 cr.
Cultural history of Germany from the earliest beginnings until the present with special emphasis on the develop- ment of the arts, philosophy, and literature.

13.107 Teaching of German 0 to 3 cr.
An on-the-job training course for graduate teaching assistants in the department.

13.111 Survey of German Literature 3 cr.
Survey of the development of German literature from the earliest times to 1719. Prerequisite, 13.30 or equivalent.

13.112 Survey of German Literature 3 cr.
Survey of German literature from 1715 to the present. Prerequisite, 13.111 or equivalent.

13.118 German Literature in Translation 3 cr.
Readings in German literature in translation. Prerequi- site, satisfactory completion of the literature core require- ment.

13.119 Yiddish Literature in Translation 3 cr.
Works of Jewish and other writers of Yiddish literature in the 19th and 20th centuries. Prerequisite, at least junior standing and consent of instructor.

13.120 Methods in High School Modern Foreign Languages 3 cr.
Home as Education 70.120

13.131 Nietzsche, Spengler, Thomas Mann 2 cr.
The above-mentioned as critics of modern culture. Ability to read German desired but not required.

13.123 Rilke, George, Hofmannsthal 2 cr.
The three poets are studied as a group and as individual authors, with special attention to their mature and repre- sentational works.

13.133 Kafka, Broch, Musil 2 cr.
These authors studied as representative of 20th-century Austrian literature. The class will be conducted in Eng- lish and readings may be done in translation by those not mastering it.

13.163 The Faust Tradition 3 cr.
Development of the Faust theme in world literature, cul- minating in Goethe's Faust. Critical analysis of Faust I and the text of Faust II with special emphasis on the philosophical and artistic aspects.

Primarily for Graduates

13.100 Advanced Studies cr.arr.
Critical problems of German literature and linguistics. Open to graduate majors in German.

13.201 German Prosopography 3 cr.
For first-year graduate students. A general introduction to graduate study in the areas of German literature and Germanic linguistics. Bibliography, methods of research, reading, writing, and specific problems are introduced and discussed.

13.302 German Prosopography Continuation of 13.201 3 cr.

13.321 The German Novel I 3 cr.
Development of the novel is traced, and representative novels analyzed. A good reading knowledge of German is required.

13.322 The German Novel II (20th Century) 3 cr.

13.323 German Lyric 3 cr.
Lyric poetry and poetic tradition in German literature from Luther to 1600. Critical analysis of representative poems together with a study of German lyric and criti- cism of poetry during this period.

13.324 The German Drama 3 cr.
Development of the German dramas is traced, and represent- ative dramas are analyzed. A good reading knowl- edge of German is required.

13.325 The German Drama of the Storm and Stress 3 cr.

13.326 The German Drama (20th Century) 3 cr.

13.327 The German Novelle 3 cr.
Origins and history of the novelle in Germany from Goethe to Kafka. Critical analysis of representative works with special attention to the characteristics and artistic development of the genre.

13.341 History of the German Language 3 cr.
Development of the German language and dialects from prehistoric times to the present.

13.343 Middle High German 3 cr.
Grammar and syntax of the High German literary lan- guage in the period from the 11th to the 14th centuries. Primarily for students concentrating in linguistics.

13.344 Middle High German Literature 3 cr.
Primarily for students concentrating in literature.

13.345 Old High German 3 cr.
High German dialects in their earliest recorded forms and the cultural, political, and social influences exerted upon them from within and without the German-speaking area (4th to 11th centuries). Selected readings from the liter- ature of the period.

13.346 Old Saxon 3 cr.
Source of the language of the oldest Low German docu- ments, and of the historical position of Low German with respect to the other Germanic languages. Prerequisite, German or Old High German or Old English.

13.347 Gothic 3 cr.

13.348 Middle English and Its Uses and its importance for an understanding of the historical development of the Germanic languages. Introduction to comparative Indo-European linguistics.
13:34 Seminar in German Literature of the 18th Century 2 s.h.  
May be repeated for credit.

13:39 Seminar in German Literature of the 19th Century 2 s.h.  
May be repeated for credit.

13:40 Seminar in German Literature of the 20th Century 2 s.h.  
May be repeated for credit.

13:40 F.D. Dissertation 2 s.h.  
(See Classics)

GREEK

HISTORY

Chairman of Department, Sydney V. James  
Office, 306 Schaeffer Hall

The courses and training offered by the Department of History are intended in the first instance to help satisfy a natural curiosity about man's past, through tracing the development of things in time and through a synthesis of various aspects of man's activity in any period, and thus to aid in gaining a better understanding of ourselves and of the world in which we live. In addition to its general role of providing information and methods which are an essential and integrative part of any liberal education, the department trains professional historians and teachers of history at various levels, and serves those who require a knowledge of a period or aspect of history as background for their own specialized interests in other fields.

Undergraduate Requirements

The requirements for the bachelor's degree within a major in history fall under three plans: for the general major in history; for prospective teachers; and for honors candidates.

General Major in History (Plan A)
1. Satisfaction of Natural-Cultural Core requirement.
2. A minimum of 24 semester hours in courses which the Department of History offers. No more than 18 semester hours of American history will count toward fulfilling this requirement.
3. A minimum of 18 18 semester hours in related courses outside the Department of History: Anthropology, economics, fine arts (excluding studio courses), geography, literature (excluding workshop courses), philosophy, political science, psychology, religion, and sociology. Alternatively, the completion of a second major (besides history) in one of the above areas will satisfy this requirement. Core courses or courses taken to satisfy core requirements will not be counted toward the fulfillment of the related areas requirements.

Prospective Teachers in History (Plan B)
This plan is designed to appeal to those who are seeking in the sciences emphasis.

Core courses: 13:21 and 13:23 History of Western Civilization (or equivalents). for transfer students.
2. A minimum of 18 semester hours of work in courses offered by the history department of which 12 semester hours are in the Ancient World and Medieval Europe, and American History.
3. A minimum of 18 semester hours of work in basic courses in three of the following areas of the social sciences: anthropology, economics, geography, political science, and sociology. Courses taken to fulfill the core requirements will not be counted toward this minimum requirement in related areas.

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After completing these requirements, or in the semester in which he so elects to complete them, the candidate must present himself for a comprehensive examination. This includes written examinations in the candidate's three fields of study and an oral examination on all the candidate's work both in history and in related disciplines.

Students who take Plan A may not become candidates for the Ph.D.

Division I: (a) The Ancient World; (b) Medieval History

Division II: (a) Renaissance and Reformation; (b) Re-

Ouges in the Seventeenth and Eighteenth Centuries; (c) Tudor and Stuart England; (d) and England's History of Europe, 1380-

1640.

Division III: (a) Europe, 1515-1890; (b) Europe since 1890; (c) Modern England; (d) Modern France and Western Europe; (e) Intellec-

tual History of Europe since 1300.

Division IV: (a) American Colonial History; (b) United States in 1871; (c) United States since 1871; (d) History of the United States; (e) Eco-
nomical Development of the United States; (f) American Social and In-

stitutional History; (g) History of American Relations; (h) Latin American History; (i) Religion in American History; (j) the United States in the 20th Century.

Division V: (a) Latin American History; (b) English and Commonwealth.

Division VI: (c) Far Eastern History.

Plan A. M.A. with thesis. This plan requires a mini-
mum of 36 semester hours credit. The work must be done in a department designated by the student in consultation with the thesis advisor.

Plan A. M.A. without thesis. This plan requires a mini-
mum of 26 semester hours credit. The work must be done in a department designated by the student in consultation with the thesis advisor.

The requirements of Plan B are completed by writing a master's thesis. When the thesis is begun, the student must obtain the approval of the committee. The requirements of Plan B are completed by writing a master's thesis. When the thesis is begun, the student must obtain the approval of the committee.
lision forwarded to the graduate admissions office, and submit a specimen of their writing, such as a seminar paper or an M.A. thesis, to the history department.

The candidate must earn at least 72 semester hours of credit, including credits for the work done toward the master's degree; this is a requirement of the Graduate College. The 72 semester hours must include 23 semester hours of summer work in history and 3 semester hours of credit in the philosophy of history, historiography, or methods of historical research, acquired in courses approved by the department in advance. Summer courses must be taken during the summers immediately preceding or immediately following the candidate's assignment, and the candidate must confer with his supervisor, to distribute his work in whatever way will best prepare him for the comprehensive examination and for writing his dissertation.

As soon as possible in the first semester of his residence as a Ph.D. candidate, every student should consult with the faculty member whom seems most likely to become his dissertation supervisor. The department has no common language requirement for the Ph.D., but since the supervisor may and in many cases will 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 student and the supervisor should agree very early what these requirements will be. The candidate may not complete his comprehensive examination until these requirements have been satisfied.

In consultation with his supervisor, the student should next invite one or more other faculty members to join with the supervisor to constitute a committee of direction. The committee must include faculty members who are prepared to examine the candidate in each of the several fields of study which will be in his comprehensive examination. When it is formed, the committee's first task will be to set the terms and conditions of the comprehensive examination. These common conditions required by the department are that the candidate must be examined in writing in four distinct fields, at least three of them in history; that the examinations must be held at intervals of at least two different divisions (the divisions are listed below); each candidate must prepared a detailed schedule of fields covering all four divisions planned by the candidate, the committee and the teacher, which he will present to his committee for examination. The committee may define and describe the individual fields for examination. The terms for examination are these:

I. At least one, but not more than two, of the divisions listed below shall be assigned to each field, covering all four divisions present in the study which will be in the comprehensive examination. The division or divisions for each field, the hours of the written examination, and the conditions under which it may be written, are to be determined by the candidate and the committee. Each field must be planned for examination under the same conditions as any other division, and the schedule by which the exam is to be written must be submitted to the committee for approval. On occasion, a candidate may have an examination held at two levels, the first composed of the written portion of another examination, and the second of the written portion of the comprehensive examination. The candidate should assign the candidate of one of these fields, normally in a course about the third semester of his candidacy and, in any case not later than the end of his fourth semester. Papers which the candidate is to write within a narrowly limited time or under control conditions, should be written within the assigned two-week period; written work which is to be done over a longer period of time for grading at the end of the assigned period.

Special Facilities

The University Library provides materials for graduate work in all fields of history offered by the department, although these must be supplemented by interlibrary loans or by the use of other libraries.

Qualified graduate students are invited to apply for fellowship or teaching assistantships. Inquiries should be directed to the Department.
100 Study of the Ancient World and Rome 3 s.h.
Social, economic, political, and intellectual history of ancient civilization from its rise in Mesopotamia to the end of the Roman Empire. Not open to freshmen.

102 Survey of the Hellenistic World and Rome 3 s.h.
Social, economic, political, and intellectual history of the Greek-Roman world from the 6th century B.C. to the reign of Justinian.

104 Revolution in the Ancient World 3 s.h.
A study, based on reading of the original sources in translation, of the events used as ancient analogs for the supplants, preventing, mitigating or precipitating the revolutions leading to revolution and civil war. Prerequisite, junior or senior standing and 16105 and 16106, or permission of instructor.

105 Revolution in the Greek-Roman World 2 or 3 s.h.
Continuation of the 16104 from the 4th century B.C.

110 The Waning of the Middle Ages 2 or 3 s.h.
Readings in medieval history in the period 1250-1450. Distinctions will consider the problems of a civilization in decline. Prerequisite, junior or senior standing and one previous course in medieval history.

111 Survey of Medieval Civilization 3 s.h.
Europe from the decline of the Roman Empire to High Middle Ages. Cultural, political, and economic foundations of Western Civilization. Not open to freshmen.

112 Survey of Medieval Civilization 3 s.h.
Europe from High Middle Ages to Renaissance, with emphasis on medieval thought and institutions.

113 Economic and Social History of Medieval Europe 2 or 3 s.h.
Prerequisite, junior or senior standing and a general acquaintance with medieval history.

114 Foundations of English Law 3 s.h.
From the origins of the common law to early modern times. Not open to freshmen.

115 Medieval England, ca. 450-1215 3 or 3 s.h.
Prerequisite, junior or senior standing.

116 Medieval England, 1215-1485 3 or 3 s.h.
Prerequisite, junior or senior standing.

117 History of the Medieval Church 2 or 3 s.h.
Prerequisite, junior or senior standing.

118 The Rise of Feudal France 2 or 3 s.h.
The evolution of Frankish social and political institutions, 500-850. Prerequisite, junior or senior standing.

119 Late Medieval France 2 or 3 s.h.
The evolution of the French monarchy from a feudal to a national state, 1259-1560. Prerequisite, either 118 or 119.

Early Modern Europe

121 Survey of Early Modern Europe, 1500 to 1648 3 s.h.
Europe from Renaissance to Peace of Westphalia. Not open to freshmen.

122 Survey of Early Modern Europe, 1648 to 1815 3 s.h.
Europe from the Peace of Westphalia to the Congress of Vienna.

123 Age of the Renaissance Europe, 1815-1960. Prerequisite, junior or senior standing.

124 Reformation 3 s.h.
Religious developments and their impact on political, economic, and intellectual history, 1515-1650. Prerequisite, junior or senior standing.

125 The Age of Absolutism 3 s.h.
Europe in the age of the great empires, from the late 16th to the early 18th centuries. Prerequisite, junior or senior standing.

126 Intellectual History of the Renaissance 3 s.h.
Main currents of intellectual and social history from the 15th century to the beginning of the 17th century. A knowledge of the political history of the period and of one relevant foreign language is assumed.
16:145 Modern European Intellectual History 3 s.h.

16:146 Modern European Intellectual History* 3 s.h.

16:148 History of Russia, 1800 to Present 3 s.h.

16:149 History of Germany, 1700 to 1918 3 s.h.

16:150 History of Germany, 1918 to Present 3 s.h.

16:151 Modern England, 1868 to 1848 2 or 3 s.h.

16:152 Modern England, 1848 to Present 2 or 3 s.h.

16:155 Diplomatic History of Europe Since 1815 2 or 3 s.h.

16:156 War and Society 3 s.h.

16:157 European Socialism and Labor Movements 3 s.h.

16:158 History of Marxian Theory in the West, 1840 to Present 3 s.h.

16:159 British Empire* 3 s.h.

16:160 British Empire* 3 s.h.

16:161 The Colonial Period in American History 3 s.h.

16:162 The American Revolutionary Period, 1740-1789 3 s.h.

16:163 The Colonial Period in American History 3 s.h.

16:164 History of East Central Europe, 1800 to Present 2 or 3 s.h.

16:165 Christian Humanism in the Renaissance and Reformation 3 s.h.

16:166 Survey of English History, 1066 to 1559 3 s.h.

16:167 History of East Central Europe to 1800 2 or 3 s.h.

16:168 History of France, 1789 to Present 3 s.h.

16:169 History of Russia to 1800 2 s.h.

16:170 History of Eastern Europe, 1815-1890 3 s.h.

16:171 major movements, including the analysis of Capital, bourgeois criticism of the theory of the French Revolution, with particular attention to its implications for political life. A knowledge of the political history of the period and of one relevant foreign language is assumed.

16:172 Stuart England* 4 s.h.

16:173 Tudor England 4 s.h.

16:174 Christian Humanism in the Renaissance and Reformation 3 s.h.

16:175 Survey of English History 3 s.h.

16:176 History of Eastern Europe, 1815-1890 3 s.h.

16:177 Survey of European History 3 s.h.

16:178 History of France, 1789 to Present 3 s.h.

16:179 British Empire* 3 s.h.

16:180 History of Eastern Europe, 1815-1890 3 s.h.

16:181 Survey of European History 3 s.h.

16:182 Germanic History 3 s.h.
16:163 United States in the Middle

Period, 1789 to 1840

Development of the emerging nation, with emphasis on political and social history. Prerequisite, junior or senior standing.

16:164 United States in the Middle

Period, 1860 to 1870

Conflict of nationalism, and sectionalism culminating in the Civil War and Reconstruction.

16:165 Recent American History

1877 to 1920

Emergence of industrial and urban America. Reorganization of the American economy, social and political responses, the "new" Immigration, the politics of Progressive reform, imperialism, and World War I. Prerequisite, junior or senior standing.

16:166 Recent American History

1920 to Present

United States since World War I. Social and political change in the 30's, the adjustment to the Great Depression, World War II and the Cold War, the "Revolution," and other themes of the 30's and 40's. Prerequisite, junior or senior standing.

16:167 The Contemporary U.S., 1920-1940

1940 to Present

16:168 The Contemporary U.S.

1940 to Present

16:169 The Revolutionary Generation

How the American Revolution did (and did not) promote change in political, governmental, economic, and social life. Some development into the 18th century. Prerequisite, junior or senior standing.

16:170 The Northeast, 1716 to 1850

Transition from social and political order of the colonial period to that of mechanization and industrialization; Pennsylvania, New York, New England. Prerequisite, junior or senior standing.

16:171 The Frontier in American History

1800-1920

The challenges of "free land": expansion, territorial systems, Indian affairs, migration, communications, economic growth. Prerequisite, junior or senior standing.

16:172 The Frontier in American History

1800-1920

Patterns of exploitation; fur trade, mining, lumbering, grazing, intensive agriculture. The frontier mind. The West in the 20th century. Prerequisite, junior or senior standing.

16:173 American Economic History:
The Developing Economy

3 a.h.

Aspects of the developing American economy through the second third of the 19th century, emphasizing the emergence of a national economy; the emergence of regional specialization and the beginnings of industrialization; expansion of protective factors. Prerequisite, junior or senior standing.

16:174 American Economic History:
The Mature Economy

3 a.h.

Problems of the mature economy with an emphasis on the changing distribution of economic power; the emergence of economic concentration and monopoly power in industry; the response of organized labor and government to concentrated corporate power; problems of stability and growth in a concentrated economy. Prerequisite, junior or senior standing.

16:175 American Foreign Relations

1775 to 1890

Ideas, economic interests, and political considerations affecting the formation of American foreign policy. The historical creation of American foreign policy toward Europe, Latin America, the Pacific Islands, and Eastern Asia. The material development of isolationism, territorial and commercial expansion, the Monroe Doctrine, neutrality, and diplomacy during the Revolutionary and Civil Wars. Prerequisite, junior or senior standing.

16:176 American Foreign Relations

Religion and Politics

3 a.h.

Development of America as a great world power; overseas expansion and, hence, the solidity, the balance of power, international organization, the peace movement and military preparedness, rural liberalism, the pursuit of national self-interests, the Spanish-American War, two world wars, and the Cold War. Prerequisite, junior or senior standing.

16:177 American Intellectual History

1630 to 1865

Prerequisite, junior or senior standing.

16:180 American Intellectual History

Since 1850

Prerequisite, consent of instructor.

16:181 Topics in American Social History

3 a.h.

Geology and climatology, archeology and Indians, French discovery and exploration, Spanish land grants and missions, Mexico, the Mexican War, the Indian wars, the Civil War, emphasizing the constitutional and political phases. Prerequisite, junior or senior standing.

16:184 History of Ideas

2 or 3 a.h.

Transportation and communication, agriculture and industry, journalism, theater and books, music and drama, foreign and group settlements, and the religious, educational, social, and political history from pioneer days to the present.

16:186 Puritanism in the Shaping of America

3 a.h.

A study of "the last representatives of the medieval ambition to synthesize the divine and the human in the life of the individual and the State." Prerequisite, consent of instructor.

16:188 The Genius of American Institutions

3 a.h.

Characteristics which define the peculiar genius of institutions in the United States.

16:191 Afro-American History

Reading in selected aspects of Afro-American history with emphasis on the operation of slavery as a social system. Prerequisite, consent of instructor.

16:190 Afro-American History

1860 to Present

A continuation of 16:191, with emphasis on the formation of the ghetto and its operation as a social system. Prerequisite, consent of instructor.

16:192 The Religious and Democratic

Traditions of the United States

3 a.h.

Historical examination of what is commonly called "the church-state question" and an analysis of religious and political developments in an age of innovation, with emphasis on matters pertaining to religion. Same as Religion 25:192.

16:193 Latin American History

Survey from the discovery of America to wars of independence, Spanish conquests and post-conquest institutions. Prerequisite, junior or senior standing.

16:194 History of Latin America

Political, economic, and social history of Latin American republics in 20th and 21st centuries.

16:195 Latin American History

World: 1760 to 1850

Exile, revolution, and modernization under the Bourbons; revolutions for independence, and liberalism in Latin America, studied comparatively within a
broadly construed embracing Western Europe and North America. Prerequisite: junior or senior standing.

16.186 Modern Mexico 3 or 4 s.h.
Modern Mexico. 20th century history and its relationship to the third world. Prerequisite: junior or senior standing.

Far Eastern History

16.121 History of East Asia to ca. 1800 3 s.h.
East Asia from beginning until the early 19th century and the major areas connected with Chinese and Japanese civilizations. Emphasis on development of political institutions and culture. Not open to freshmen. Same as Oriental Studies 20.171.

16.121 History of Modern East Asia* 3 s.h.
Continuation of 16.121 to recent times but may be taken as an independent unit. Emphasis on modernization and relations with the West. Not open to freshmen. Same as Oriental Studies 20.172.

16.153 History of China to ca. 1840 3 s.h.
Origins and development of Chinese civilization through the early Ch'ing period. Emphasis on political, economic, and social trends. Prerequisite: junior or senior standing. Same as Oriental Studies 20.155.

16.194 History of Modern China* 3 s.h.
Political and economic development of China, 1840 to present. Emphasis on Western impact and Chinese response. Prerequisite: 16.121 or 194 or equivalent; graduate students by permission of instructor.

16.195 History of Japan to 1857 3 s.h.
Japanese history from the beginning through the Tokugawa period. Emphasis on the development of the feudal system, culture, and economic growth. Prerequisite, junior or senior standing. Same as Oriental Studies 20.173.

16.196 History of Modern Japan* 3 s.h.
Continuation of 16.195 to recent times but may be taken as an independent unit. Modernization and emergence of Japan as a world power. Prerequisite, junior or senior standing. Same as Oriental Studies 20.174.

Primarily for Graduates

16.211 Seminar: Medieval Society and Institutions of Continental Europe, 1000-1500 4-5 s.h.

16.212 Seminar: Medieval Society and Institutions* 4-5 s.h.

16.215 Readings in Reformation History 4-5 s.h.

16.217 Seminar: The Reformation 4-5 s.h.

16.221 Seminar: Early Modern Europe 3 s.h.

16.221 Seminar: Early Modern Europe* 3 s.h.

16.222 Seminar: 17th and 18th Centuries 4-5 s.h.

16.223 Seminar: Early Modern England, 1450 to 1715 4-5 s.h.

16.236 Readings: Early Modern England, 1450 to 1715 4-5 s.h.

16.237 Readings in Comparative Topics in European History, 1500-1700 4-5 s.h.

16.238 Readings in Early Central and Eastern European History, 15th to Mid-18th Centuries 4-5 s.h.

Calculus: Comparative studies on political and social trends as well as intellectual development in the Habsburg Empire, Prussia, Polish-Lithuanian Commonwealth, Rus-

60, Mongol-Turkic state system. Prerequisite, consent of instructor; qualified undergraduates may apply.

16.239 Seminar: Revolutionary Europe 4-5 s.h.

16.241 Readings in Modern England and Modern European Intellectual History 4-5 s.h.

16.242 Seminar: Modern Europe 4-5 s.h.

16.243 Readings in Modern European History 4-5 s.h.

16.244 Readings in Comparative Intellectual History 4-5 s.h.

Problems common to Germany, Great Britain, and the United States since ca. 1800.

16.245 Readings in European Diplomatic History 4-5 s.h.

16.246 Seminar: Modern Intellectual History 4-5 s.h.

16.247 Seminar: Russian History 4-5 s.h.

16.248 Readings in Russian History 4-5 s.h.

16.249 Readings in German History 4-5 s.h.

16.250 Seminar: Modern Germany 4-5 s.h.

16.251 Readings in Modern England 4-5 s.h.

16.252 Seminar: Modern England 4-5 s.h.

16.254 Seminar: Legislative Behavior Same as Political Science 20.250.

16.255 Seminar: Political Values and Leadership Same as Political Science 20.44.

16.257 Seminar: American Foreign Relations 4-5 s.h.

16.258 Seminar: American Foreign Relations* 4-5 s.h.

16.259 Seminar: British Empire and Commonwealth 4-5 s.h.

16.260 Seminar: British Empire and Commonwealth* 4-5 s.h.

16.261 Seminar: American Colonial History 4-5 s.h.

16.262 Readings in American Colonial History 4-5 s.h.

16.263 Seminar: American Colonial History 4-5 s.h.

16.264 Seminar: American Colonial History* 4-5 s.h.

16.265 Seminar: The American Middle Period 4-5 s.h.

16.266 Readings in the American Middle Period 4-5 s.h.

16.267 Readings in the Western Movement 4-5 s.h.

16.268 Readings in American Foreign Relations 4-5 s.h.

16.269 Seminar: Recent American History, 1877 to 1920 3 s.h.

16.270 Readings in Recent American History, 1877 to 1920 3 s.h.

17:12 Advanced Nutrition 3 a.h. Advanced principles of human nutrition. Introduction to nutrition research. Prerequisites: 17:118 or 139. Physiology 72:15, Biochemistry 6511 or consent of instructor.

17:14 Seminar- Home Economics 2 to 4 a.h. Exploration covering professional scope of home economics, its origin, development, philosophy. Current factors influencing practice in higher education. Organization to graduate study and research.

17:15 Seminar- Home Economics Research 2 to 4 a.h. Review of the literature in the area of interest. Open to both majors and nonmajors.

17:125 Meat Management 3 a.h. Lectures on marketing of food, government protection of foods, and world food problems. Laboratories are concerned with selection of foods and management of meat production. Prerequisites: 17:12 or 17:15 or 139. Economics 6511 recommended.

17:126 Institution Management I 3 a.h. Quantity food production and service. Equipment selection, maintenance, and layout. Observation and practice in the women's residence halls and University schools. Prerequisites: 17:12 or consent of instructor.

17:126 Institution Management II 3 a.h. Quantity food purchasing. Organization and management of food service units. Observation in University Hospitals. Prerequisites: 17:12 or consent of instructor.

17:128 Workshop: Current Topics in Home and Family Nutrition I 3 a.h. Recent developments in food and nutrition with discussion of scientific principles on which they are based. Some seminar study.

17:129 Physical Growth and Nutrition 3 a.h. Physical growth and nutritional requirements from infancy to adulthood.

17:134 Textile Economics 3 a.h. Economics and industrial history of textiles. Current developments and problems in domestic production and marketing. Prerequisites: Economics 5511 or consent of instructor.

17:135 Family Economics 3 a.h. Principles of family financial planning. Prerequisites: Economics 5511 or consent of instructor.

17:161 Advanced Textiles 3 a.h. Textiles finishes dye and detergents: their classification, structure, and methods of application. Laboratory: quantitative analysis of textile fibers. Use of textile testing equipment, evaluation of the physical and chemical properties of fibers, yarn, and fabrics. Prerequisites: 17:14.  

17:162 Directed Studies in Textiles and Clothing 3 a.h. Prerequisites, senior or graduate standing and consent of instructor.

17:163 Material and Methods in Family Life Education 3 a.h. Philosophy of family life education: Resources and methods of presenting family life education materials in grade and secondary schools, high school, and in higher education. Same as Education 51536. Not open to first semester juniors.
17:184 Special Courses: Costume Design, Interiors, and Home Architecture 3 s.h.

17:190 Marriage and Family Interaction 3 s.h.

17:191 Seminar: Parent-Child Relationships I 3 s.h.

17:192 Seminar: Parent-Child Relationships II 3 s.h.

17:200 Seminar: Family Economics in Higher Education 2 or 3 s.h.

17:210 Workshop: Home Economics Education 3 s.h.

17:213 Seminar: Related Art and Family Housing 2 s.h.

17:215 Research: Problems in Related Art 3 s.h.

17:220 Seminar: Food Economics 3 s.h.

17:221 Seminar: Food Economics Research 3 s.h.

17:222 Seminar: Readings in Nutrition 2 s.h.


17:261 Textile Analysis 3 s.h.

17:262 Research: Problems in Textiles and Clothing 3 s.h.

17:265 Seminar: Family Housing and Nutrition 2 s.h.

17:290 Thesis (Master's Candidates) 3 s.h.

17:295 Thesis Seminar (Master's Candidates) 1 s.h.

17:301 Seminar: Family Dynamics 2 s.h.

17:254 Foundations of Fashion 4 s.h.

17:259 Research: Problems in Textiles and Clothing 3 s.h.

Primary for Graduates:

17:300 Seminar: Home Economics in Higher Education 2 or 3 s.h.

History and philosophy of home economics, national, and international organizations. Analysis of home economics curricula in degree-granting institutions. Prerequisites: graduate standing and consent of instructor.

17:210 Workshop: Home Economics Education 3 s.h.

Exploration of special needs of young adolescents. Family development related to mentally retarded and culturally deprived. Sponsored jointly by the Department of Home Economics and Division of Special Education. Summer session only.

17:233 Seminar: Related Art and Family Housing 2 s.h.

History and philosophy of interior design, textile design, and housing. Readings, reports, and discussions of current literature.

Phenomenon: Materials, methods, and movements in high school home economics. Same as Education 17:336.

17:165 Methods for Instructional Problems in Food and Nutrition 3 s.h.

Use of current research findings in food and nutrition. Primarily for the secondary teacher.

17:166 Honors Problems in Home Economics 2 to 4 s.h.

Depending on area of interest, this may be a research project or creative work. Open to both majors and non-majors.

17:167 Directed Studies in Family Development cr.arr.

Individual problems for advanced undergraduates and graduates. Prerequisite: consent of instructor.

17:168 Nutrition Work with Children 3 s.h.

Essentials of effective nutrition education with children. Problems of child nutrition: approaches and techniques currently used. Prerequisite, 17:158 or consent of instructor. Same as Education 17:168.

17:169 Directed Studies in Food and Nutrition cr.arr.

Prerequisites, senior or graduate standing and consent of instructor.

17:183 Workshop: Advanced Textile Design 3 or 4 s.h.

Summer session only.

17:184 Special Courses: Costume Design, Interiors, and Home Architecture 3 s.h.

Summer session only.

17:190 Marriage and Family Interaction 3 s.h.


17:191 Seminar: Parent-Child Relationships I 3 s.h.

Synthesis and application of research in child rearing and parent-child relations. Prerequisite, senior standing.

17:192 Seminar: Parent-Child Relationships II 3 s.h.

Synthesis and application of research related to parent-child relations in exceptional family situations.

Primarily for Graduates:

17:300 Seminar: Home Economics in Higher Education 2 or 3 s.h.

History and philosophy of home economics, national, and international organizations. Analysis of home economics curricula in degree-granting institutions. Prerequisites: graduate standing and consent of instructor.

17:210 Workshop: Home Economics Education 3 s.h.

Exploration of special needs of young adolescents. Family development related to mentally retarded and culturally deprived. Sponsored jointly by the Department of Home Economics and Division of Special Education. Summer session only.

17:233 Seminar: Related Art and Family Housing 2 s.h.

History and philosophy of interior design, textile design, and housing. Readings, reports, and discussions of current literature.

17:215 Research: Problems in Related Art cr.arr.

Individual research problems for advanced students. Prerequisite or corequisite, 17:251.

17:221 Seminar: Home Economics Research cr.arr.

Methods and techniques of research in home economics and closely allied fields. Prerequisite, consent of instructor.

17:222 Seminar: Readings in Nutrition 2 s.h.

Critical review of current literatures in nutrition. Prerequisite, 17:220 or equivalent.

17:223 Seminar: Readings in Nutrition 2 s.h.

Physical and chemical properties of carbohydrates in food and their behavior under conditions encountered in food processing and storage. Prerequisites, Biochemistry 21:3 or 21:2 or consent of instructor.

17:224 Seminar: Readings in Nutrition 2 s.h.

Physical and chemical properties of lipids in food; their behavior under conditions encountered in food processing and storage. Prerequisites, Biochemistry 21:3 or 21:2 or consent of instructor.

17:227 Animal Research 2 s.h.

Methods and techniques of research in nutrition using small animals. Prerequisite, 17:150 or consent of instructor.

17:228 Seminar: Food cr.arr.

Readings, reports, and discussion of current literature in food science. May be repeated for credit.

17:254 Foundations of Fashion 4 s.h.

Anthropological approaches to fashion and analysis of social, economic, and psychological forces as determinants of fashion in modern times. Summer session only.

17:259 The Role of the Federal Government in the Textiles and Clothing Industry 4 s.h.

Analyzes the jurisdiction, function, and programs of departments and agencies of the federal government in relation to the textile and clothing industry. Summer session only.

17:261 Textile Analysis 3 s.h.

Comparative analysis of the performance, ease of care, and serviceability of finished textile fabrics. Reading in current developments of textiles. Prerequisite, 17:312.

17:262 Research: Problems in Textiles and Clothing cr.arr.

Individual research problems of advanced students. Prerequisite or corequisite, 17:251.

17:267 Research: Problems in Family Development cr.arr.

Individual research problems of advanced students. Prerequisite or corequisite, 17:251.

17:309 Research: Problems in Food and Nutrition cr.arr.

Individual research problems of advanced students. Prerequisite or corequisite, 17:251.

17:395 Thesis (Master's Candidates) cr.arr.

17:390 Thesis Seminar (Master's Candidates) 1 s.h.

Limited to candidates for a degree required a thesis. Presentation of original research. Prerequisite, 17:290 or consent of instructor.

17:391 Seminar: Family Dynamics cr.arr.

Reading and discussion of current literature in family development.
HOSPITAL AND HEALTH ADMINISTRATION

HOSPITAL AND HEALTH ADMINISTRATION

Director of Program, Gerhard Hartman
Office, 511 Westlawn

The Graduate Program in Hospital and Health Admin-
istration leads to the Master of Arts and Doctor of Philos-
ophy degrees. As hospital and health administration em-
brace many fields of academic preparation, the program
has primary identification with the College of Medicine
and the School of Business, but utilizes the facilities and
resources of the entire University.

There are many significant phases of hospital and health
administration which present problems profoundly differ-
ent from those usually confronted in business, education,
or government. Certain vital aspects of hospital and
health administration pose policy, procedural, technical,
and public relations problems which are unique; it is prob-
ably for these reasons that this program was originally
instituted.

Programs of Study

Master of Arts. The Master of Arts program consists of
a minimum of 30 on-campus semester hours of academic
work during four semesters and the completion of a thesis
during the second year of study. A new class is admitted
each semester. After the degree has been awarded, the
student is afforded the opportunity to undertake a post-
graduate assistantship in a carefully selected hospital or
health institution under the direction of a qualified ad-
ministrator.

While the curriculum stresses the conceptual unity and
generic nature of the administrative decision-making pro-
cess, the courses offered by the programs are designed to
acquire the student with the institutional environment of
contemporary hospital and health organization. Ad-
dministrative, social, economic, and financial problems
within are unique to health admin-
istration are stressed. Techniques of motivating and
organizing faculty and student staff are considered
as they relate to the provision of hospital care and
medical care in a community.

During the first academic year the curriculum is de-
signated to assist the student in developing a frame of refer-
ence which will enable him to relate his past experiences
and his undergraduate education to the specialized pro-
gress of study in graduate study in the hospital and health-care
setting. The case study and role-playing approaches are
used in the seminar setting, and subject matter is drawn from
the campus and the community. Students are prepared in
terms of situations which typify health-care institutions.

During the second academic year, during contemporary health-care institutions in a meaningful perspective, em-
phasized the production of on-campus faculty and
medical care administrators as well as to strengthen his under-
standing of the social science research techniques.

The second year of study consists of the preparation of
the master's thesis. The research for and the writing of
the thesis is undertaken during the third and fourth semesters.
During the preparation of the thesis the student studies public administration, and in the interdisciplinary
faculty committee, has available the total resources of the
University. These include the Library of Medical
and the Computer Center.

As hospital and health administration is based on the concept of the generic nature of ad-
ministrative problems, courses are developed
dividually for each student, emphasizes an interdisciplinary
approach. In addition to the study in hospital and health
administration, students' programs include courses from
the departments of sociology, political science, philosophy,
business administration, political science, philosophy,
however, in administration, education, psychology, and
at least two courses in business administration.

Doctor of Philosophy. The academic program at the
doctoral level is highly individualized. Students admitted
to this program will be specially motivated to utilize the
resources of the institution in the development of
research.

Students may present doctoral study directly after com-
pleting the bachelor's degree or the master's degree, whether in hospital administration or another appropriate
field. Students have been accepted with and without previ-
ous hospital operational experience.

These 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 examina-
tion may be combined with the comprehensive examina-
tion for the Ph.D. degree for these candidates.

Requirements for Admission to Master's or Doctoral Program

A bachelor's degree from an accredited university or
college is required for admission to the Graduate Program
in Hospital and Health Administration. Candidates are
selected on the basis of a thorough evaluation of their un-
dergraduate academic record, personal qualifications, ex-
perience, and their desire and aptitude for a career in
hospital and health administration. A minimum academic
grade-point average of 3.0 is required in an, grade being 4
points, on all college courses is required for admission to
the Master of Arts program. A minimum grade-point aver-
age of 3.5 is required to take the Graduate Record Examination
in the Verbal and Quantitative Tests.

There is no specification of major fields of study that
must be taken beyond the undergraduate level prior to undertak-
ing this graduate program of study. It is to be assumed that
study in the liberal arts and sciences and introduction to certain phases of business
administration, public administration, social services, and
business administration are accepted courses in accounting, economics, statistics, sociology or
psychology, biology or chemistry, public speaking, and
business organization and management are considered
essential to the successful completion of this program.

STAFF

Professor: Gerhard Hartman.
Assistant Professor: Roger Amstel, John R. Husem, Fred H.
Graham, Dennis D. Peitner.

On leave:

COURSE DESCRIPTIONS

80:101 Fundamentals of the
Modern Hospital 2 or 3 s.h.

80:102 Fundamentals of Modern Hospital
80:202 Fundamentals of Modern Hospital
80:203 Principles of Hospital and
Health Administration 2 s.h.

80:103 Principles of Hospital and
Health Administration 2 s.h.

80:102 Fundamentals of Modern Hospital
80:203 Principles of Hospital and
Health Administration 2 s.h.

Faculty of Public Administration

School of Business Administration

School of Education

School of Liberal Studies

School of Social Work

School of Urban Affairs

School of Continuing Education

School of Continuing Education
80:104 The Hospital in Modern Society cr.arr.
Develops conceptual skills required by the hospital administrator.

80:105 Administrative Aspects of Medicine 2 s.h.
Lectures and discussions to orient students to research problems peculiar to medical care administration.

80:108 Advanced Hospital and Health Administration 2 or 3 s.h.
Interpretation and utilization of subject matter in hospital accounting, statistics, medical staff relations, personnel management, and community relations.

80:107 Seminar: Problems of Administrative Behavior in the Modern Health Organization 2 s.h.
Case method of instruction, role-playing, and similar approaches to develop student’s administrative skills.

80:108 Problems of Administrative Behavior in the Modern Health Organization 2 s.h.
Continuation of 80:107.

80:109 Current Developments in Hospital and Health Administration 2 s.h.
Examination of recent controversies, timely problem areas, and approaches to hospital and health-care administration are emphasized. Seminars, lectures, and field trips.

80:111 Thesis: Hospital and Health Administration cr.arr.
Original study, review, and written presentation of a problem area in health-care administration.

80:120 Labor Relations in Health-Care Facilities 3 s.h.
Health-manpower structure, labor law for health-care facilities, conflict management, motivational and organizational theory of labor in the health-care area.

80:122 Financial Management of Health-Care Organizations 3 s.h.
Analysis of financial management problems indigenous to health-care facilities with emphasis on current and long-term financial requirements, administrative evaluation of financial alternatives, examination of costs, budgeting, rate establishment, and financial aspects of third party payers.

80:124 Health Care in America 3 s.h.
Evolution of governmental role in the health-care system.

80:156 Contemporary Health-Care Issues 3 s.h.
Perspectives in health and medical care are presented with special emphasis on community hospitals and the evolving role of hospital trustees, physicians, administrators, and others providing patient care services within the hospital setting.

80:203 Seminar: Hospital and Health Administration cr.arr.

80:203 Advanced Hospital and Health Organization and Management cr.arr.
Comprehensive course covering all phases of hospital operation and planning.

80:204 Advanced Hospital and Health Organization and Management cr.arr.

80:205 Research: Hospital and Health Administration cr.arr.

80:206 Research: Hospital and Health Administration cr.arr.

80:207 Individual Study cr.arr.

80:208 Clinical Education in Hospital Administration cr.arr.

80:209 Clinical Education in Health Administration cr.arr.

80:210 Medical Information for Hospital and Health Administrators 3 s.h.
Restricted to selected graduate students in hospital administration and related fields such as business administration, sociology, public health, and education.

ITALIAN
(See French and Italian)

JOURNALISM
Director of School, Malcolm S. MacLean, Jr.
Office, 205 Communications Center
Associate Director, Richard W. Budd
Office, 203 Communications Center

Undergraduate Study
Bachelor of Arts

The School of Journalism wants its undergraduates to get a liberal education, emphasizing broad coursework in the humanities, the social sciences, and the natural sciences.

A major objective of the student in journalism is to get a real sense of crucial human problems so that as a responsible consumer he will be able to contribute to their solution. Through class activity and independent study, students gain an understanding of communication processes and learn to use the principles in communicating effectively.

Recognizing the vital importance of communication in our society, the program helps the student develop a keenly critical approach to the institutions of his society, including especially the institutions of mass communication. Students are encouraged to experiment in their work; a major purpose is to develop values for thorough investigation, careful analysis, and creative thinking.

The School of Journalism also serves as a center for research in mass communication, seeks improvement in the quality of mass communication, and participates in the preparation of teachers of journalism and communication for colleges and high schools.

Prerequisites: All majors must meet the requirements of the College of Liberal Arts (see College of Liberal Arts).

Because students graduating from the journalism program should have the broadest possible education to enter a wide variety of positions in communication, the school encourages students to seek a double major.

Courses required of all students in journalism are 18:1, 18:2, 19:1, 19:2, and 19:4. The courses 18:1 and 18:2 are given only in the fall semester. Thus, students entering journalism must start these two courses in the fall of either their sophomore or junior year. General journalism majors are required to take courses 18:3, 19:1, 19:2, and 18:6. General journalism majors are those students interested in fields of journalism and communication other than photojournalism, advertising, or radio or television journalism. They do not take the courses 18:3-18:5, but otherwise specific courses as worked out between the student and his advisor. General journalism students have a total of 24 required journalism semester hours, photojournalism students have a total of 24 required journalism semester hours, and 12 semester hours in business Administration 18:6, and high school journalism teaching students have a total of 24 required journalism semester hours.

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Graduate Study

Master of Arts in Journalism. The School of Journalism provides a Master of Arts program which combines general journalism principles with applied skills appropriate to various areas of specialization. It is designed to meet the needs of students with a wide variety of backgrounds in journalism, including further study at the doctoral level. The degree is awarded to candidates either with or without a thesis. Those who write a thesis must earn a minimum of 30 semester hours of graduate credit, of which a maximum of 5 semester hours may be credit for the thesis. Those who do not write a thesis must earn a minimum of 38 semester hours of graduate credit, of which two or more semester hours must be in J 1830 Special Projects in Mass Communication. In both cases, at least 8 semester hours of graduate credit must be taken outside of the School of Journalism. Doctorate in Mass Communications. The communication doctorate is an interdisciplinary degree giving opportunities for work in several departments. The central objective of the program is to develop scholars who will make significant contributions to teaching and research in communication. The program emphasizes development of understanding of theoretical and operational problems in communication. A student develops skills applicable in fields such as university teaching, news media, advertising, public relations, governmental and international communication systems, interpersonal communication, and human communication functions which require ability to develop effective communication strategies. The program is designed around a small core of graduate work in communication, but encourages a wide range of other courses, in the interests of the candidate, to further prepare him in creating a program appropriate to his needs within the framework of basic requirements for the doctorate.

STAFF


Instructors: Charles F. Craig, Richard P. Johns, Bruce D. Ruben.

COURSE DESCRIPTIONS

Primarily for Undergraduates

19:1 Communication Core and Colloquium I 2.0 h.

Role and function of communication, historical and contemporary studies of persuasion, communication, and audience–communicator relationships. Communication: communication, language, and social interaction, perspectives on mass communication (oral and written). Colloquium: distinguished speakers from on and off campus. Required for all sequences. Corequisite, 19:2. First semester.

19:2 Communication System Simulation and Technology Institute I 3.0 h.

Intensive experientially grounded study of processes involved in interpersonal, intrapersonal, and mass communication in a decision-making, problem-solving context. Emphasis is on skills, knowledge, techniques, and technologies associated with audience analysis, editing, marketing, advertising, public relations, research, production, management, personnel, ethics, law, time communication, and social order in print, photo, and broadcast. Required for general journalism sequence. Corequisite, 19:1. First semester.

19:3 Communication Core and Colloquium II 3.0 h.


19:4 Communication System Simulation and Technology Institute II 3.0 h.


19:5 Communication Core and Colloquium III 3.0 h.

The mass media: a communication systems approach; historical and philosophical analyses of media growth; social and economic control. Media responsibilities and regulatory devices (constitutional guarantees, FCC, press council, professionalism). Colloquium: distinguished speakers from on and off campus. Required for general journalism sequence. Prerequisite, 19:5; corequisite, 19:6. First semester.

19:6 Communication System Simulation and Technology Institute III 3.0 h.

Intensive experientially grounded study of processes involved in interpersonal, intrapersonal, and mass communication in a decision-making, problem-solving context. Emphasis is on skills, knowledge, techniques, and technologies associated with audience analysis, editing, marketing, advertising, public relations, research, production, management, personnel, ethics, law, time communication, and social order in print, photo, and broadcast. Required for general journalism sequence. Corequisite, 19:6; corequisite, 19:7. First semester.

19:7 Communication Core and Colloquium IV 3.0 h.

Case studies of media performance. This section will be devoted to an in-depth study of a current public issue involving mass media economics, historical and political, and social contexts. Media responsibilities and regulatory devices (constitutional guarantees, FCC, press council, professionalism). Colloquium: distinguished speakers from on and off campus. Required for general journalism sequence. Prerequisite, 19:7; corequisite, 19:8. Second semester.

19:8 Communication System Simulation and Technology Institute IV 3.0 h.


19:15 Communication: Concepts and Perspectives 3.0 h.

A general overview of communication. Open to majors, freshmen and sophomores. An intensive study of personal, interpersonal, and mass communication, the processes of human interaction. Students will explore, through structured group study, the effects of the environment, personal and social, on the development of communication processes: verbal communication, nonverbal communication, communication within social organizations, and the role of communication institutions in society. All students.

19:91 Radio Production 3.0 h.

Same as Speech 38:91.

19:92 Radio Workshop 3.0 h.

Same as Speech 38:92.

19:96 Honors Seminar 1.0 h.

Extensive reading, preparation of papers, discussion of mass communication problems. Honor students only. May be repeated to a maximum of 4 semester hours. Second semester.

19:98 Reading for Honors 1.0 to 3.0 h.

Reading and discussion of a problem in mass communication. May be repeated in terminal semester. Honor students only. May be repeated. Both semesters.
JOURNALISM

news systems, structure and dynamics and the function of the news media within the larger social system. All sessions.

19:156 Seminar: Special Topics in Journalistic Writing 2 s.h.
Prerequisites, junior standing or above and consent of instructor. First semester and summer session.

19:158 Seminar: Special Topics in Journalism Education 2 s.h.
Continuation of 19:156. Prerequisites, consent of instructor. Second semester.

19:170 History of Books and Printing 2 s.h.
Historic survey of books and book-related forms, their physical, technical, and cultural qualities, from primitive archetypes to contemporary and possible future developments. Second semester.

19:171 History of Mass Communication 3 s.h.
Open to majors. Study and research in development of mass communication media in America and their interrelationship with society. Prerequisite, junior standing or above. All sessions.

19:172 Graphic Design and Production 3 s.h.
Traditional and contemporary practices and standards in editing, illustration, layout, paper, printing, binding, distributing books, magazines, newspapers; copyright; the trade. First semester.

19:173 Cinematography Techniques 3 s.h.
Same as Speech 38:153. Registration advised.

19:174 Cinema Production 3 s.h.
Same as Speech 38:156.

19:175 Fundamentals of Public Relations 2 or 3 s.h.
Current public relations practices as related to business, industry, and associations. Utilization of research results and evaluation of procedures. Examination of mass and media selection. Emphasis on position of public relations practice in society. First semester. All sessions.

19:176 Case Studies in Public Relations 2 or 3 s.h.
Public relations problems of business, industry, and associations with evaluation of actual and/or proposed methods of solution. Examination in depth of selected case studies of significance. Prerequisites, 19:175. Second semester.

19:177 Comparative Foreign Communication Systems 3 s.h.
Contemporary communication systems in major countries, and world areas; sociopolitical, economic, cultural, and historical perspectives. The Communist countries, the Western democracies, and Africa, Asia, and Latin America are included. Prerequisites, junior standing or above. First semester.

19:180 Special Projects in Mass Communication 3 s.h.
Research and extended readings to fit the special needs and topics of the student. Expenses to all students in good standing with permission of instructor. All sessions.

19:181 Advanced Television Production 3 s.h.
Same as Speech 38:156.

19:182 Current Magazine Practice 3 s.h.
Role of the magazine in America today; organization of contemporary magazine staffs and publishing operations; analysis of editorial and advertising content; identifying mass and group audiences. First semester. Prerequisite: junior standing.

19:187 Picture Editing 3 s.h.

Primarily for Graduates

19:200 Introduction to Master's Study 2 s.h.
Principles and methods of scholarship, good writing, journalism education, the field of journalism. All sessions.

19:201 Master's Seminar 2 s.h.
Communication theory, research methods, and research design for master students. All sessions.

19:205 Practicum for Master's Candidates 3 s.h.
Professional laboratory practice. Registration is in one of nine sections: 1 newspaper, 2 magazines, 3 public relations, 4 radio, 5 television, 6 advertising, 7 journalism education, 8 photojournalism, or 9 research. All sessions.

19:211 Seminar: News-Editorial Problems 2 s.h.
Ethical problems affecting news gathering, presentation, and publication. Second semester.

19:214 Seminar: Research in the History of Mass Communication 3 s.h.
Comprehensive training in research and preparation of articles on history of mass communication from general study to final publication. The historical method in communication research. Prerequisites, 19:211 or equivalent. Second semester.

19:218 Communication in Authoritarian Societies 2 s.h.
Contemporary comparative analysis of the concept, theory, function, structure, organization, and social role of communication systems in authoritarian and communist countries. Communications are examined in their sociopolitical, economic, and cultural perspectives and contexts. First semester.

19:219 Communication in the Developing Countries 2 s.h.
Contemporary comparative analysis of the concept, theory, function, structure, organization, and social role of communication systems in the developing countries of Africa, Asia, and Latin America. Emphasis on communication in national development. Second semester.

19:220 Communication Systems of the Western Democracies 2 s.h.
Contemporary comparative analysis of the concept, theory, function, structure, organization, and social role of communication systems in the Western democracies of the world; their social, political, economic, cultural, and historical settings. Summer session.

19:231 Problems in International Communication 3 s.h.
Socioeconomic and political factors affecting international communication and relations. The role of the mass media in the context of world affairs; communication systems in national development; international and cross-cultural communication structures and theory; images and values; mass persuasion; laws and agreements; information research and reporting; fact and effect; censorship; language and literacy. Second semester. Prerequisites: consent of instructor.

19:232 Seminar: Advertising 2 s.h.
Advanced study of advertising, stemming research and theory. Prerequisites, graduate standing and consent of instructor.

19:233 Seminar: International Communication 3 s.h.
Advanced study and research in theory and problems in mass media, mass communication, and cultural communication. Concepts, values, structure, function, performance, and effect within the context of social, economic and political environments, cultural dis-
Special topics in contemporary communication. May be repeated for credit. First semester and summer.

19:251 Master’s Thesis Research cr. att.
Principally for master’s candidates working on thesis. Consent of instructor, staff member and of the director of graduate study must be obtained before registration. All sessions.

19:255 Mass Communications in Modern Society 2 s.h.
The concept of mass communications; rights and responsibilities of the communicator; public opinion; interaction of mass media and society; government, politics, world affairs and mass communication; the mass media as institutions and as systems; mass media and social change. Both semesters.

19:291 Seminar: Mass Communications and Society 2, 3, 4 s.h.
Political, economic, and social factors influencing content and character of the mass media; ethics, rights and responsibilities of mass communication media; place of the mass media in social change and social planning. First semester and summer session.

19:280 Interdisciplinary Seminar: International and Comparative Human Rights 2 s.h.
Same as Law 21:80.

For Doctoral Students

19:300 Ph.D. Seminar 2 s.h.
Required of all doctoral students during residence. All sessions.

Required of all doctoral students and approved consumer in residence. Registration by section number. Prerequisite: consent of faculty member. All sessions.

Registration by section number. Prerequisite: consent of faculty member. All sessions.

19:303 Dissertation cr. att.
Prerequisite, dissertation committee approval of proposal. All sessions.

LATIN
(See Classics)

LETTERS

Director of School, John C. Gerber Office, 106 English, Philosophy Building

See Schools and Divisions under College of Liberal Arts.

Course Offerings

108:101 Masterpieces of Western Literature
in Translation 2 s.h.

108:102 Masterpieces of Western Literature
in Translation 2 s.h.
Continuation of 108:101, but may be taken as an independent unit.

106:106 European Novel, 1580 to the Present 1 s.h.
Same as English 21:46.

106:107 European Drama in Translation 2 s.h.
Same as English 21:46.

106:111 Yiddish Literature in Translation 3 s.h.
Same as German 13:119. Prerequisites, Junior standing and consent of instructor.

106:450 Seminar: Modern Letters 3 s.h.
Same as English 41:45.

For other course offerings in literature for the non-specialist, refer to the catalog of the individual departments and programs which are members of the School of Letters.

American Civilization
Chicano and Chicana Studies
Classics
Comparative Literature
English
French and Italian
German
Linguistics
Russian
Spanish and Portuguese
Speech and Dramatic Art

LIBRARY SCIENCE

Director of School, Frederick Wexman Office, 622 Jessup Hall

The basic aim of the School of Library Science is to prepare qualified college graduates for professional careers in librarianship. The Master of Arts in Library Science is the accepted preparation for professional positions in public, school, college and university, and special libraries. The school offers this degree in a 24-month, full-time program, a full calendar year course of study which covers all phases of the profession and gives the student an opportunity to specialize in his major field of interest.

Library Facilities

The University library system consists of a main library and fourteen departmental libraries with a book collection of approximately 1,000,000 volumes. There are over 6,000 periodicals and 50,000 publications. The library science library is continually expanding its holdings with the acquisition of materials in library science and related fields. (See Libraries.)

In addition to the University Libraries, students have access to a variety of libraries in Iowa City and nearby communities for their reference needs. The State Historical Society Library in Iowa City, the Iowa City and Cedar Rapids public and school libraries, the Coon, Cornell and Grinnell College libraries, and by arrangement, the Herbert Hoover Presidential Library in West Branch, Iowa.

Undergraduate Study

There is no undergraduate major in library science. Upperclass undergraduate may enroll in the four library science core courses: 21:350, Supervision I, 21:351, Cataloging and Classification, 21:352, Selection of Library Materials, 21:354 History of Libraries and Librarianship as well as 21:356 Children’s Literature, 21:358 History of Children’s Books, and 21:359 Library Science for Adolescents. If late accepted in the graduate program, students will be allowed to substitute advanced library science courses for those already taken to meet course requirements for their degree.

Master of Arts in Library Science

Admission requirements. Applicants for admission to the M.A. program must:

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Certification in School Librarianship

Students who desire certification as school librarians in addition to teacher certification may either earn the M.A. in Library Science as described above, or earn a school Librarian's certificate. This is a 36 semester-hour non-degree program which combines undergraduate and graduate coursework, and carries a more liberal policy toward transfer and correspondence credits than the M.A. program.

Admissions to certification program. This program is open to both undergraduates and graduate students. Undergraduates, however, will be unable to complete the program until after receiving their M.A. degree because some of the courses are at graduate level. Graduate students must accept the admission requirements of the Graduate College. The program can be completed through summer work.

Requirements for certification. The certification program requires the completion of 36 semester hours of credit in which a grade-point average of 2.0 for undergraduate work and 2.5 for graduate work must be earned. Ten semester hours of transfer, correspondence, and extension credits completed at either the undergraduate or graduate level may be applied toward the requirements for certification provided such credits have relevance to the certification program. In addition, the student must hold an accredited secondary school teaching certificate as specified by the certification program. All candidates for certification must complete the following course requirements:

1. Required courses (18 semester hours):

2. Elective courses (15 semester hours):
   - Most students will be expected to take the remainder of their elective hours in library science courses. However, when career objectives indicate, and with the consent of the advisor, the student may take elective hours in other university departments, especially in closely related areas such as computer science, English, history, education, social work, urban studies, and political science.

Admission requirements.Normally the program requires two semesters and one summer of resident study; or a total of 36 semester hours during a minimum of four summer sessions.

Thesis and nonthesis programs. The Library School offers two plans for the M.A. The requirements are identical except that under the thesis plan 6 semester hours are earned for a research project; this work replaces two elective courses in library science. For the majority of students, the nonthesis program with the additional coursework is recommended. Students with considerable library experience, strong undergraduate work in library science, or a posture of student who are interested in special areas of interest in which they are especially interested may elect to write a thesis with approval of the director.

Financial Assistance

The School of Library Science awards several tuition scholarships each semester to graduate students in the field of librarianship. A limited number of fellowships is available to students in the Educational Assistance Act. These fellowships provide $2,000 plus tuition. Prospective applicants for either fellowship must apply before March 1. The school offers assistance to students in securing employment in area libraries. (See Scholarships and Loans.)

STAFF

Professor: Frederick W. McPeek
Associate Professor: Laurence L. Newmeyer
Assistant Professor: Robert J. Reid
Instructor: Andrew M. Hansen
Instructor: George R. Freeman
Instructor: Alfred W. Schiller, Carl F. Ogren
Instructor: Andrew W. Hansen
Instructor: Joseph A. St. John

COURSE DESCRIPTIONS

21:123 Children's Literature

3 s.h. Same as Education 21:125.
functions and objectives of the media program, planning and evaluating programs and facilities, financing and budgeting, personnel management. Prerequisite, 21:134.
21:134 Library Services to Children and Young Adults 3 s.h.
Roles, problems, and needs of library service in the elementary and secondary schools and in libraries with children and young adults in the public library. Prerequisites, 21:53, 21:55.
21:241 Bibliography of the Humanities 3 s.h.
Special reference works and selection aids in each of the major subject fields comprising the humanities. Included are general reference works of broad scope whenever pertinent. Subjects studied include fine arts, literature, music, philosophy, religion, and other closely related areas. Prerequisite, 21:134.
21:242 Bibliography of the Social Sciences 3 s.h.
Special reference works and selection aids in anthropology, economics, education, geography, political science, and other closely related areas. Prerequisites, 21:134, 21:135.
21:243 Bibliography of the Sciences 3 s.h.
Special reference works and selection aids in each major subject field. Sources used in building and servicing collections and in providing information in the field. Periodical and serial literature and its use and control through abstracts and indexes. Prerequisite, 21:134.
21:245 Introduction to Information Science 3 s.h.
An introduction to the methodology and techniques of information science and their application in all kinds of libraries. Includes a survey of current practices and problems relating to the processing, storage, and retrieval of information by manual, mechanical, and electronic means. Prerequisites, 21:55, 21:134.
21:251 Advanced Reference 3 s.h.
Subject approach to major reference sources especially in the fields of law, medicine, business, and urban areas. A substantial amount of time is devoted to a study of city, state, United States, government documents, and methods of publicizing library services and methods of reference service. Prerequisites, 21:53, 21:55.
21:252 Advanced Cataloging 3 s.h.
21:253 Administration of Libraries 3 s.h.
National and trade bibliographies of the world, with concentration on those of the United States, Great Britain, France, Germany, and Russia, considered from the viewpoint and subject bibliography viewpoint. Prerequisite, 21:134.
21:255 Publishers and Publishing 3 s.h.
Contemporary publishing scene. Problems of organization and administration, technical development, and marketing. Production of important publishers. Role of publishers in our society. Prerequisites, 21:253.
21:260 Problems in College and University Librarianship 3 s.h.
Development and evaluation of collections, personnel, buildings, and equipment. Field research in area academic libraries. Prerequisite, 21:135.
21:261 Problems in Public Librarianship 3 s.h.
21:262 School Media Center Problems 3 s.h.
Seminar in the analysis of special problems encountered in the administration and organization of the media program at the individual school and system level. Includes
Students who intend to pursue the Ph.D. in English with major in English Linguistics are admitted through the Department of English; those who wish to enter the Ph.D. program in Cultural Anthropology and Linguistics should consult the program advisors: Professors Jane Helm (Anthropology) and Robert Howren (Linguistics). Undergraduate major requirements. The course of study of the B.A. degree in linguistics consists of extensive study of a language other than the student’s native language, a series of prescribed courses in linguistics, and a minimum number of courses in fields related to linguistics. In each semester of his senior year, the student is required to enroll in the one-semester-hour course 120:360 Survey of Current Research in Linguistics.

Language. At an appropriate time before completion of his academic work for the B.A. degree, the candidate is required to demonstrate, in an examination given by the appropriate department, proficiency in one language other than his native language; this is by the extent of practical mastery of the chosen language which, in the opinion of the department concerned, is adequate for the pursuit of graduate study in that language, whether or not the candidate intends to continue graduate study. Normally the candidate passes the examination by pursuing the same course of study (concluding, optionally, courses, which the program requires of its majors. Naturally the student with strong high school preparation in this chosen language would be able to meet this requirement in a shorter time than the student with little or no precollege preparation.

Linguistics (3 semester hours)

Introduction to Linguistics 3 s.h.

Artificial and Analogical Phonetics 3 s.h.

Linguistic Analysis I 3 s.h.

Linguistic Analysis II 3 s.h.

The history or structure of a particular language (e.g., History of English, Structure of English, German Phonology, etc.) 3 s.h.

One additional course in Linguistics 3 s.h.

Relative courses (20 semester hours)

1. Course specifically required:

Elective course in History of English, General Anthropology, or General Anthropology or

Elective course in General Anthropology or

Elective course in Language and Culture

2. Any upper-division courses in related fields (the choice of related courses to be worked out in consultation with student’s advisor) 12 s.h.

Master of Arts Degree

Language. A reasonable proficiency in one language (or in the equivalent appropriate language department of the University) other than the student’s native language is required. Admission to candidacy for the M.A. in Linguistics is by grade-point average. A grade-point average of 2.00 unweighted is normally required for admission to the M.A. program. The candidate shall complete a total of at least 27 semester hours of coursework in Linguistics and related fields; the maximum load for the full-time student (in the department) 120:360 Introduction to Graduate Study in Linguistics (3 semester hours), two courses in syntactic theory (3 semester hours), and two courses in descriptive linguistics (6 semester hours). Of the required 27 semester hours, 8 may be earned in approved related fields.

Thesis. Normally, an essay of 50 to 100 pages treating some topic in descriptive, historical, or comparative linguistics (3 semester hours).

Comprehensive examination. The comprehensive examination is given in two parts, written and oral. The writing examination is based chiefly on a reading list given the student at the beginning of his studies, and may be taken upon completion of the required coursework. The oral examination is more general in nature (although not the same as the written examination). It includes a defense of the thesis, and is considered the final examination for the degree.
Doctor of Philosophy in English with Major in English Linguistics

Courses
1. Linguistics
   101-102 Introduction to Graduate Study in Linguistics
   105-106 Introduction to Diachronic Linguistics
   An approved sequence of courses in linguistic theory and analysis, including, each semester of residence, 105-106 Survey of Current Research in Linguistics (3 s.h.).
2. English Language
   580 Elementary Old English
   591 Middle English Language and Literature
   592 The Structure of English
   111 History of British and American English
   601 The Teaching of English as a Foreign Language
   The seminar of directed research in each of the following areas:
   (a) the structure of Modern English
   (b) the history of the English language
   (c) the period of the English language corresponding to the literary period which the student has elected for study. See 3.
3. Literature
   5935 syllabus
   At least one course in Chaucer
   At least one course in Shakespeare
   An approved sequence of courses in a literary period of the student's choice.
4. Teaching methods and the history of English
   An approved program of courses outside of but related to the main program of study (for example, appropriate courses in history, philosophy, anthropology, etc.).
5. Comprehensive examinations. The comprehensive exam-
   ination for the degree consists of a written and an oral part.
   In the written portion of the examination, the stu-
   dent is examined on (a) general linguistics, (b) the structure of Modern English (including American dia-
   lects), (c) the history of the English language, and (d) the literature selected. The oral examination may range over all these areas.

Note: An adequate examination should test some topics in the history of English, in the structure of English at an intermediate level of development or in any of its dialects, or in applied English linguistics.

Doctor of Philosophy in
Cultural Anthropology and Linguistics

The entering candidate must demonstrate reasonable proficiency in a language other than his native tongue.
In the course of the program he must demonstrate com-
petence in (a) one "research tool" (another language, statistics, symbolic logic, etc.), (b) a comprehensive ex-
amination in cultural anthropology, linguistics, and eth-
nomology, (c) an intensive course in linguistics required in the pro-
duced requirement. The student must complete 36 s.
hours of work in any dissertation in English required in the pro-
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LINGUISTICS

STAFF

Professors: Robert Haynes, John C. McCallard, John C.
McLaughlin, William J. Pelt.


Departmental faculty: John W. Bosser (Speech), Virgil S. Creech (Chinese), James F. Curtis (Speech Pathology and Audiology), Robert Denzer (German), Arthur Flukt (Computer Science), George Genera (Russian), Stephen J. Lattanzio (Computer Science), Kenneth Sold (Speech Pathology and Audiology), Rich-
ard O'Grady (French and Italian), Richard M. Hum (German), Joseph Bicenti (Spanish and Portuguese).

COURSE DESCRIPTIONS

For Undergraduates and Graduates

100-102 English for Foreign Students (3 s.h.)
Training in spoken and written English for non-native speakers of English.

103-100 Introduction to Linguistics (3 s.h.)
Variety of topics in general linguistics. Same as English 3350.

105-101 Introduction to Language and Communication (3 s.h.)
Methods and research in applied linguistics and communication theory. Same as Speech 3606.

103-110 Articulatory and Acoustic Phonetics (3 s.h.)
Articulatory and acoustical phonetics theory, intensive pract-
ices in phonetic transcription. Same as English 8503.

103-111 Linguistic Analysis I (3 s.h.)
Phonological theory; procedures for analyzing and de-
scribing the phonological structures of languages. Same as English 8503. Prerequisites: 103-109 or equivalent.

103-112 Linguistic Analysis II (3 s.h.)
Principles and methods for analyzing and describing the structural properties of languages. Same as English 8501. Prerequisite: 103-109 or equivalent.

103-113 Linguistic Field Methods (3 s.h.)
Gathering and collection of language data in the field; theory and practical problems; extensive practice in eliciting data from informants. Same as English 8500. Prerequisites: 103-110, 111, 112.

103-114, 115 Introduction to Language Data Processing (3 s.h.)
each Writing computer programs to process language data. No knowledge of linguistics or mathematics required.
No prior knowledge of computers or programming is assumed. The course will focus on analyzing data, conceptualizing an explicit procedure to handle the prob-
lem, embodying the procedure in a computer program, and testing the program to run accurately.

103-120 Historical and Comparative Linguistics (3 s.h.)
Principles of linguistic change, the comparative method and the genetic classification of languages. Same as English 8130. Prerequisite: 103-109 or equivalent.

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103:131 History of British and American English 3 a.h.
Development of the phonological and grammatical struct-
ures of English, from Old to Modern English, dialectal
differentiation in English. Same as English 6:818. Pre-
requisites: 103:109 or equivalent.
103:141 The Structure of English 3 a.h.
Application of contemporary linguistic theory to the
analysis and description of the structure of modern Eng-
lish. Same as English 6:826. Prerequisite: 103:100 or
an equivalent.
103:142 Modern English Grammar 3 a.h.
Views of the great texts "modern grammars in relation to
contemporary structural and transformational approaches
to grammar of modern English. Same as English 6:819.
103:143 German Phonology 3 a.h.
Structure of the sound-system of the German language;
Introduction to the problems of German morphology and
103:144 Structure of Modern Chinese 3 a.h.
Same as Chinese and Oriental Studies 30:130. No knowl-
edge of Chinese required.
103:145 History of the Chinese Language 3 a.h.
Same as Chinese and Oriental Studies 30:130.
103:147 Linguistic Analysis of
Contemporary Russian 3 a.h.
Same as Russian 41:131.
103:151 Early New High German 3 a.h.
Development of the standard High German language from
Medieval territorial dialects from 1300 to 1600. Extensive
study of the major representatives of the distinct areas and
of attempts to establish a supraregional norm. Same as
German 15:101.
103:171 Language and Culture 3 a.h.
Human behavior in its communicative aspects: language
and thought, speech as an event, communication net-
work, language classification, nonverbal communication.
Same as Anthropology 13:101. Prerequisite: consent of in-
structor.
103:173 Language Teaching and
Linguistic Behavior 3 a.h.
Phonological theory and linguistically-oriented meth-
ods of foreign language teaching in connection with child
language, second-language learning, teaching a prestige
dialect, vocabulary acquisition, and standardization.
103:300 Proseminar in Linguistics 3 a.h.
Linguistic theory and analysis for beginning graduate
students in linguistics and for graduate students in other
disciplines in which a more than passing familiarity with
linguistics is required.
103:218 Linguistic Structures 3 a.h.
Analysis of the grammatical and/or phonological struc-
tures of a selected language or language family. The
language(s) covered may vary from year to year. The
course may be repeated for credit with a change in the language
analyzed. Prerequisite: consent of instructor.
103:212 Syntactic Theories 3 a.h.
Grammar from ancient times to the present; contem-
porary developments in the theory of syntax. Same as
English 6:828. Prerequisites: 103:112 or equivalent.
103:314 Syntactic Analysis: Generative
Grammar 3 a.h.
Generative-transactional model of linguistic descrip-
tion: Construction of generative grammars. Same as
English 6:838. Prerequisite: 103:112 or equivalent.
103:215 Mathematical Linguistics 3 a.h.
Same as Computer Science 252:521.
103:216 Diacholy 3 a.h.
Linguistic geography and the comparative study of dia-
lects; structural and generative approaches to diachology.
Same as English 6:821. Prerequisites: 103:100 or equivalent.
103:219 Field Methods in
Ethnolinguistics 3 to 5 a.h.
Research methods in ethnolinguistics. Emphasis upon
techniques of collecting field data, collection and analysis
of data, and research design. Same as Anthropology 113:
270. Prerequisite: consent of instructor.
103:220 Ethnolinguistic Theory 3 a.h.
Cultural and linguistic dimensions of human communica-
tion. Same as Anthropology 113:271. Prerequisite: consent
of instructor.
103:221 History of the German Language 3 a.h.
Development of the German language and dialects from
prehistoric times to the present. Same as German 15:101.
103:222 History of the Scandinavian
Languages 3 a.h.
Scandinavian languages from earliest times to the pre-
present. Readings in linguistic texts in Danish, Swedish,
and Norwegian. Same as German 8:223. Prerequisite: one
Old Germanic language.
103:246 Middle English Language and
Literature 3 a.h.
103:245 Early Modern English Language
and Literature 3 a.h.
103:250 Elementary Old English 3 a.h.
103:251 Old Norse 3 a.h.
103:252 Middle High German-a
Grammar of the High German literary language from the
12th to the 16th century. Selected readings from litera-
ture of the period. Same as German 15:243.
103:253 Old High German 3 a.h.
High German dialects in their earliest recorded forms and
their influence upon the German-speaking area from the
9th to the 11th century. Readings from literature of the
discipline. Same as German 15:245.
103:254 Old Saxon 3 a.h.
103:255 Old Gothic 3 a.h.
103:256 Old French 3 a.h.
103:257 Old French 3 a.h.
103:258 Old Provengal 3 a.h.
103:259 Old Provengal 3 a.h.
109:260 Old Spanish I
Same as Spanish 125-261.
3 s.h.
109:261 Old Spanish II
Same as Spanish 261-322.
3 s.h.
109:370 Experimental Phonetics
Scientific analysis of speech and voice: major laboratory instruments and techniques in current use are described and applied in laboratory exercises status of current knowledge is summarized and discussed. First semester as Speech Pathology and Audiology 321; prerequisite, consent of instructor. 3 s.h.
109:211 Experimental Phonetics
Continuation of 109:270, which is prerequisite. Same as Speech Pathology and Audiology 322. 3 s.h.
109:212 Verbal Processes and Language Behavior 3 s.h.
Fundamental variables affecting acquisition, transfer, and retention of verbal behavior, including the role of language structure and language habits. Same as Psychology 3145. 3 s.h.
109:214 Introduction to Psycholinguistics 3 s.h.
Study of the relationships between linguistic structure and psychological variables affecting language use. Selected topics may include information theory and statistics of language, language universals, semantics, language acquisition, bilingualism, and animal communication. Same as Speech Pathology and Audiology 321. Fall semester. 3 s.h.
109:215 General Experimental Phonetics 4 s.h.
Same as Speech Pathology and Audiology 320. 4 s.h.
109:300 Survey of Current Research in Linguistics 1 s.h.
Weekly discussions by staff and students of current periodical literature in the field of linguistics. Required of all graduate students in linguistics for each semester of residence. 1 s.h.
109:319 Seminar: Problems in Linguistics 3 s.h.
Intensive study of selected theoretical and practical problems. Topic varies each year. Same as English 369. 3 s.h.
Selected topics in psycholinguistics. Research and theory may be repeated for credit. Same as Speech Pathology and Audiology 353. Prerequisite, consent of instructor. 3 s.h.
109:331 Seminar: Germanic Linguistics 3 s.h.
Problem and research seminar. Same as German 315. 3 s.h.
109:343 Seminar: Modern German 3 s.h.
Current problems. Same as German 13-341. 3 s.h.
109:370 Seminar: Experimental Phonetics 2 s.h.
Same as Speech Pathology and Audiology 322. Prerequisite, 109:371. 2 s.h.
109:375 Seminar: Communication Research, Language Variables 2 or 3 s.h.
Same as Speech 387. 2 or 3 s.h.
109:387 Problems in English Linguistics 3 s.h.
Direct research in the structure and/or history of the English language. May be repeated for credit. Same as English 377. 3 s.h.
109:390 Special Projects 3 s.h.
109:400 Master's Thesis 3 s.h.
DIVISION OF MATHEMATICAL SCIENCES
Office, 109 MacLean Hall
Through its three departments, Computer Science, Mathematics and Statistics, the Division of Mathematical Sciences offers a variety of programs of study leading to the B.A., M.S., and Ph.D. degrees. The training provided contributes to the preparation of students for a wide variety of careers ranging from creative scientific research to industrial technology. The division has a comprehensive undergraduate program so that undergraduate students who seek a minor in mathematical sciences may plan a program which will lead to (and may include) advanced work in one or more of the departments of the division. In addition to establishing the general requirements of the College of Liberal Arts, it is necessary that a student satisfy the requirements of one of the programs listed below. Credit may be transferred from other institutions, but transfer credits must be in a minimum of 3 semester hours of work in a major field.

Program A: Applied Mathematics
It is recommended that undergraduates who wish to concentrate in applied mathematics or who wish to do graduate work in this area satisfy the requirements of this program.


Program B: Computer Science
In order that a student majoring in computer science should gain a broad background in several areas, each of which is necessary to a proper understanding of the material being studied, the student should take at least two courses in computer science. A student concentrating in computer science must complete the following courses: Introduction to Computers and Programming 322:110, Introduction to Computers and Programming II, Introduction to Computers and Data Structures, 322:21 Computer Organization and Programming, 322:211 Introduction to Calculus I, 322:212 Introduction to Calculus II, 322:213 Introduction to Calculus III, 320:102 Computer Science for Scientists, and 320:103 Computer Science for Scientists for an advisor.

In addition each undergraduate must complete a four-course sequence in at least one field outside the division relevant to computer science. Possible such fields are, for example, engineering, physics, business administration, and economics. Since much supporting knowledge is necessary to the computer scientist, each student should be guided by his advisor to select courses. It is hoped that the following courses, which should be taken in at least two of the three areas, are recommended.

Program C: Mathematics Education
Students who are preparing for a career in high school teaching must take 220:120 or its equivalent before enrolling for Methods of Teaching Mathematics (320:120), or Teaching Elementary Mathematics (320:120), or Teaching Secondary Mathematics (320:120). They may be certified to teach mathematics only at the level of 120:101, 120:102, and 120:103. Students may not be certified in any course which is counted toward the certification of any other course. Students who are not certified in any course may not be counted among the 3250 course number.

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semester hours of courses numbered 320-399 or higher, including 320, and at least 3 semester hours of calculus. For requirements for teacher certification, see College of Education.

Students are urged to select additional courses in each of the following fields of study: Mathematical Analysis, History, and Philosophy. For requirements for teacher certification, see College of Education.

Program D: Pure Mathematics

Students concentrating in these fields will be required to complete the basic undergraduate courses 220-230, 220-239, 220-249, or their equivalents. In addition they must earn a minimum of 16 semester hours in courses offered by the Division of Mathematical Sciences and numbered 100 or above. At least three courses offered by the Department of Statistics must be among these advanced undergraduate courses. Suggested courses for such students are the following: Theoretical Statistics and Probability: 230-110, 230-111, 230-112; Applied Statistics: 230-115, 230-114, 230-113; Actuarial Science: 230-113, 230-112, 230-111, 230-109.

Program F: Special Program

Recognizing the ever-increasing number of disciplines in which mathematical concepts and techniques are important tools, and the importance of cross-disciplinary work, the Division of Mathematical Sciences is willing to develop special programs leading to a major (or minor) in mathematical sciences for those students who wish to prepare for a career outside the area of mathematics. The student is expected to receive approval from the Division prior to the major and will be expected to acquire, in at least one aspect of mathematics, a depth of understanding equivalent to that obtained in the above programs. In addition, the student will be recommended to the Department of Mathematics as a major or minor in some department outside of the division in which it is apparent mathematics is applicable. Such fields as economics, linguistics, political sciences, and psychology.

COMPUTER SCIENCE

Chairman of Department, Gerard P. Woeg Office, 111 MacLean Hall

Computer science is a mathematically based discipline concerned with algorithms and information. Since the development of the digital computer makes the execution of algorithms and the manipulation of information practical, computer science is concerned with the digital computer in a new way. Thus the computer-science student will be informed on engineering aspects of computer science and related disciplines and applications of computer. More directly, the computer-science student must be competent in programming, and at the same time have an understanding of the capabilities and limitations of digital computers relative to information and algorithms. So as to provide the broadest possible background for the student, it is recommended that a student obtain a minor in computer science in several different areas. It is recognized that a student's total plan of study must be designed to fulfill both his needs and the needs of his specific discipline, however, few students will be able to complete the rigid list of minor courses. However, every student who majors in computer science should have completed several computer science courses numbered 100 or above. Every student ought to have some mathematical preparation which includes calculus.

Graduate Minors

Sufficient coursework is offered in the department to enable the student to complete a minor in computer science in several different areas. It is recognized that a student's total plan of study must be designed to fulfill both his needs and the needs of his specific discipline, however, every student who majors in computer science should have completed several computer science courses numbered 100 or above. Every student ought to have some mathematical preparation which includes calculus.

Graduate Program

Although the plan of study of each advanced degree student is individually arranged to fit his needs, each student will have a particular field of specialization, and the same requirements for the M.S. and Ph.D. degrees follow.

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Admission. The student seeking admission is subject to the general rules of the Graduate College. 

Requirements. Upon admission, the student will be required to submit a plan of study which will ensure that the student achieves proficiency equivalent to that which can be gained as follows:

1. For the M.S. candidate not intending to seek a Ph.D. degree:
   a. Computer Science
   b. 3M-125 Programming Languages
   c. 3M-130 Introduction to Computer Theory
   d. 3M-135 Problems in Computer Science
   e. Additional computer science courses
  2. Mathematics
   a. 2M-100 Linear Algebra
   b. 2M-170 Numerical Methods
   c. 2M-171 Numerical Solutions of Differential Equations

Other

Additional courses from computer science, mathematics, business administration, electrical engineering, etc. as approved by advisor.

2. For the M.S. candidate who intends to seek a Ph.D. degree after completing the master's program:
   a. Computer Science
   b. 3M-125 Programming Languages
   c. 3M-130 Introduction to Computer Theory
   d. 3M-135 Problems in Computer Science
   e. 3M-199 Advanced Theory
   f. Additional computer science courses

Other

Additional courses selected with the approval of the student's advisor in such a way as to suit the individual interest of the student.

The student may elect to write a thesis provided his advisor consents. In this case, the student may apply some semester hours of thesis credit toward the total required for an M.S. degree, but never more than 6 semester hours. The minimum number of semester hours for the M.S. degree in computer science with or without thesis is 30 semester hours.

M.S. comprehensive examinations. The candidate for the M.S. degree in computer science must successfully complete a set of written comprehensive examinations as described below. These examinations will normally be taken in the semester in which the degree is to be granted. An examination of the comprehensive examination may be required by the examiner.

The examinations prepared by a board of examiners consist of three parts: the terminal students must take parts I and II; the students intending to work toward the Ph.D. must take parts I and III.

Part I

A three-hour examination, including the topics of computer science languages and systems programming.

Part II

Mathematical and Engineering Foundations

A three-hour examination, including the topics of computation theory, matrix theory, and numerical analysis.

Part III

Mathematical and Theoretical Foundations

A. A two-hour examination, including topics in automatic theorem and computation theory.

Computers Science

b. Any one of the standard master's examinations offered by the mathematics or statistics departments.

d. Descriptions of the examinations are available at the computer science office.

Thesis. The M.S. thesis, if the student elects to write one, must be an original contribution to computer science of at least modest importance. It may be in any area of computer science and must result in a portion of the defense of the thesis will be required in addition to the comprehensive examination.

Doctor of Philosophy

Admission. Admission to candidacy for the Ph.D. degree is granted upon the recommendation of a faculty sponsor and the approval of a departmental committee.

Requirements. Early in the student's work the chair- man of the department will appoint an advisor to the student. The chair of the department will be the student's thesis director and the advisor is not the same person, the thesis director will become the chairman of the Guidance committee. The committee will then meet the student in drawing up a plan of study for his Ph.D. work.

During the second semester of a student's enrollment in the doctoral program, the chairman and faculty of the department will hold a formal review of each student's progress. At that time the department will make a judgment of the student's success in completing the Ph.D. program.

The student will be expected to complete about 90 semester hours beyond the bachelor's degree, including a thesis. The student must have a master's degree when he starts the Ph.D. curriculum, nor need he acquire one. However, it is considered to be the usual case that the Ph.D. student will first acquire a master's degree in computer science or in some other mathematical or physical science. Every Ph.D. student in computer science is expected to be knowledgeable in all areas recognized as being relevant to the field of computer science, and to be expert in at least one field. At present, the computer science student should be knowledgeable in the following four categories:

1. Programming languages, including programming, program analysis, programming languages, compilation, simulation, and numerical analysis.
2. Theory of computation, including automata theory, computability, and formal languages.
3. Mathematical foundations, including set theory, algebra, analysis, logic, and graph theory.
4. Computer systems design, programming theory, and hardware development.

Although the plan of study for each student will be drawn up by the student and his committee to fit his special needs, every student is expected to complete approximately half of his coursework in the first two years. Usually each student must complete 2 semester hours of 3C-183.

Ph.D. comprehensive examinations. A student is admitted to candidacy for the Ph.D. degree in computer science only after completing the comprehensive examination described below, provided he has been recommended for candidacy by a majority of the student's advisor faculty. The comprehensive examination will normally take place during the student's second year of study. A student may not begin his coursework as required by his plan of study. The written examination, which may be followed by an oral review, is as follows:

Part I: Programming Concepts

A three-hour examination on all aspects of programming concepts. 

Part II: Algorithm and System Design

A three-hour examination on all aspects of computer algorithms. 

Part III: Computer Organization

A three-hour examination on all aspects of computer organization.

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22C.51 List Processors and Data Structures 3 s.h.
Complex data structures and their machine manipulation. Survey of list processing languages with programming in SLIP, SNUBOOL, and LISP. Prerequisite, 22C.28.

22C.31 Computer Organization and User-oriented functional descriptive of hardware systems including logic and interrup.ts, channels, I/O devices, and the programming concepts related to these. Symbolic coding and assembly systems, macro definition and generation, subprogram linkage, program segmentation, and interfacing techniques. Prerequisites, 22C.8.

For Undergraduates and Graduates

22C.100 Computers and Programming I 3 s.h.
Survey of list processing languages with programming in SLIP, SNUBOOL, and LISP. Prerequisite, 22C.28.

22C.101 Computers and Programming II 2 s.h.
Same as 22C.8 except that problems are selected from advanced areas of importance to the student. Prerequisite, advanced standing. Not open to students in the mathematical sciences division.

22C.107 Mathematical Fundamentals for Computer Users I 3 s.h.
FORTRAN programming, elements of calculus, numerical methods, matrix algebra, with applications, and error analysis for computers. For non-mathematical science students only. Prerequisite, Mathematics 22M.30.

22C.108 Mathematical Fundamentals for Computer Users II 3 s.h.
Continuation of 22C.107, which is prerequisite.

22C.122 Advanced Computer Organization 3 s.h.
Multilevel interrupt system, microprogramming, simulation. Multiprocessor systems. Interlocks, parallel processing. Basics of statement forms of various classes of programming languages. Use and implementation of various programing language functions including methods of storage allocation and recursive programming. Examples and projects in current programming languages. Prerequisite, 22C.28 and 22C.31.

22C.135 Introduction to Computation Theory 3 s.h.
Relationship between basic elements of the theoretical aspects of computer science including formal logic, finite state automata, formal languages, recursive functions, and Markov algorithms. Prerequisite, Mathematics 22M.30.

22C.145 Artificial Intelligence 3 s.h.
Trains for heuristic programming, machine learning, game solving, theorem proving, and implicit programming. Prerequisite, 22C.31.

22C.191 Research for Thesis cr.arr.
For MS candidates in computer science. Prerequisite, consent of advisor.

22C.193 Problems in Computer Science 1 s.h.
The student will solve a set of problems of importance to computer science. Open only to computer science graduate students. Prerequisite, 22C.31 and 22C.35.

22C.197 Reading in Computer Science cr.arr.
Prerequisite, consent of instructor.
The courses 22M:1 Basic Mathematical Techniques is designed for those students who have a high school mathematical deficiency. A passing grade in this course will satisfy the liberal arts requirement in mathematics. The courses 22M:1 to 22M:4 are primarily intended to give mathematics facility in some of the techniques of mathematics. Those students who require a greater depth of understanding of the concepts of mathematics should proceed in the sequence 22M:10 and 22M:11 or in the sequence of the Basic Undergraduate Program.

The sequence 22M:10 and 22M:11 is designed for those students who have a high school mathematical deficiency and who desire a better understanding of the literature of their discipline and require a greater understanding of some of the concepts than those afforded by the courses 22M:1 to 22M:4. Students who wish to acquire some appreciation of mathematics for some non-mathematical discipline.

A student may not receive either credit or quality points for an elementary course if he has already completed a higher-level course for which the elementary course, or its equivalent, is a prerequisite. Students who are anticipating taking upper-divisional courses in mathematics should begin their program with the highest-level course for which they have the necessary prerequisites.

The department also strongly encourages students to take advantage of the credit-by-examination program and the possibility of waiving prerequisites by examination. The interested student should consult the department for further details on these examinations or for assistance in arranging self-teaching independent study groups.

The requirements for an undergraduate major in mathematical sciences are described under Division of Mathematical Sciences.

Graduate Program

Work in this department at the graduate level is expected roughly into five areas: algebra, analysis, geometry, topology, and applied mathematics. Projects leading to the M.S. degree (with or without a thesis) and the Ph.D. degree are available and are subject to the general rules and regulations of the Graduate College. Graduate students are urged to discuss their work and plans with their advisor. Aside from this they are flexible, and are available within the program to fit the needs of the student. Each new graduate student is assigned initially to a temporary advisor outside the area of his interest. This advisor assists him in the planning of his program. When this student has identified the exact area of his interest, the student should proceed to contact his permanent advisor, and the student's advisor becomes his advisor. The permanent advisor, or the advisor to whom he has been assigned, becomes the major advisor in his major area. A student majoring in mathematics, a student must have completed work in undergraduate mathematics roughly equivalent to the program previously described for an undergraduate major in mathematics (12 semester hours of mathematics courses numbered 22M:15 or above). A student whose preparation does not meet this requirement in the opinion of his initial advisor may be required to take certain additional courses to cover his deficiencies.

Admission to candidacy for the Ph.D. degree is granted by the graduate college on the recommendation of the student's advisor and the approval of a departmental examining committee. Ordinarily the Ph.D. candidate will be expected to demonstrate proficiency in at least one of the following language tests: French, German, or Italian. The kind of examination and the language test will be selected by the student's thesis advisor. Graduate students are urged to secure the language requirement at the earliest possible date.

Part of the requirements of both the Ph.B. and Ph.D. degrees is the demonstration that sufficient breadth and facility in the general area of mathematics appropriate to the degree being sought have been acquired by the student. In each case the student will be required to take a written examination (master's examination or Ph.D. qualifying comprehensive), testing him on his
ability to understand and use basic definitions, theorems, and techniques involved with certain prescribed topics that are fundamental in many areas of mathematics. Furthermore, all students who have successfully taken this examination are required to pass this examination. Students are expected to acquire this information immediately.

It is anticipated that the student, candidate, clearly demonstrates his ability to accumulate his knowledge in a graduate program. This requirement can be satisfied in a variety of ways. Various programs are available. They are accepted on the basis of students' general qualifications. All graduate students are invited to apply. Those who have taken the Graduate Mathematics Admission Examination Test are requested to have a copy of their scores sent directly to the Department of Mathematics.

Master's degree programs. All master's degree programs are to be completed within a maximum of 66 semester hours of graduate credit of which at least 18 must be taken in residence and on which a grade-point average of at least 2.5 must be earned. New programs are offered each semester in the following areas: algebra, analysis, applied mathematics, topology, statistics, computer science, and education. Each student will be examined in three of these areas. The set of three examinations which will be required of the student depends, of course, on the program he selects. (List of topics defining the scope of these examinations are available in the departmental office upon request.)

Subject to the guidelines listed below, a wide latitude of courses and activities is permitted. With the consent of the advisor the program may be completed in less than four years. In the event a thesis is included, a minimum of 6 semester hours taken via 2150277 Individual Study may be counted toward the elective provisions in the programs below.

Program A: Pure Mathematics

1. Students in this program must take comprehensive examinations in algebra, analysis, and topology.
2. Required courses (15 semester hours)
   a. 2150260 Introduction to Topology I. 2150250 Analysis I.
   b. 2150260 Introduction to Topology II, 2150250 Analysis II.
   c. 2150266 Introduction to Algebra I, 2150261 Theory, or any 2150266 mathematics course.
   d. 2150266 (15 semester hours)

3. Electives (24 semester hours)
4. Electives to be selected, with the consent of the advisor, from the following subjects: Log, R, M, A, S, M, S.

Program B: Applied Mathematics

1. Students must take comprehensive examinations in algebra, analysis, and applied mathematics.
2. Required courses (15 semester hours)
   a. 2150260 Different Equations. 2150250 Linear Algebra.
   c. 2150275 Introduction to Algebra I. 2150262 Analysis I.
   d. 2150266 (15 semester hours)
3. Electives to be selected, with the consent of the advisor, from the following subjects: Log, R, M, A, S, M, S.

Program C: Mathematics with Education Option

1. Students must take comprehensive examinations in algebra, analysis, and geometry.
2. Required courses (15 semester hours)
   a. 2150250 Introduction to Algebra I. 2150267 Analysis I.
   b. Any two of 2150265 Introduction to Topology I, 2150250 Linear Algebra, 2150260 Introduction to Algebra I.
22M:100 Differential Geometry and Tensor Analysis 3 s.h. Formerly 22M:141. Space curves, differentiable manifolds, vector and tensor fields, integration of forms, covariant differentiation and the intrinsic geometry of surfaces. Prerequisite, 22M:38 or 22M:39 or 22M:55 or consent of instructor.


22M:111 Elementary Topology II 3 s.h. Elementary and basic topology, metric spaces, homotopy theory. Prerequisite, 22M:110 or consent of instructor.

22M:115 Introduction to Analysis I 4 s.h. Formerly 22M:111. Sets and functions, sequences and series of real numbers, limits, metric spaces, continuity functions, connectedness, completeness, compactness. Prerequisite, 22M:28 or 22M:38 or 22M:55 or graduate standing.


22M:118 Complex Variables 3 s.h. Formerly 22M:144. An operational course. Geometry of the complex plane, analytic functions, the Cauchy-Goursat theorem and its applications, Laurent series, residues, elementary conformal mapping. Prerequisite, 22M:116 or 22M:115.

22M:120 Abstract Algebra I 3 s.h. Rings and linear algebra. Groups with operators, endomorphism rings, polynomial rings, rings with chain conditions, unique factorization, matrix rings, similarity of matrices, determinants and canonical forms. Prerequisite, 22M:28.

22M:121 Abstract Algebra II 3 s.h. A continuation of 22M:120. Prerequisite, 22M:120.

22M:129 Elementary Theory of Numbers 2 or 3 s.h. Formerly 22M:121. Factorization, congruences, Diophantine equations, quadratic reciprocity. Prerequisite, 22M:28 or equivalent.

22M:130 Elementary Theoretical Mechanics I 3 s.h. Formerly 22M:123. Prerequisites, 22M:28 or 22M:38.

22M:131 Elementary Theoretical Mechanics II 3 s.h. Formerly 22M:146. Prerequisite, 22M:130.

22M:150 Linear Algebra 3 s.h. Formerly 22M:141. Vectors, bases, linear transformations, determinants, eigenvalues, and eigenvectors. Vector and canonical forms, quadratic forms, real spaces, tensor products, selected topics in matrix analysis. Prerequisite, 22M:28 or equivalent.

22M:151 Combinatorial Analysis 3 s.h. Topics to be selected from the general area of combinatorics, in particular, emphasis will be placed on finite structures and systems. Prerequisite, 22M:130.

22M:153 Geometric Algebra 3 s.h. Formerly 22M:145. Projective properties of incidence of points, lines, and planes, and the construction of coordinate systems. Prerequisite, 22M:28 or 22M:38 or consent of instructor.

22M:155 Field Theory 3 s.h. Formerly 22M:146. Theory of fields, polynomial ideals, Galois theory. Prerequisite, 22M:121 or equivalent.

22M:160 Differential Geometry and Tensor Analysis 5 s.h. Formerly 22M:141. Space curves, differentiable manifolds, vector and tensor fields, integration of forms, covariant differentiation and the intrinsic geometry of surfaces. Prerequisite, 22M:110 or equivalent.

22M:161 Differential Geometry 3 s.h. Formerly 22M:143. Geometric, minimizing properties of geodesics, rigidity theorems, Gauss-Bonnet theorem, and geometric theory of Lie groups may also be covered. Prerequisite, consent of instructor.

22M:165 Topics in Geometry 2 or 3 s.h. Formerly 22M:145. Selected topics from euclidean, non-euclidean, projective, or metric geometry. Prerequisite, consent of instructor.

22M:167 Theory of Graphs 3 s.h. Formerly 22M:122. Functional functions on a graph, classification and structures of graphs, minimization of Boolean functions, planar graphs, various applications including transport theory and analysis of electrical circuits. Prerequisite, consent of instructor.

22M:170 Numerical Methods 3 s.h. Formerly 22M:111. Numerical processes and machine computers. Attention to algebraic and transcendental equations, spectral values of matrices. Prerequisite, 22M:28 or 22M:38 or consent of instructor.


22M:185 Supervision of Mathematics 3 s.h. Formerly 22M:171. Philosophy and objectives, curriculum problems, review and evaluation of current literature, special methods. Prerequisite, 22M:38 or consent of instructor.

22M:197 Individual Study and Honors in Mathematics 1-6 s.h. Prerequisite, consent of advisor.

22M:198 Readings in Mathematics 1-6 s.h. Formerly 22M:147. Qualified graduate students who are not mathematics majors may pursue up to 3 semester hours credit each for 22M:1, 22M:3, 22M:5, and 22M:9 by registering for this course. Prerequisite, consent of department.

Core Graduate Courses

22M:200 Introduction to Topology I 3 s.h. Formerly 22M:234. Set theory, metric spaces, topological spaces, convergence, continuity of functions on metric and locally compact spaces. Prerequisite, 22M:110 or equivalent.

22M:201 Introduction to Topology II 3 s.h. Formerly 22M:125. Connectedness and local connectedness, compactness, completeness, metric spaces, connectedness, the Heine-Borel theorem, products (finite or countable), identifications, quotient topologies, uniformity, metrizability, and uniform convergence in metric spaces. Prerequisite, 22M:200 or equivalent.
22M:305 Introduction to Algebra I 3 s.h.
Formerly 22M:134. Abstract algebra. Algebraic systems including semigroups, groups, rings, integral domains, polynomial rings, fields. Prerequisite: 22M:135 or equivalent.

22M:306 Introduction to Algebra II 3 s.h.
Formerly 22M:135. Continuation of 22M:305. Algebraic systems including groups with operators, modules over rings, vector spaces over fields, linear transformations, matrices, partially ordered systems, lattices, Boolean algebras. Prerequisite: 22M:305.

22M:310 Analysis I 3 s.h.

22M:311 Analysis II 3 s.h.

Topics of Interest to Graduates

22M:315 Axionic Set Theory 3 s.h.
A completely axiomatic approach to the theory of sets, ordinal numbers, and cardinal numbers. Prerequisite, graduate standing or consent of instructor.

22M:320 Introduction to Mathematical Logic 3 s.h.
Propositional calculus, 1st-order predicate calculus. Gödel completeness theorem, formal elementary number theory, and Gödel incompleteness theorem. Prerequisite, graduate standing or consent of instructor.

22M:322 Introduction to Mathematical Topology 3 s.h.
General topology, set theory, covering spaces, applications. Basic knowledge of algebra and real analysis. Prerequisite: 22M:320.

22M:326 Introduction to Algebraic Topology 3 s.h.

22M:323 Topics in Analysis 3 s.h.
Selected topics, including measure theory, integration, general topology, and others. May be repeated. Prerequisite, consent of instructor.

22M:304 General Topology I 3 s.h.
Topics include topological spaces and product and quotient spaces, metrization theorems, compactifications, uniform spaces, function spaces, and other topics. Prerequisite: 22M:321.

22M:305 Point Set Topology 3 s.h.
Axiomatic study of topological properties of regular Hausdorff spaces satisfying the fourth axiom of countability. Prerequisite: 22M:321.

22M:306 Topics in Point Set Topology 2 or 3 s.h.
Selection from topology of the plane, topology of euclidean n-space, metrizable spaces. May be repeated by consent of instructor. Prerequisite, consent of instructor.

22M:307 Theory of Functions of a Complex Variable 3 s.h.
Cauchy's integral, residues, conformal mapping, analytic continuation, types of singularities. Prerequisite, 22M:326 or consent of instructor.

22M:308 Topics in the Theory of Functions of a Complex Variable 3 s.h.
Riemann surfaces, analytic functions, modular mapping, univalent functions; spherical integrals; gravity theo-

Mathematics

22M:309 General Topology II 2 or 3 s.h.
Uniform spaces, function spaces, topological groups, topological vector spaces, rings of continuous functions. Prerequisite: 22M:304.

22M:310 Hilbert Space 3 s.h.

22M:312 Integration over Locally Compact Spaces 3 s.h.
Measure and integration over locally compact topological spaces, regular Borel measures, Riesz-Nikodym representation theorem for positive linear forms, Haar measure on locally compact group. Prerequisites: 22M:320 and 22M:311.

22M:315 Functional Analysis I 3 s.h.

22M:316 Functional Analysis II 3 s.h.
Banach algebras, spectrum in Banach algebras, representation of Banach algebras, elements of operators. Prerequisite, 22M:315.

22M:315 Abstract Harmonic Analysis I 3 s.h.
Theory of Fourier analysis in the setting of locally compact topological groups. Familiarity with measure and integration on locally compact spaces, Haar measure, and the group algebras of a locally compact group. Prerequisite, 22M:312.

22M:316 Abstract Harmonic Analysis II 3 s.h.
Continuation of 22M:315, with emphasis on Abelian locally compact groups. The character group, the general Fourier transform, and the Pontryagin duality theorem. Prerequisite, 22M:316.

22M:318 Topics in Topological Dynamics 3 s.h.
Applications of group of homeomorphisms acting on topological spaces: principally periodicity and its generalizations. May be repeated with consent of instructor. Prerequisite, 22M:304.

22M:319 Ordinary Differential Equations 3 s.h.
Existence, uniqueness, existence of solutions; oscillation and comparison theorems; plane autonomous systems; Piccard-Bendixson theory. Prerequisite, 22M:320 or consent of instructor.

22M:320 Topics in Ordinary Differential Equations 3 s.h.
Non-linear boundary value problems; Carathéodory ex-

22M:321 Calculus of Variations 3 s.h.
Differential equations of a curve which minimizes a definite integral. Further properties of a minimizing curve and sufficient conditions for a minimum. Problems of constrained motion and general simple long-time problems. Prerequisites, 22M:311 or consent of instructor.

22M:322 Topics in the Calculus of Variations 3 s.h.

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STATISTICS

Theorems, Cauchy-Kowalewski theorem, classification of equations (hyperbolic, elliptic, parabolic), Applied. Solutions of second-order linear equations. Prerequisite, 2EM.218 or consent of instructor.

2EM.324 Partial Differential Equations 3 s.h.

Hyperbolic, parabolic, elliptic equations. The Cauchy problem for the general hyperbolic system. The maximum-minimum properties of elliptic equations and consequences of these properties. Uniqueness. The Dirichlet and the Neumann problems. Variational methods applied to the problem of solving partial differential equations. Appropriate numerical methods applied to each type of problem. Discussion of stability of numerical solutions. Recent studies of partial differential equations by Sar-

mender, Malgranc, and others. Prerequisite, 2EM.308.

2EM.326 Topics in Linear Algebra 3 s.h.

Linear transformations, vector spaces, geometry based on bilinear forms, products of vector spaces, infinite-dimensional vector spaces. Prerequisite, 2EM.308.

2EM.337 Commutative Algebra 3 s.h.

Ideal theory in Noetherian rings, field extensions, integrally closed rings. Prerequisite, 2EM.308.

2EM.338 Theory of Groups 3 s.h.

Homomorphism, subgroups, Sylow theorems, permutation groups, automorphism, free groups, composition series, soluble and nilpotent groups. Prerequisite, 2EM.306.

2EM.339 Theory of Rings 3 s.h.

Modules, ideals, radicals, semisimple and simple rings, division rings, homomorphism rings and matrices rings, projective and injective modules, tensor products, annihilators, and duality. Prerequisite, 2EM.306.

2EM.330 Topics in Algebra 2 or 3 s.h.

Selected topics, including ideal theory, structure of rings, groups, group representations, and lattice theory. Prerequisite, 2EM.306 or equivalent.

2EM.331 Representation of Finite Groups 3 s.h.

Structure of the group algebra of a finite group, linear representations, reducibility of representations, character relations, equivalences of representations. Prerequisite, 2EM.306 or equivalent.

2EM.334 Topics in Semigroup Theory 3 s.h.

Ideal theory and congruence theory in semigroups, a partial structure theory of semigroups; relationships between semigroups and monoids. Prerequisite, 2EM.306 or consent of instructor.

2EM.335 Topics in Nonassociative Algebra 3 s.h.

Structure theory of various classes of algebras and the algebraic relationship between algebras and their derivations. Prerequisite, 2EM.306 or consent of instructor.

2EM.340 Homological Algebra 3 s.h.

Categories, tensor products, groups of homomorphisms, categories, functors, homology functors, projective and injective modules, derived functors, torsion and extension functors, homological dimension. Prerequisite, 2EM.306 or equivalent.

2EM.341 Algebraic Varieties 3 s.h.

Local theory of algebraic varieties, normal varieties, birational transformations. Prerequisite, 2EM.327 or equivalent.

2EM.345 Algebraic Topology 3 s.h.

Homological, homotopy, and algebraic theory of simplicial complexes, chain complexes, singular homology and cohomology theory, homology groups, relations between homology and cohomology. Prerequisite, 2EM.328.

2EM.347 Topics in Algebraic Topology 3 s.h.

Homological, homotopy, and algebraic theory of simplicial complexes, chain complexes, singular homology and cohomology theory. May be repeated by consent of instructor. Prerequisite, 2EM.328 or consent of instructor.

2EM.352 Theory of Probability 3 s.h.

Basic concepts: distribution and characterization functions; convergence theorems; conditional expectations; stochastic processes. Prerequisite, 2EM.321.

2EM.355 Metric Geometry 3 s.h.

Metric topology, convexity, isometries, euclidean and spherical spaces, metricization theorem, Riemann category theorem, Axiom of choice. Prerequisite, 2EM.300 or consent of instructor.

2EM.356 Topics in Metric Geometry 3 s.h.

Topics selected from geometric analysis, functional analysis, fixed-point theory. Prerequisite, 2EM.310.

2EM.360 Foundations of Mathematics I 3 s.h.

Introduction to the theory of models, including descriptions of first-order theories from abstract algebras, complete theories, undefinable theories, definability, and Beth's theorem. Prerequisite, consent of instructor.

2EM.361 Foundations of Mathematics II 3 s.h.

Continuation of the theory of models or topics in recursion theory. Prerequisite, 2EM.360.

2EM.370 Numerical Methods in Linear Algebra 3 s.h.

Solutions of linear systems, eigenvalue problems, inverse matrices, conditioned and ill-conditioned systems. Prerequisites, 2EM.170 and 2EM.180 or consent of instructor.

2EM.371 Numerical Solutions of Partial Differential Equations 3 s.h.

Numerical solutions of various types, partial differential equations, initial and boundary value problems. Prerequisites, 2EM.311 and 2EM.326 or consent of instructor.

2EM.389 Seminar: Algebra 2 or 3 s.h.

Prerequisite, consent of instructor.

2EM.390 Seminar: Algebraic Geometry 2 or 3 s.h.

Prerequisite, consent of instructor.

2EM.391 Seminar: Logic and Foundations of Mathematics 3 s.h.

Prerequisite, consent of instructor.

2EM.392 Seminar: Algorithmic Topology 2 or 3 s.h.

Prerequisite, consent of instructor.

2EM.395 Seminar: Analysis 2 or 3 s.h.

Prerequisite, consent of instructor.

2EM.396 Seminar: Functional Analysis 2 or 3 s.h.

Prerequisite, consent of instructor.

2EM.398 Seminar: Numerical Analysis 2 or 3 s.h.

Prerequisite, consent of instructor.

2EM.399 Reading and Research 2 or 3 s.h.

Prerequisite, consent of advisor.

STATISTICS

Chairman of Department, Robert V. Hogg
Office, 110 MacLean Hall

Statistics has become a highly developed and significant discipline in its own right and an indispensable research tool in many areas of science. The program of the statistics department reflects both of these aspects. It seeks to instruct students in the theory and application of statistical techniques, to acquaint them with the role played by these techniques in the progress of science and technology, and to train them for research in probability, sta-

tistics, numerical analysis, and their applications to other sciences. Career opportunities are plentiful in government, industry, and teaching.
The requirements for an undergraduate major in mathematical sciences are described under Division of Mathematical Sciences.

Graduate Program

The graduate program is designed to reflect the dual role of statistics as an independent discipline within the mathematical sciences and as a research tool. The department offers programs leading to the M.S. degree under both the thesis or non-thesis plans in the fields of theoretical statistics and probability, applied statistics, and actuarial science. Programs leading to the Ph.D. degree are offered in theoretical statistics, probability, and applied statistics.

To be admitted to the graduate program, the applicant should have an undergraduate major in one of the mathematical sciences. With the approval of the department, selected candidates may be granted admission on the basis of mathematical training through one year of calculus.

Master's degree programs. Each of the nine nonthesis M.S. degree programs offered by the department requires the successful completion of at least 32 semester hours of graduate work. The required minimum grade-point average for the M.S. degree is 3.5.

The specific course requirements for the three nonthesis M.S. degree programs are given below. If a specified course or its equivalent is taken while the student was an undergraduate, an appropriate graduate-level course, with the help of the student's advisor, will be substituted in the student's program.


<table>
<thead>
<tr>
<th>Program</th>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Statistics and Probability</td>
<td>MATH 421, 422, 423, 424</td>
<td>16</td>
</tr>
<tr>
<td>Applied Statistics</td>
<td>STAT 511, 512, 513, 514</td>
<td>16</td>
</tr>
<tr>
<td>Applied Statistics</td>
<td>STAT 521, 522, 523, 524, 525, 526</td>
<td>16</td>
</tr>
<tr>
<td>Actuarial Science</td>
<td>MATH 421, 422, 423, 424, 425, 426, 427</td>
<td>16</td>
</tr>
</tbody>
</table>

The M.S. degree may be earned under a thesis program in the Department of Mathematical Sciences. A thesis program requires the student to perform original research in an area of specialization. The student will be required to write a thesis, which will be evaluated by a committee of three members appointed by the chairman of the department. The thesis will be the major portion of the student's course of study as prescribed by the graduate catalog of the institution.

Accredited Courses

The courses listed in the catalog of the institution may be taken for credit in the accredited course. The student must complete all requirements for the degree during the summer semester in any one of the institutions accredited by the regional accreditation agencies in the United States.

At least one course from within the Division of Mathematical Sciences. Most students of actuarial science will elect courses from the College of Business Administration.

In the M.S. degree program in statistics, there are certain statistical objectives, and the department encourages students to be aware of these areas of specialization and to take a course in each area. These areas are: distributions, multivariate analysis, actuarial science, and time series. The student will be able to respond to personal contact with professional actuarial firms. During the first year or two of their program, a doctoral student may take a few courses in actuarial science to advance his understanding of the relationship between statistics and other disciplines, or to learn computer programming, or to increase his facility with one or more languages.

When a graduate student has accumulated approximately 60 semester hours of credit, which at least 32 semester hours are in 300-level courses in the mathematical sciences, he should request permission to take a preliminary examination for the Ph.D. degree. This will be an examination to ascertain whether the student has mastered the basic concepts of probability and statistics; it will consist of three parts, two of which are mandatory for all prospective candidates. Thus, all students must take parts I and II, and one of the following: Part III or IV. The first part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or 256:501, 256:206 or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The second part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The third part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The fourth part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The fifth part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The sixth part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The seventh part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The eighth part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The ninth part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The tenth part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The eleventh part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211. The twelfth part of the examination is open to all prospective candidates, according to his interests, either III(a) applied statistics (3 hours) which basically covers the material in 256:153 and 256:154, or II(b) mathematical statistics (3 hours) which covers the material in 256:153 and 256:211.

At least three of the above preliminary examinations will be administered during the summer semester of the student's third year of study. The student is required to pass at least two of these examinations.

The student is required to pass three of the above preliminary examinations during the summer semester of the student's third year of study. The student is required to pass at least two of these examinations.

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STATISTICS

pectations, joint distributions, discrete distributions, con-
tinuous distributions, estimation, hypothesis testing, re-
gression. Same as Industrial and Management Engineer-
ing 225:16. Prerequisite: Mathematics 225:18 or equivalent.

225:43 Introduction to Statistical

Methods 3 s.h.

Same as Education TP:443. Primarily for students who are not statistics majors. Students should not take both 225:43 and 225:44.

225:53 Mathematical Models 3 s.h.

Prerequisites which are observed in the physical, management, and social sciences will be studied and mathematical models for the systems will be constructed. The utility of the models will be critically examined. Prerequisite: Mathematics 225:38 or 225:39.

225:64 Elementary Probability 3 s.h.

Introduction to probability models through both a rigor-
ous mathematical development for discrete sample spaces and consideration of "real world" applications. Specific topics include: interpretations of probability, the axi-
omatic approach to probability, combinatorial methods, and random variables. Prerequisite: Mathematics 225:38 or 225:39.

225:69 Insurance Mathematics 3 s.h.

Elements from probability and the mathematics of finance are developed and applied to problems in determination of insurance premiums, benefits, and reserves. Same as Industrial Administration 225:69. Prerequisite: Mathematics 225:38 or 225:39. Students with Mathematics 225:36 or 225:38 should take 225:189.

Undergraduates and Graduates

225:101 Biostatistics 2 or 3 s.h.

Elementary course on statistical methods primarily for research in medical subjects and related fields. Same as Psychology 225:101. Prerequisite: Junior standing. 62:129.

225:103 Introduction to the Design of

Surveys 3 s.h.

Same as Preventive Medicine and Environmental Health 62:131.

225:130 Probability and Statistics 4 s.h.

Preliminary and general probability models, random variables, and functions of random variables, expectations, discrete and continuous distributions, estimation and hypothesis testing. Designed for students of the social and biological sciences who have a background in calculus. Prerequisite: Mathematics 225:38.

225:132 Engineering Statistics 4 s.h.

Same as Industrial and Management Engineering 56:132.

225:133 Quality Control and Reliability 3 s.h.

Same as Industrial and Management Engineering 56:133.

225:149 Advanced Statistical Methods 4 s.h.

Same as Education TP:349. Prerequisite: 225:63 or equivalent.

225:153 Introduction to Mathematical

Statistics I 4 or 5 s.h.

Basic probability models, distribution of statistics, interval estimation, order statistics, limiting distributions, suf-
ficient statistics. Prerequisite: Mathematics 225:38 or 225:39.

225:154 Introduction to Mathematical

Statistics II 4 or 5 s.h.

Continuation of 225:153. Point estimation, hypothesis testing, analysis of variance, further normal distri-

bution theory.

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225:157 Correlation Methods 3 s.h.

Same as Education TP:344. Prerequisite: 225:149 or 225:150 or equivalent.

225:158 Design and Analysis of

Experiments 4 s.h.

Models in analysis of variance, single factor multiple comparisons, ranking and selection, multiple factors, crossed and nested experiments, incomplete block de-
signs, Latin squares and hypercubes, mixed models, balanced and unbalanced experiments, split plot experi-
ments, confounding, fractional experiments, analysis of covariance regression as industrial and Management Engi-
nering 56:231. Prerequisite: 225:153, 225:154 or equivalent.

225:159 Design of Experiments 3 or 4 s.h.

Same as Education TP:340. Prerequisite: 225:149. Offered for 3 semester hours only in the summer session.

225:160 Applied Statistical Decision Theory 3 s.h.

Same as Industrial and Management Engineering 56:233.

225:162 Regression Analysis 3 s.h.

Same as Industrial and Management Engineering 56:235.

225:164 Introduction to Probability I 4 s.h.

Adaptive probability models, conditional probability and independence, random variables, expectation and special distributions. Corequisite: Mathematics 225:119.

225:165 Introductions to Probability II 4 s.h.

A continuation of 225:164. Generating functions, con-
vergence of random variables, weak and strong law of large numbers, Borel-Cantelli Theorem, law of the iterat-

ed logarithm, and the central limit theorem.

225:167 Introduction to Stochastic

Processes I 3 s.h.

Winer, Poisson, and normal processes, generalizations of the Poisson process, renewal processes and stationary processes. Applications selected from the physical, biologi-

cal, and management sciences. Prerequisite: 225:159.

225:168 Introduction to Stochastic

Processes II 3 s.h.

A continuation of 225:167. Markov chains both discrete and continuous parameter, with reference to branching processes, birth and death processes, and queueing and traffic models.

225:170 Introduction to Nonparametric

Statistics 3 s.h.

One sample procedure; efficiency, testing, point and interval estimation. The essential problem of sample problems, problem of ties. Prerequisite: 225:154.

225:172 Topics in Statistics 3 s.h.

Current problems selected by the instructor for their rele-

vance. Basic ideas in probability and statistics will be ap-
plied to building models of real systems, making scient-
ific inferences, and management decisions. Prerequisite, 225:167, 225:159, or 225:165.

225:177 Numerical Analysis for Actuaries 3 s.h.

Introduction to the calculus of finite differences, inter-
polation methods, numerical differential equations, Prerequisite,

Mathematics 225:38 or 225:39.

225:178 Graduation.

Continuation of 225:177, including graphics, interpolation, adjusted average, differences equations, curve-fitting meth-
ods of graduation, and methods of testing graduations.

225:179 Advanced Mathematics of Finance 3 s.h.

Compound interest, annuities certain, bonds, depreciation, sinking funds, and the determination of yield rates. Prereq-

uisite, Mathematics 225:38 or 225:39.
225:180 Mathematics of Life Insurance 3 s.h.
Elements from probability and the mathematics of finance are applied to problems of profit–benefit structure determination in life insurance. Prerequisite: Mathematics 222 or 224.

225:181 Actuarial Theory and Practice I 4 s.h.
Mathematical theory of contingencies of both single and multiple lives. Prerequisite or corequisite: 225:159.

225:182 Actuarial Theory and Practice II 4 s.h.
Continuation of 225:181. Development of the multiple decrement model and its application to disability and accidental death insurance and to retirement systems. Prerequisite: 225:181.

225:183 Construction of Demographic Tables 2 s.h.
The construction of life tables, the analysis of mortality and morbidity data, and elements of demography. Prerequisite or corequisite: 225:159 or equivalent.

225:184 Risk Theory 3 s.h.
The individual and the collective risk models for insurance systems. Methods of approximating the distribution of total claims. Applications of risk theory to the management of insurance systems. Prerequisite or corequisite: 225:159 and 225:451.

225:185 Topics in Actuarial Sciences 3 s.h.
Using topics selected by the instructor for their relevance, basic ideas in probability, statistics, and mathematics will be applied to specific problems that arise in actuarial science. Prerequisite or corequisite, 225:159.

225:191 Individually Study cr. arr.
For M.B. thesis students. Prerequisite, consent of adviser.

225:197 Readings in Statistics and/or Actuarial Science cr. arr.
Prerequisite, consent of the department.

Primarily for Graduates

225:253 Theory of Statistics 3 s.h.
Distribution of probability, quadratic forms in normal variables, some problems in point estimation, interval estimation, and the elementary knowledge of the algebra of matrices and 225:154 or equivalent.

225:254 Advanced Topics in Statistics II 2 or 4 s.h.
Selected topics from statistical situations which are of particular interest to the instructor. May be repeated by permission. Offered for 2 semester hours only in summer semester. Prerequisite, preliminary knowledge of the algebra of matrices and 225:154 or equivalent.

225:255 Analysis of Variance 4 s.h.
Fixed, mixed, and random models, multiple comparisons, general linear model, analysis of covariance. Prerequisite, preliminary knowledge of the algebra of matrices and 225:154 or equivalent.

225:256 Multivariate Analysis 4 s.h.
Multivariate and partial correlation, derivation of the general multivariate linear model and Wishart distribution. Prerequisite, 225:353 or 225:255.

225:264 Theory of Probability I 3 s.h.
An advanced theoretical course, including: probability spaces, random variables, distribution and characteristic functions, independence and conditioning, and central limit theorem, same as Mathematics 222:255. Prerequisite, 225:211.

225:265 Theory of Probability II 3 s.h.
A continuation of 225:264 with topics selected from: strong and weak laws of large numbers, the Glivenko-Cantelli theorem, the law of the iterated logarithm, infinitely divisible distributions, random walks, Markov processes, and martingales. Prerequisite, 225:264.

225:266 Topics in the Theory of Probability 2 or 3 s.h.
Selected topics in the theory of probability which are of particular interest to the instructor. Prerequisite, consent of instructor. Offered for 2 semester hours only in summer semester.

225:267 Stochastic Processes I 3 s.h.
An advanced course, including: foundations, the Kolmogorov- Cramér theorem, second order processes, processes with orthogonal increments, stationary processes, and normal processes. Prerequisite, 225:264.

225:268 Stochastic Processes II 3 s.h.
A continuation of 225:267 with topics selected from: analytic properties of sample functions, Markov processes, martingales, counting problems, linear least-squares problems, and limit theorems.

225:271 Statistical Inference I 3 s.h.

225:272 Statistical Inference II 3 s.h.
Continuation of 225:271. Uniformly most powerful tests: distributions with monotone likelihood ratios, least favorable distributions. Similar and unbiased tests, principle of invariance, compound and multiple decision problems.

Prerequisite, consent of instructor.

225:292 Seminar: Probability cr. arr.
Prerequisite, consent of instructor.

Prerequisite, consent of instructor.

225:297 Seminar: Actuarial Theory cr. arr.
Prerequisite, consent of instructor.

MEDICAL TECHNOLOGY
(See Interdisciplinary Programs and General Science)

MICROBIOLOGY
Head of Department, J. R. Porter
Office, 156 Medical Laboratories Building

Courses in microbiology are described under Microbiology in College of Medicine. Students registered in the College of Liberal Arts may elect a major in microbiology leading to a Bachelor of Science degree. The following requirements must be fulfilled:

Basic Skills as required.

Core courses: literature, social science, historical–cultural studies, 14 s.h.

German or Romance language, 9 or 12 semester hours.

Required Courses

Botany
3 s.
Introduction to Botany

Zoology
3 s.
Principles of Animal Biology

Chemistry
3 or 4
Principles of Chemistry I and II

or

3
Principles of Chemistry

1
Elementary Laboratory

4
Quantitative Analysis

3
Organic Chemistry I

3
Organic Chemistry II

1
Intermediate Laboratory

2
Biochemistry

9 or 10
General Biochemistry

9 or 10
Experimental Biochemistry

3
Physics

4
College Physics

4
College Physics

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Freshman-Sophomore

**General**

In order to take advantage of advanced placement, students who have had prior ROTC training at other institutions or prior active military service in any of the armed forces of the United States should provide information of such training to the ROTC Office at registration. Students may transfer from military science to aerospace or vice versa.

Upon registration for the freshman year, each student is issued a complete class schedule and assigned barracks. Uniforms are worn one hour a week while attending leadership training.

ROTC at the University is voluntary.

**Army**

The freshman program consists of four hours of instruction each month—two hours of classroom activity and two hours of leadership training.

During the first semester of the sophomore year, cadets take LAND Terrain Analysis offered by the geography department. During the second semester, cadets attend one hour of regularly scheduled classroom activity each week. For both semesters of the sophomore year, cadets attend leadership training classes which meet for two hours twice a month.

Elementary elective courses in the broad area of effective communications such as English composition, public speaking, and debate are part of the curriculum for the freshman and sophomore years.

**Air Force**

All freshmen and sophomore Air Force ROTC cadets attend one hour of regularly scheduled classroom activity and one hour of corps training each week.

**Junior-Senior**

**General**

Enrollment in advanced training is open to selected students who have completed a basic military training course or any branch of the armed forces of the United States or who have completed the field training course offered during the two-year program and who are physically qualified for a commission. They agree to assume the obligations of the profession of arms. ROTC students in their junior and senior years receive a subsistence pay of $52 per month.

Upon successful completion of the ROTC program all students are eligible for a reserve commission in the armed force in which training was received. Those designated Distinguished Military Students may apply for regular commissions.

The newly commissioned ROTC officer may normally delay his active duty to pursue a graduate degree.

**Army**

The junior-senior years at this University are under a general military science program which allows commissioning in any of the three branches of the Army with specialties open in over 400 fields. During their last two years Army ROTC cadets at the U of I take University courses of their choice from the following broad areas: social science, mathematics, science, and applied sciences to fulfill approximately one-half of the military science classroom requirement.

Army reserve officers are obligated to serve on active duty for only two years after commissioning. Cadets who successfully complete the ROTC flight training program incur a three-year active duty obligation following completion of the Army Aviation active duty course of instruction.

**Air Force**

The Air Force Professional Officer Education Program is a new program designed to provide education that will develop skill and attitudes vital to the career of a profes-

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**MILITARY SCIENCE AND AEROSPACE MILITARY STUDIES**

Reserve Officers Training Corps

Head, Department of Military Science

Robert S. Kulby, Lieutenant Colonel, U.S. Army

Office, 3 Armory Building

Head, Department of Aerospace Military Studies

John T. McCabe, Colonel, U.S. Air Force

Office, 1 Armory Building

The Department of Military Science and Aerospace Military Studies select and prepare students to become officers in the United States Army and the United States Air Force while earning their college degrees. Students recommended for admission in these departments are members of the Reserve Officers Training Corps.

Under the ROTC Vitalization Act of 1964 the Department of Military Science and Aerospace Military Studies offer two programs of study, a four-year program and a two-year program. Successful completion of either of the programs results in a reserve or regular commission as an officer in the armed services.

**Four-year program**

This program for undergraduates covers four years of ROTC instruction.

**Two-year program**

This program is for students having two years of undergraduate work, graduate work, or a combination remaining on campus. They receive credit for the freshman and sophomore years of ROTC by successfully completing a period of field training.

Field Training. In the two-year program, students must successfully complete six weeks of field training at a military installation to be eligible for enrollment in the professional course (final two years) of ROTC.

In the four-year program, Army students complete six weeks of field training while Air Force students complete four. This training is conducted at a military installation upon completion of the first year of the professional course, normally between the junior and senior years for undergraduate students. Emphasis is on development of leadership.

Field training pay rates are: four-year program—$50 per cent of base pay of a Second Lieutenant; two-year program—base pay of a private or a basic seaman. Students are paid six cents a mile travel to and from installation where training is conducted.
Air Force ROTC
AEROSPACE MILITARY STUDIES
Freshman and Sophomore Years
General Military Education Program
Aerospace Military Studies 100 (AS 100) Freshman Year
Aerospace Military Studies 200 (AS 200) Sophomore Year

Analysis. Functions and responsibilities of junior officers. Students taking this 205 will register for 205.
23:24 Applied Leadership and Management 3 s.h.
Second semester. Introduction to operations and basic tactics, duties, and responsibilities of junior officers.

Military Science III (Junior)
23:25 Advanced Leadership and
Management 3 s.h.
First semester. Case studies of leadership problems com- mon to small units. military teaching principles, fundamentals of educational psychology applicable to instruc-
tion; techniques in planning, presenting, and evaluating instruction; small-unit tactics and communications; lead-
ership development and training through practical exercises.
23:26 Advanced Leadership and
Management 2 s.h.

Military Science IV (Senior)
23:37 Theory and Dynamics of the Military Team 2 s.h.
First semester. Study of combat operations and the vari-
cious military teams; analysis of selected leadership and
management problems involved in management, military
support, and competition Program; staff operations;
applied leadership and management.
23:38 Theory and Dynamics of the
Military Team 2 s.h.

Army Flight Training
23:55 (first and second semesters) 2 s.h.
Thirty-six hours of ground school on navigation and
weather; 36 hours of actual flight. Army paid, concluded to
the Iowa City Flying Service. Completion of course qualifies
students to take examination for an FAA private pilot's license.

Air Force ROTC
AEROSPACE MILITARY STUDIES
Freshman and Sophomore Years
General Military Education Program
Aerospace Military Studies 100 (AS 100) Freshman Year
Aerospace Military Studies 200 (AS 200) Sophomore Year

Freshman Year
23:11 Organization and Mission of the
USAF 1 s.h.
First semester. A study of the doctrine, mission, and
organization problems involved in the United States Air Force. U.S. Stra-
egic Offensive and Defensive Forces: their mission, func-
tion, and employment of nuclear weapons; civil defense,
23:21 Defense of the United States 1 s.h.
Second semester. Aerospace defense; missile defense;
U.S. general purpose and intercontinental support forces; the
situation, resources, and operation of tactical air forces.

Military Science II (Sophomore)
23:34 Applied Leadership and Management 3 s.h.
First semester. General introduction to military geography and use of maps and
photographs. The material is part of Geology 1121 Terrain
MUSEUM TRAINING

Sophomore Year

23:31 U.S. Military in World Affairs 1 s.h.
First semester. Defense policies; theories of general war; nature and context of limited war; policies and strategies of the Soviet Union and China; and the role of alliances in U.S. defense policies.

23:41 Military in the United States 1 s.h.
Second semester. Defense organization and decision-making; organization and function of the Department of Defense; role of the military in the United States; national policies; the elements and process of defense decision-making.

Junior and Senior Years

Professional Officer Education Program
Aerospace Military Studies 300
Aerospace Military Studies 400

Junior Year

23:51 Growth and Development of Aerospace Power 3 s.h.
First semester. Develops fundamental knowledge of the growth and development of aerospace power. Prerequisite: AS 300.

23:61 Growth and Development of Aerospace Power 3 s.h.
Second semester. Develops future airspace techniques leading up to and including astronautics and space operations, including U.S. space programs, vehicles, and systems, plus a general survey of space science. AS 300.

Senior Year

23:70 The Professional Officer 3 s.h.
First semester. Air Force leadership at the junior officer level including its theoretical, professional, and legal aspects. Attention devoted to developing communicative skills needed by junior officers. AS 400.

23:90 The Professional Officer 3 s.h.

23:96 Aerospace Military Studies Flight
Instruction Program 2 s.h.
Flight training for qualified cadets; 36 hours of ground school includes navigation and weather instruction. Flight phase encompasses 36 hours of flight instruction by Iowa City Flying Service. Completion of course qualifies students to take examination for an FAA private pilot's license.

MUSEUM TRAINING

Head of Department, Walter C. Thielte, Office, 10 Macbride Hall

The department offers courses which give the student a comprehensive knowledge of modern museum work. They are elective college work, counting as credit toward a B.A. or B.S. degree. The major in general science is recommended for students preparing for museum work as a profession. As graduate work, museum training may be credited as a major in a student's degree. AS 400 includes course work in museum techniques. The museum training includes a major in museum methods for a master's degree. The museum training as taught is of value not only to the museum worker, but for example, to premedical and preprofessional students and to art students. Courses are offered for science teachers who wish some training in the exhibiting of birds and mammals and in the preparation of other classroom material.

STAFF
Assistant Professor: Walter C. Thielte. Instructor: George D. Schurmer.

COURSES DESCRIPTIONS

For Undergraduates and Graduates

24:101 Museum Techniques 1 or 2 s.h.
Preparing and mounting birds, mammals, and fishes. Collecting, mounting, and exhibiting museum materials, including habitat group work. No prerequisite.

24:102 Museum Techniques 1 or 2 s.h.
Continuation of 24:101, but may be taken as an independent unit.

24:103 Museum Accessory Work 1 or 2 s.h.
Techniques used in preparation of classroom teaching materials and museum exhibits accessories. Instruction in the designing and modeling procedures used in reproduction of fossils, erratic, and biological specimens. Applications to preterminal and geological students. No prerequisite.

24:104 Museum Accessory Work 1 or 2 s.h.
Continuation of 24:103, but may be taken as an independent unit.

24:105 Anatomical Modeling 1 or 2 s.h.
Modeling and casting waxed forms of mammals and birds. Primarily for students of museum work. Courses arranged for preterminal and preprofessional students useful to students in botany and to those in preparation of plaster casts, models, casts, and plastic techniques. No prerequisite.

24:106 Anatomical Modeling 1 or 2 s.h.
Continuation of 24:105, but may be taken as an independent unit.

24:110 Special Museum Technique cr. 3
Individual instruction in any of the techniques offered in the preceding courses.

24:111 Special Museum Technique cr. 3
Continuation of 24:110, but may be taken as an independent unit.

Primarily for Graduates

24:201 Advanced Museum Techniques 1 or 2 s.h.
Detailed presentation of the principles set forth in courses 24:101 and 24:102 with special attention to the requirements of the individual. Prerequisites: first-year zoology, geology or botany or consent of curator.

24:202 Advanced Museum Techniques 1 or 2 s.h.
Continuation of 24:201, but may be taken as an independent unit.

24:203 Museum Laboratory Methods 1 or 2 s.h.
Advanced laboratory and accessory work to acquaint the student with efficient laboratory methods and procedures. Prerequisites: first-year course in zoology, geology, or botany and consent of curator.

24:204 Museum Laboratory Methods 1 or 2 s.h.
Continuation of 24:203, but may be taken as an independent unit.

24:305 Advanced Anatomical Modeling 1 or 2 s.h.
Continuation of the course in clay modeling with attention to the modeling of complete objects. Prerequisites: first-year zoology, geology, or botany and consent of curator.

24:306 Advanced Anatomical Modeling 1 or 2 s.h.
Continuation of 24:305, but may be taken as an independent unit.

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MUSIC

Director of School, Jimmie Voxman Office, 119 Music Studio Building

The objectives of the School of Music are to offer a sound musical training to all freshmen at both the undergraduate and graduate levels and to provide a limited number of courses for the nonmajor. At the undergraduate level, the curricula offer all qualified high school graduates and college students opportunities for further study of music, either professional or recreational. At the graduate level, curricula provide advanced study, primarily designed for those preparing for teaching careers in the secondary schools and in college and university music departments. All music enrollments are incumbent on School of Music approval.

Undergraduate Degrees

New undergraduate students planning to major in music are expected to audition either in person or by tape recording in advance of registration. Please write the Director of the School of Music for details. In addition, all transfer students must take the Advisory Examination in music theory (see Graduate Degrees below).

The School of Music offers two undergraduate degrees: the Bachelor of Arts (B.A.) with a major in music and the Bachelor of Music (B.M.). Curricula for the two degrees are identical with the following exceptions: candidates for the B.A. may not count more than 50 semester hours in music toward the 125 semester hours required for graduation in the College of Liberal Arts; candidates for the B.M. may count more than 50 semester hours in music toward the 125 semester hours required for graduation in the College of Liberal Arts and, in addition, have only 7 semester hours requirement in foreign language.

Students wishing to obtain a teaching certificate may select either degree; however, the B.M. is preferred since it permits easier courses in music to be taken. Candidates for either the Bachelor of Arts degree in music or the Bachelor of Music degree must complete the following music requirements:

1. 25-26 Fundamentals and Harmony I, II
2. 25-26 Ear Training and Sight Singing
3. 25-26 Theory and Literature I, II
4. 25-26 Theory and Literature III, IV
5. 25-26 Scale
6. 25-26 Guitar

Majors in Music, whether majoring in Music Education or Music Performance, should consult their adviser and the Dean of the College of Liberal Arts regarding the best choice of electives. Final decision should be made at least two years before graduation in consultation with the adviser and Dean of the College of Liberal Arts.

Undergraduate Music Education Programs

I. For general requirements for teacher certification, see College of Education.

II. In addition to B.A. or B.M. requirements in music, liberal arts, and education, candidates for admission to the College of Liberal Arts in music degrees must complete the following:

1. 25-26 Theory and Literature I, II
2. 25-26 Ear Training and Sight Singing
3. 25-26 Theory and Literature III, IV
4. 25-26-scale
5. 25-26 Guitar

Majors in Music, whether majoring in Music Education or Music Performance, should consult their adviser and the Dean of the College of Liberal Arts regarding the best choice of electives. Final decision should be made at least two years before graduation in consultation with the adviser and Dean of the College of Liberal Arts.

Braas, Woodwind, or Percussion Majors

25-102 Instrumental Conducting 2.0 h.

All brass, woodwind, and percussion majors in the music education program shall participate in concert band for eight semesters and major shall participate in marching band for four fall semesters.

String Majors

25-103 Class Vio 0 to 2.0 h.

25-104 Instrumental Techniques (Coronet, Clarinet, and Percussion) 0 to 2.0 h.

A minimum of one year on a secondary string instrument is required. Violin and viola majors may substitute a string instrument method course in addition to majoring in violin and viola. In addition, all vocal and piano majors are expected to elect one semester of Class Vio.

25-105 Instrumental Conducting 2.0 h.

25-112 String Techniques and Methods 3.0 h.

Vocal and Piano Majors

Vocal majors must evidence satisfactory competence in piano. Piano majors must evidence satisfactory competence in voice. Either vocal or piano majors lacking such proficiency are advised to continue applied music in the appropriate area.

25-109 Choral Methods and Conducting 3.0 h.

25-113 Choral Literature and Conducting 3.0 h.

25-115 Dictation for Sopranos I 3.0 h.

25-115 Dictation for Bassos II 3.0 h.

Music for Piano Minor

25-114 and 25-116 are integrated with student teaching requirements.

Music for Piano Minor for Elementary Classroom Teachers

A minimum of 20 semester hours is required in this program.

Required Courses:

25-110 Materials and Methods for the Classroom Teacher 3.0 h.

25-111 Laboratory Practice in Elementary School 2.0 h.

25-112 Materials and Methods for the Classroom Teacher 3.0 h.

25-113 Choral Literature and Conducting for Classroom Teachers 3.0 h.

25-115 Dictation for Sopranos II 3.0 h.

25-116 Materials and Methods for the Classroom Teacher 3.0 h.

25-117 Materials and Methods for the Classroom Teacher 3.0 h.

Graduate Degrees

The following graduate degrees are offered in the School of Music: Master of Arts (with or without thesis), Master of Fine Arts, and Doctor of Musical Arts. Each applicant must meet the general requirements for admission to the Graduate College (see Graduate...
MUSIC

College, take the Graduate Record Examination Aptitudes Test, and select the Admissions Office for the music history and literature and in music theory (harmony, counterpoint, and composition) to be given in each session on the two days (excluding Sunday) before registration. The scores on the Graduate Record Examination for these tests is available from the Admissions Office.

Areas of concentration for the Master's degree are composition, music theory, and musicology. The departmental requirements for the Master of Arts degree are the same as those for the Master of Science degree.

Areas of concentration for the M.A. degree are composition, music history, and performance. The departmental requirements for the Master of Science degree are the same as those for the Master of Arts degree.

Doctoral Degrees

The Graduate School recommends the minimum of 24 semester hours of graduate credit in music and 18 semester hours of credit in another discipline of study. The student must also have a satisfactory score on the Graduate Record Examination in musicology and music history and the required test in music theory and composition.

Doctoral degrees are available in the fields of musicology, music history, music theory, and music education. The student must have a satisfactory score on the Graduate Record Examination in musicology and music history and the required test in music theory and composition.

The Graduate School recommends the minimum of 32 semester hours of graduate credit in music and 18 semester hours of credit in another discipline of study. The student must also have a satisfactory score on the Graduate Record Examination in musicology and music history and the required test in music theory and composition.
further language requirements and levels of achievement
must be met. Students of selected courses must consult the appropriate
advisor. It is recommended that entering stu-
dents register for a language concurrently, unless
or until they pass the required proficiency examina-
tion.
VI. All doctoral graduate students shall be available
for class registration in a large and variable (25-150)
workshop, 25-152 University Choir, 25-121 (re- 
ference to 25-152 Orchestra; 25-144 Band) during the
term of registration unless excused by their advisor.

Degree of Ph.D. Program. A final examination for
this degree includes composition, music history and musicology,
music education, music theory, and music literature. The
course of study for degree as a Ph.D. program may be
individual in focus, with an emphasis in one area, or
music and opera production, theory and organ literature; etc.). It is expected that original
compositions shall be tested by students before being
submitted as theses.

Admission to the Ph.D. program in music in theory
includes the following requirements: satisfactory achieve-
ment on the admittance examinations in music theory; demonstration of musical piano proficiency, 
submitting of a qualifying research paper; and satisfactory achieve-
ment on a qualifying examination. Details of these
requirements may be obtained from the Director's office.
School of Music.

Basic requirements for Ph.D. programs in music ed-
sciences include, in addition to the requirements for the
M.A. in 24th, total, two semester hours credit in both
18-464 and 18-465, and a minimum of an eight semester
hours in education. Additional course requirements in
music education are designed to provide the foundation of the individual professional needs of each student.
Admission to the Ph.D. program in music education is based upon:

- A satisfactory score on the Graduate Record Examina-
tion, demonstration of adequate musico-literary background or qualification for a valid passing certificate, and
evidence of increased teaching experience.

Doctor of Musical Arts. For the D.M.A. degree in
music education, the candidate must satisfy the
general requirements for the Ph.D. in music with
respect to residence, language requirements, total semi-
semester hours, and oral comprehensive examination.
In addition, candidates and student must satisfy the
minimum residence in of the individual professional needs of each student.
Admission to the Ph.D. program in music education is based upon:

- A satisfactory score on the Graduate Record Examina-
tion, demonstration of adequate musico-literary background or qualification for a valid passing certificate, and
evidence of increased teaching experience.

Doctor of Musical Arts. For the D.M.A. degree in

Music for Nonmajors
Students for whom music is an avocation rather
than a vocation will find courses 25-129 Late 19th and
20th-Century, 213 Early 19th and 20th-Century Christ-
mas Carols, or core courses 214;40 of interest in con-
junction with music as leisure and to develop an awareness
of music (solo and ensemble) as may appeal to them as
amateur performers. Those with an elementary back-
ground in music may (with the instructor's approval) 
register for 25-130 Fundamentals and Harmony I, 25-
204. History of Music II, I, 2, and 25-230 Survey of
Opera. Full elective credit for all music courses is
available in the College of Liberal Arts for the general
student, as well as the prospective professional.

Special Facilities
The School of Music facilities include 15 practice rooms, 
36 studios and offices, 9 classrooms, 7 organ studios, 3 
school buildings, hall of music and electronic music 
laboratory, the music library, and student and faculty
lounge. The auditorium, section 726, contains a 1-
tonal concert organ, a 2,560-slot mechanism is

STAFF

Professor: Paul Anderson, James Dixon, Robert Dorn-
bogue, Richard Harris, Gerhard Engel, Albert T. Lopez,
Dwight MacKinnon, Allen Olney, Frank Piapc, 
Irwin Schneider, John Simpson, Harold A. Stahl, Charles 
Tager, Thomas Turner, William Vedder.

Associate Professor: Kenneth J. Holst, Walter Ather-
son, James Avery, Thomas A. Ayres, Betty Bugg, John 
Bauer, Frederick Draper, Horace Cone, Thomas Davis,
Robert Eckert, John Forsyth, Albert Garnson, Katharyn 
Harvey, William Hibbard, John Hill, Donald Jensen,
Edward Kastl, Lyle Meermann, William Peck, Marvin 
Thomason, Charles Wendt.

Assistant Professor: Richard Bloss, Delbert Dillaa-
hey, James Larkin, Jeter Lewis, Ronald Tree, 
Instructor: Carolyn James, Carol Lenzik.

Associate in performance: Joseph Dedolph, Jan A.
Engle, Eric James, William Ferson, Joan Purnelle, 
Patrick Purcell, Daniel Sato.

The School of Music is a charter member of the Na-
tional Association of Schools of Music.

STAFF

Primary for Undergraduates

25-1 Fundamentals and Harmony I:
Must be accompanied by 25-144 Band at 223. First
semester.

25-1 Fundamentals and Harmony II:
Continuation of 25-1. Must be accompanied by registra-
tion in 223. Second semester.

25-2 Ear Training and Sight Singing
Two laboratory periods a week. First semester.

25-4 Ear Training and Sight Singing

25-5 Theory and Literature I:
Harmone, counterpoint, and formal practices from the
7th century to the present. To be taken as a pre-
quisite of 25-6, 25-6, 25-6. First semester.

25-6 Theory and Literature II:
Continuation of 25-5, which is a prerequisite. Second
semester.

25-7 Advanced Ear Training and Sight
Singing
Two laboratory periods a week. Both semesters.

25-8 Advanced Ear Training and Sight
Singing
Continuation of 25-7. Second semester.

25-9 Theory and Literature III:
Formal harmony, and counterpoint of the 20th
century. Prerequisites, 25-6. First semester.
MUSIC

25:10 Theory and Literature IV 3 a.h.
Prerequisite: Theory and Literature III. Credit and countercourse here. Second semester.

25:11 Review Theory cr.arr.
No graduate credit. Both seniors and summer.

25:15 Undergraduate Composition cr.arr.
Prerequisite: permission of instructor. Both semesters.

History and Research
25:91 History of Music I 3 a.h.
Prerequisite: music majors, 25:5 or equivalent; non-
majors, consent of instructor. First semester.

25:92 History of Music II 3 a.h.
Continuation of 25:91, may be taken as an inde-
pendant unit. Prerequisite, same as 25:91. Second semester.

25:97 Honors in Music 1 to 4 a.h.
May be repeated for credit.

For Undergraduates and Graduates

Music Education

Where dual numbers are indicated, students preparing for a Music Teacher Certificate should register under the Edu-
cation number.

25:100 Class Voice 1 a.h.
Open to music majors for secondary vocal study and to others by permission.

25:101 Class Piano I 1 a.h.
Open only to music majors for secondary piano study.

25:102 Class Piano II 1 a.h.

25:103 Class Viola 0 to 2 a.h.
Open only to string majors for secondary viola study.

25:104 Instrumental Techniques (Cornet, Clarinet, and Percussion) 1 or 2 a.h.
Second semester.

25:105 Instrumental Techniques 1 to 3 a.h.
Same as Education 75:143. For prospective teachers in public schools. Fundamental wind instrument skills.
First semester.

25:106 Instrumental Techniques 1 to 3 a.h.

25:107 Instrumental Conducting 2 a.h.
Offered both semesters.

25:108 Advanced Instrumental Conducting cr.arr.
Prerequisite, elementary conducting skills.

25:109 Choral Methods and Conducting 3 a.h.
Same as Education 75:147. First semester.

25:110 Choral Literature and Conducting 3 a.h.

25:111 Choral Techniques 2 a.h.
Same as 25:108 or 25:110, but without elements of con-
ducting. Same as Education 78:150.

25:112 String Techniques and Methods 2 or 3 a.h.

25:113 Method of Teaching Piano 3 a.h.

25:114 Piano Teaching Laboratory cr.arr.

25:115 A Diction for Singers I 2 a.h.
English and French.

25:116 A Diction for Singers II 2 a.h.
German and Italian.

25:117 Problems in Arranging and Orchestration cr.arr.
Second semester.

25:118 Arranging for Marching Band cr.arr.
Second semester.

Theory and Composition
25:145 Counterpointal Forms 3 a.h.
Writing and analysis. Prerequisite, 25:2 or 25:11 or equivalent.

25:146 20th-Century Harmony and Countertop 3 a.h.
Lectures and writing. Prerequisite, 25:2 or 25:11 or equivalent. First semester.

25:147 Tonal Forms 2 a.h.
Prerequisite, 25:5 or 25:11 or equivalent. Both semesters and summer.

25:148 Analysis of Music Literature, 1600 to 1750 3 a.h.
Prerequisite, 25:11 or equivalent and 25:6 or equivalent. May be repeated. First semester.

25:149 Analysis of Music Literature, 1750 to 1825 and 3 a.h.
Prerequisite, 25:11 or equivalent and 25:6 or equivalent. May be repeated. Second semester.

25:150 Analysis of Music Literature, 1825 to 1900 and 3 a.h.
Prerequisite, 25:11 or equivalent and 25:6 or equivalent. May be repeated. Second semester.

25:151 Analysis of Music Literature, 1900 to Present 3 a.h.
Prerequisite, 25:11 or equivalent and 25:6 or equivalent. May be repeated. Second semester.

25:152 Analysis of Music Literature, Special Topics 3 a.h.
Special topics may be chosen by the instructor.

25:153 Intermediate 3 a.h.

25:155 Studies in Jazz cr.arr.
Prerequisite, a thorough knowledge of traditional har-
mony and counterpoint and at least junior standing.

25:156 Composition Seminar cr.arr.
Prerequisite, advanced standing and permission of in-
structor.

25:157 Orchestration 1 a.h.
First semester.

History, Literature, and Research
25:158 Late 18th- and 19th-Century Composers 2 or 3 a.h.

25:160 Early 19th- and 20th-Century Composers 2 or 3 a.h.

25:161 Survey of Opera cr.arr.
Historical study of operatic literature. First semester and summer.

25:162 Interpretation of German Art Song cr.arr.

25:163 Interpretation of Non-German Art Song cr.arr.

25:164 History of Organ Building and Design 3 a.h.
Development of organ building; the history of actions and of stops, from the Renaissance to the present. Open
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>25:165 Church Service Playing I</td>
<td>2 s.h.</td>
<td>Service and hymn playing: accomplishment of choral and shared music, and interpretation of short texts, and three-part hymn introductions. May be repeated for credit. Offered in alternate years; offered 1971-72.</td>
</tr>
<tr>
<td>25:166 Church Service Playing II</td>
<td>2 s.h.</td>
<td>Continuation of 25:165. May be repeated for credit. Offered in alternate years; offered 1971-72.</td>
</tr>
<tr>
<td>25:167 Organ Literature I</td>
<td>2 s.h.</td>
<td>Pre-Bach literature from the 15th through the 17th centuries. Open to all graduate music students and to others by consent of instructor. May be repeated for credit.</td>
</tr>
<tr>
<td>25:168 Organ Literature II</td>
<td>2 s.h.</td>
<td>Organ works of Bach and his contemporaries. Literature of the 18th and 19th centuries. Open to all graduate music students and to others by consent of instructor. May be repeated for credit.</td>
</tr>
<tr>
<td>25:169 Vocal Literature</td>
<td>cr.arr.</td>
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<tr>
<td>25:170 Orchestral Literature</td>
<td>cr.arr.</td>
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<td>25:171 Piano Literature</td>
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<td>25:172 String Instrument Literature</td>
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<td>25:173 Wind Instrument Literature</td>
<td>cr.arr.</td>
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<td>25:175 Special Studies</td>
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<tr>
<td>25:179 Acoustics</td>
<td>3 s.h.</td>
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<td>Physics of sound and music. Second semester.</td>
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**Music Education**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>25:200 Seminar: Bond Problems</td>
<td>cr.arr.</td>
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</tr>
<tr>
<td>25:201 Methods of Teaching Voice</td>
<td>cr.arr.</td>
<td></td>
</tr>
<tr>
<td>First semester and alternate summers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25:203 Church Music I</td>
<td>3 s.h.</td>
<td>Literatures and Hymnody: a survey of congregational worship practice.</td>
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<tr>
<td>25:204 Church Music II</td>
<td>2 s.h.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Church choral repertoire and materials.</td>
</tr>
<tr>
<td>25:207 Advanced Choral Conducting 1 or 3 s.h.</td>
<td></td>
<td>Alternate semesters. Prerequisite, 25:108.</td>
</tr>
<tr>
<td>25:210 Advanced Instrumental Methods and Literature I 2 or 3 s.h.</td>
<td></td>
<td>Continuation of 25:209. Second semester.</td>
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**Theory and Composition**

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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>25:330 Fugue</td>
<td>3 s.h.</td>
<td>Prerequisite, mastery of the materials of counterpoint and harmony. Writing and analysis. Both semesters.</td>
</tr>
<tr>
<td>25:334 Practice Teaching in Theory</td>
<td>cr.arr.</td>
<td></td>
</tr>
<tr>
<td>25:335 Methods of Teaching Theory</td>
<td>cr.arr.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Second semester.</td>
</tr>
<tr>
<td>25:336 Methods and Techniques of Teaching Basic Musicianship</td>
<td>cr.arr.</td>
<td>Techniques for teaching basic theory skills, interval, rhythm, melodic, and harmonic dictation, and selected keyboard skills.</td>
</tr>
<tr>
<td>25:341 History of Music Theory I</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:342 History of Music Theory II</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:343 Thorough Bass Realization</td>
<td>2 s.h.</td>
<td>Practice in writing keyboard accompaniments in 17th- and 18th-century music.</td>
</tr>
<tr>
<td>25:344 Thorough Bass Realization II</td>
<td>2 s.h.</td>
<td>Practice in improving accompaniments at sight on the keyboard, from figured basses. Open to qualified students with sufficient keyboard proficiency.</td>
</tr>
<tr>
<td>25:351 Electronic Studio II</td>
<td>cr.arr.</td>
<td>Individual creative studies. Prerequisite, 25:350 or consent of instructor. May be repeated for credit. Both semesters.</td>
</tr>
<tr>
<td>25:355 Advanced Theory I</td>
<td>3 s.h.</td>
<td>Examination and evaluation of ideas of such theorists as Niemz, Fux, Ph. Kraus, A. Schenker, H. P. Peña. Developing base for analysis.</td>
</tr>
</tbody>
</table>
| 25:356 Advanced Theory II                      | 3 s.h.  | Problems of musical perception. Examination of studies pertaining to music aesthetics, such as those of Langem, B. Mayer, C. L. F. H. 

**Musicology, Literature, and Research**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>25:301 Advanced History and Literature of Music I 3 s.h.</td>
<td></td>
<td>Style in Western music. First semester.</td>
</tr>
<tr>
<td>25:302 Advanced History and Literature of Music II 3 s.h.</td>
<td></td>
<td>Continuation of 25:301, but may be taken as an independent unit with permission of instructor. Second semester.</td>
</tr>
<tr>
<td>25:303 Medieval Music</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:304 Renaissance Music</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:305 17th-Century Music</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:306 The Age of Bach and Handel</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:307 Preclassical Composers</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:308 The Classical Period</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:309 19th-Century Music</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:310 20th-Century Music</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:311 Music of the Americas</td>
<td>(U.S. and Canada) 3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:312 Music of the Americas</td>
<td>(Latín America) 3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:313 Seminar: Major Composers</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:314 Seminar: Genres of Music</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:315 The Opera of Mozart</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>25:316 The History of Musical Instruments</td>
<td>3 s.h.</td>
<td>Notes: Courses 25:301 to 315 are units in a series of intensive surveys of special areas in the history of music, with detailed analysis of representative works. Offered in rotation approximately every two or three years.</td>
</tr>
</tbody>
</table>

129
25:318 Primitive Music 3 a.h.
25:319 Oriental Music 2 a.h.
25:321 Introduction to Graduate Study in Music 2 a.h.


25:323 Musical Notation 1 or 2 a.h.
Musical paleography; transcription and stylistic study of early vocal and instrumental notations and tablatures. May be repeated for credit.

25:329 Musicological Approaches 2 or 3 a.h.
Introduction to research. Bibliographical materials, library resources, style analysis and criticism, and related fields. Study of special topics in groups and by individual investigation. May be repeated for credit. Prerequisite, consent of instructor.

25:330 Seminar: Musicology 2 or 3 a.h.
Continuation of 25:329. May be repeated for credit. Prerequisite, consent of instructor.

Problems of interpretation, especially in music of the 15th to 18th centuries.

Continuation of 25:331, but may be taken as an independent unit with permission of instructor.

25:354 Seminar: Vocal Performance cr.arr.


Both semesters.

Prerequisite, consent of instructor. Contemporary percussion literature and current style, notation and techniques of performance and composition.

25:357 Seminar: Music Research and the Computer I 3 a.h.
Current applications of high-speed digital computers to research in music theory, history, and composition.

25:358 Seminar: Music Research and the Computer II 3 a.h.
Continuation of 25:357, with emphasis on individual projects. Prerequisite, 25:357 or consent of instructor.

25:360 Seminar: Brass Instrument Performance cr.arr.

25:341 Advanced Choral Literature I 2 or 3 a.h.
Mass, motet, and madrigal literature from the Renaissance through the 17th century. Alternate semesters.

25:342 Advanced Choral Literature II 2 or 3 a.h.
Cantata, oratorio, and Passion literature from the Renaissance through the 17th century. Alternate semesters.

25:343 Advanced Choral Literature III 2 or 3 a.h.
Twentieth-century choral music. Alternate semesters.

25:344 Seminar: Choral Music cr.arr.

25:351 Survey of Song Literature I 2 a.h.
Solo song before Schubert. Alternate semester.

25:352 Survey of Song Literature II 2 a.h.
German Art Song from Schubert to the present. Alternate semester.

25:353 Survey of Song Literature III 2 a.h.

25:361 Special Studies: Piano Literature cr.arr.
Individual research in special aspects of piano literature. Primarily for D.M.A. students. May be repeated for credit.

25:380 Readings in Music Theory cr.arr.

25:381 Readings in Music History cr.arr.

Thesis.

25:400 Thesis (M.A.) cr.arr.


25:500 Thesis (Ph.D.) cr.arr.


Both semesters.


25:503 D.M.A. Recital cr.arr.

Music Education

78:120 Methods and Materials: Music for the Classroom Teacher 3 a.h.
For early childhood majors only.

78:145 Methods and Materials: Elementary School Music 3 a.h.
For music education majors only.

78:191 Laboratory Practice in Elementary School 3 a.h.

78:245 General Music in the Elementary School 3 a.h.

78:140 Methods and Materials: Junior and Senior High School Music 3 a.h.
For music education majors only.

78:192 Observation and Laboratory Practice in High School cr.arr.

78:240 Supervision/Adm of Music Education 3 a.h.

Open to graduate students and experienced teachers.

78:341 General Music in Secondary Schools 2 a.h.

78:342 Special Studies: Music Education cr.arr.

78:441 Psychology of Teaching Music 2 a.h.

78:441 Music Education, Advanced Observation, and Laboratory Practice 2 a.h.

78:446 Evaluation and Measurement in Music 2 a.h.

78:444 Research in Music Education 2 a.h.
Prerequisite, consent of instructor.

78:445 Social and Psychological Factors in Music Education 2 a.h.
Prerequisite, consent of instructor.
A fee of $35 per semester is charged for each course.

In applied music, the student's major field of performance will consist of either individual or a combination of individual and class lessons (a minimum of one hour weekly) at the option of the instructor. Students electing fee $35 courses in any semester are assessed a fee of $35. All music majors are expected to attend seminars of the applied music courses for which they are enrolled.

A limited number of applied music fee exemptions are available in the first and second semesters (not in summer sessions) to talented students who require aid, at the discretion of the director. For assignment of teachers and individual lesson hours, students should consult as follows:

<table>
<thead>
<tr>
<th>Instrument</th>
<th>First Name</th>
<th>Last Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice</td>
<td>Mr. Stark</td>
<td></td>
<td>100 MB</td>
</tr>
<tr>
<td>Piano</td>
<td>Mr. Smith</td>
<td></td>
<td>308 MB</td>
</tr>
<tr>
<td>Organ</td>
<td>Mr. Keppler</td>
<td></td>
<td>132 MB</td>
</tr>
<tr>
<td>Violin</td>
<td>Mr. Troger</td>
<td></td>
<td>201 MB</td>
</tr>
<tr>
<td>Viola</td>
<td>Mr. Prehil</td>
<td></td>
<td>213 MB</td>
</tr>
<tr>
<td>Violoncello</td>
<td>Mr. Wood</td>
<td></td>
<td>180 MB</td>
</tr>
<tr>
<td>Contrabass</td>
<td>Mr. Meeks</td>
<td></td>
<td>10 MB</td>
</tr>
<tr>
<td>Double Bass</td>
<td>Mr. Vorman</td>
<td></td>
<td>114 MB</td>
</tr>
<tr>
<td>Bass</td>
<td>Mr. Anderson</td>
<td></td>
<td>111 MB</td>
</tr>
<tr>
<td>Percussion</td>
<td>Mr. Diva</td>
<td></td>
<td>1 MB</td>
</tr>
</tbody>
</table>

The following courses are offered every semester:

<table>
<thead>
<tr>
<th>Course</th>
<th>CRN</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>25:33 Voice</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:34 Piano</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:35 Organ</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:36 Harp</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:37 Violin</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:38 Viola</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:39 Cello</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:40 String Bass</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:41 Woodwind</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:42 Brass</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:43 Percussion</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:45 Voice</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:46 Piano</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:47 Organ</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:48 Harp</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:49 Violin</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:50 Viola</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:51 Cello</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:52 String Bass</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:53 Woodwind</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:54 Brass</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:55 Percussion</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:57 Voice</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:58 Piano</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:59 Organ</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:60 Harp</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:61 Violin</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:62 Viola</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:63 Cello</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:64 String Bass</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:65 Woodwind</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:66 Brass</td>
<td>cratr</td>
<td>C</td>
</tr>
<tr>
<td>25:67 Percussion</td>
<td>cratr</td>
<td>C</td>
</tr>
</tbody>
</table>

Ensemble

<table>
<thead>
<tr>
<th>Course</th>
<th>CRN</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>25:171 Piano 4</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:122 Organ 4</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:133 Violin 3</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:134 Harp 3</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:135 Cello 3</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:143 String Bass 3</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:136 Woodwind 3</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:137 Brass 3</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:142 Percussion 3</td>
<td>cratr</td>
<td>H</td>
</tr>
</tbody>
</table>

No fee is charged for ensemble. Courses may be repeated for credit, and are offered each semester. Prerequisites for each are the consent of the instructor.

<table>
<thead>
<tr>
<th>Course</th>
<th>CRN</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>25:180 Solo Rotes</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:181 Old Gold Singers</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:172 Opera Workshop</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:183 Chamber Orchestra</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:184 Collegium Musicum</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:185 University Choir</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:186 Piano Accompaniment</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:187 Piano Chamber Music</td>
<td>cratr</td>
<td>H</td>
</tr>
<tr>
<td>25:188 String Chamber Music</td>
<td>cratr</td>
<td>H</td>
</tr>
</tbody>
</table>

MUSIC
PHILOSOPHY

25:189 Woodwind Chamber Music cr.arr.
25:190 Brass Chamber Music crarr.
25:191 Oratorio Chorus 1 s.h.
25:192 Orchestra 1 s.h.
25:193 Marching Band 1 s.h.
First semester.
25:194 Symphony Band and Handelphill Concert Band 1 s.h.
25:195 Percussion Ensemble 1 s.h.
Second semester.
25:197 Jazz Workshop 0 or 1 s.h.
Prerequisite, consent of instructor.

Summer Instruction
Children may enroll for applied music courses during the eight-week summer session for total fees of $125.00 for one half-hour lesson weekly or $25 for two lessons.

NONDEPARTMENTAL COURSES

Institute of Gerontology
Director, W. W. Morris
Office, 28 Byington Road

STAFF
Associate Professor: St. Lee Janke

COURSE DESCRIPTIONS

0:101 Biological and Psychological Aspects of Aging 3 s.h.
Aging as process: physiological changes with age; major theories of biological and psychological aging; biological, physiological aging as determinant to integrity; the psychology of aging in historical perspective; changes in perspective with age; age and intellectual performance; learning theory and experimentation in relation to aging; age and achievement; personality factors and social behavior; developmental tasks in the middle and late years; age and mental illness; and criteria for successful aging.

0:102 Societal Aspects of Aging 3 s.h.
Societal and cultural context of aging; demographic factors in relation to aging; status and role of the aged in American society; economic and political implications of an aging population; programs for health, medical care, income maintenance, and living arrangements for the later years; the disciplining family and intergenerational relationships; community planning and coordination in relation to aging; specialized housing; trends in continuing education for the middle and later years; and professional work opportunities in the field of aging.

0:125 Seminar: Selected Problems in Aging cr.arr.

NUCLEAR MEDICAL TECHNOLOGY

(See Interdisciplinary Programs and General Science)

NUCLEAR SCIENCE AND TECHNOLOGY

(See College of Engineering, Departments of Mathematics, Chemistry, and Physics, Radiation Research Laboratory—College of Medicine, and Interdisciplinary Programs)

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PHILOSOPHY

Chairman of Department, Panayot Butchvarov
Office, 274 English-Philosophy Building

The Bachelor of Arts Degree

The undergraduate program is philosophy provides students of the bachelor of arts degree in philosophy and strengthens logical skills which are useful in a wide variety of fields. Undergraduate majors are required to take the following courses:

25:105 Introduction to Philosophy
25:106 Introduction to Ethics
25:107 Introduction to Logic
25:108 Introduction to Philosophy of Science
25:119 Survey of Ancient Philosophy
25:113 Survey of Early Modern Philosophy
and two of the courses numbered from 25:108 to 25:120.

The student may elect up to a maximum of 12 additional semester hours in philosophy courses. The honors program in philosophy is open to students with a grade-point average of 3.0 or higher; qualified students who are interested in entering the program should consult with the chairman of the department.

The Master of Arts Degree

For students with adequate undergraduate preparation, the master's degree requires a minimum of 36 semester hours and may be taken with or without thesis. In addition, the student must pass a comprehensive examination to be given after two semesters of graduate study have been completed. It will ordinarily cover the following areas: History of Modern Philosophy, Logic and Philosophy of Science, and Metaphysics and Ethics. There is no foreign language requirement for the master's degree.

The Doctor of Philosophy Degree

The doctor's degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours, but ordinarily will take four years to obtain. The master's comprehensive examination will be taken to determine qualifications for Ph.D. candidacy. In addition, the student must pass a comprehensive examination, as well as 25:076. Before the degree is awarded, students will also be expected to complete their candidacy requirements to the satisfaction of the department. The departmental oral examination is required. The dissertation must be prepared in the department and approved by the doctoral committee. The dissertation must be approved by the dissertation committee and submitted to the dean of graduate studies for final approval.

STAFF
Professor: Charles E. Brugger, Panayot Butchvarov, Assistant Professor: Leland Adkins, William Robinson, Frank Searle

COURSE DESCRIPTIONS

For Freshmen and Sophomores Only

25:1 Elementary Rhetoric 2 s.h.
A study of the art and science of effective speaking and writing.

25:2 Elementary Logic 2 s.h.
A study of valid and invalid reasoning. Both seminars...
26:5 Elementary Political Philosophy 3 s.h.
Elementary philosophical study of law, government, and the state. Both semesters.

26:101 Introduction to Philosophy 3 s.h.
Analytical and historical introduction stressing fundamental issues and arguments. Both semesters.

26:102 Introduction to Ethics 3 s.h.
Analytical and historical introduction to ethical theory. Both semesters.

26:103 Introduction to Logic 3 s.h.
Main ideas and basic techniques of modern logic.

26:104 Introduction to Philosophy of Science 3 s.h.
Meaning and function of scientific explanation; nature of scientific concepts, laws, and theories; system of sciences.

26:111 Survey of Ancient Philosophy 3 s.h.
Main trends and major figures such as Plato and Aristotle.

26:112 Survey of Medieval Philosophy 3 s.h.
Main trends and major figures such as Augustine and Aquinas.

26:113 Survey of Early Modern Philosophy 3 s.h.
Main trends and major figures from Descartes to Kant.

26:114 Survey of Recent and Contemporary Philosophy 3 s.h.
Main trends and major figures of the 19th and 20th centuries.

26:131 Aesthetics 3 s.h.
Major problems in the philosophy of art.

26:132 Political Philosophy 3 s.h.
Major problems in political philosophy.

26:133 Philosophy of History 3 s.h.
Major problems in the philosophy of history.

26:134 Philosophy of Religion 3 s.h.
Major problems in the philosophy of religion.

26:141 Existentialist Philosophy 3 s.h.
An introduction, stressing Kierkegaard, Nietzsche, and Sartre.

26:142 Philosophy in Literature 3 s.h.
Philosophical ideas as expressed in selected literary classics.

26:151 Pragmatism 1 s.h.
Systematic treatment concentrating on Peirce, James, and Dewey. Prerequisite, 26:101.

26:152 Formalism 3 s.h.
Systematic treatment of such figures as C. I. Lewis, Schilpp, and Ayer. Prerequisite, 26:101.

26:161 Analytic Philosophy 3 s.h.
Contemporary methods applied to selected topics in metaphysics and epistemology. Prerequisite, consent of instructor.

26:162 Analytic Ethics 3 s.h.
Selected topics in contemporary ethical thought. Prerequisite, 26:161 or consent of instructor.

26:163 Linguistic Analysis 3 s.h.
Wittgenstein and the development of ordinary language philosophy. Prerequisite, consent of instructor.

26:160 Plato 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:111 or consent of instructor.

26:161 Aristotle 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:111 or consent of instructor.

26:182 Hellenistic Philosophy 3 s.h.
Analysis of main ideas and major texts of the Stoics, Epicureans, Sceptics, and Neo-Platonists. Prerequisite, 26:111 or consent of instructor.

26:183 Aquinas, Scotus, and Orkhaness 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:111 or consent of instructor.

26:184 Descartes and Malebranche 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:113 or consent of instructor.

26:185 Locke and Berkeley 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:113 or consent of instructor.

26:186 Spinoza and Leibniz 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:113 or consent of instructor.

26:187 Hume and Reid 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:113 or consent of instructor.

26:188 Kant 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:113 or consent of instructor.

26:189 Brentano, Meinong, and Husserl 3 s.h.
Analysis of main ideas and major texts. Prerequisite, 26:113 or consent of instructor.

26:191 Mathematical Logic 3 s.h.
Covers most of the material in Hilbert-Tarski, Mathematical Logic, and Bertrand Russell, Introduction to Mathematical Philosophy. Prerequisite, consent of instructor.

26:199 Honors in Philosophy 1 s.h.
May be repeated to a maximum of 6 semester hours.

Primarily for Graduates

26:203 Philosophical Problems of the Social Sciences 2 s.h.
Systematic relations of the social sciences to history, psychology, and philosophy. Same as Psychology 31:254.

26:205 History and Systems of Psychology 3 s.h.
Same as Psychology 31:252.

26:209 Philosophy of Science 2 s.h.
A graduate introduction. Concept formation, theoretical foundations, mind-body.

26:221 Seminar: Ontology 3 s.h.
May be repeated for credit.

26:222 Seminar: Epistemology 3 s.h.
May be repeated for credit.

26:223 Seminar: Philosophical Analysis 3 s.h.
May be repeated for credit.

26:224 Seminar: Philosophy of Logic 3 s.h.
May be repeated for credit.

26:225 Seminar: Philosophy of Science 3 s.h.
May be repeated for credit.

26:245 Research: Value Theory 3 s.h.
May be repeated for credit.

26:247 Research: Metaphysics 3 s.h.
May be repeated for credit.
PHYSICAL EDUCATION FOR MEN

26:249 Research: Logic and Epistemology crarr.
May be repeated for credit.

26:251 Research: History of Philosophy crarr.
May be repeated for credit.

PHYSICAL EDUCATION FOR MEN

Head of Department, Louis E. Alley
207 Hedges Science Building

The curriculum in physical education comprises five programs: the required program in physical education skills; the program for graduate majors; the program for the endorsement of athletic trainers; and the program for the endorsement of athletic coaches.

Physical Education Skills

The required program in physical education skills is a part of the basic skills program of the College of Liberal Arts (see State Skills). Courses in physical education skills are designed to guide students in developing and maintaining a reasonable degree of physical fitness, in improving manual- and motor-skill related to athletic activities of a recreational nature, in participating intelligently in a wide variety of physical activities, and in correcting physical defects that respond to therapeutic exercise.

Students who have completed the physical education skills requirement may take additional skills courses by registering for elective Physical Education for Men 27:6, 27:7, or 27:8.

Programs for Undergraduate Majors

Undergraduate programs of study in physical education lead either to the B.A. degree or to the B.S. degree.

The program of study leading to the B.A. degree with a major in physical education is designed for the superior student desiring a liberal arts education in physical education and for students in the physical sciences as well. Completion of this program represents the first step toward the Ph.D. degree with major emphasis on exercise physiology, adapted physical education and rehabilitation, or anatomy and kinesiology. By selecting appropriate electives, the student can meet the requirements for teaching science (see General Science for science requirements and College of Education for certification requirements), for coaching athletic teams, and for serving as athletic trainers.

The program of study leading to the B.A. degree with a major in physical education is designed for students desiring to become physical education teachers at the secondary school level. A minimum of 32 semester hours of French, Russian, or German is required for the B.A. degree.

The program of study leading to the B.S. degree with a major in physical education is designed to prepare students for professional careers in two general areas: coaching and teaching in schools and colleges and special physical education. A minimum of 32 semester hours in a foreign language is required for this degree.

All students in physical education must meet the physical fitness requirements for physical education skills.

Requirements for B.A. Degree

In addition to the general requirements for the B.A. degree (see College of Liberal Arts), the student must satisfactorily complete:

Core in Physical Education
27:12 Introduction to Physical Education
27:23 or 24 Teaching of Recreational Sports
27:26 Human Anatomy
27:29 Leadership Training
27:35 Adapted Physical Education

TP:100 Educational Psychology and Measurement
27:145 Methods in High School Physical Educa
tion for Boys
27:133 Human Physiology
27:128 Physiology of Exercise
26:253 General Biostatistics

Foundation courses in science
1:4, 4:2 General Chemistry and Qualitative Analysis
1:4:4, 4:2 Advanced Organic Chemistry
224M:3 College Algebra
224M:4 Trigonometry
224M:5 College Geometry
224L:2 Probability
27:101 Principles of Animal Biology
27:102 Principles of Animal Genetics

Requirements for B.S. Degree

For general requirements of the degree of Bachelor of Science in Education, see College of Liberal Arts.

Teaching and Coaching. Majors who wish to prepare for careers in teaching physical education and in coaching athletic teams must satisfactorily complete the following:

Courses in physical education and related areas
27:11 Introduction to Physical Education
27:21, 27:22 Teaching of Recreational Sports
27:22 Coaching of Gymnastics
27:24 Coaching of Basketball
27:25 Coaching of Track and Field
27:27 Coaching of Swimming
27:28 Coaching of Swimming
27:29 Coaching of Swimming
27:30 Human Anatomy

One of the seven coaching courses must be elected
27:103 Administration of Physical Education
27:105 Adapted Physical Education
27:180 Educational Foundations of Physical Education
27:181 Educational Foundations of Physical Education II
27:13 Human Physiology
27:14 Human Psychology

Courses required for certification in physical education
27:143 Methods and Materials in Elementary School Physical Education
27:142 Methods and Materials in Elementary School Physical Education
27:29 Social Forms of Dance
27:242 Methods in High School Physical Education for Boys
27:75 Educational Psychology and Measurement
27:100 Introduction to Secondary School Teaching
27:181-2 Laboratory Practice in Elementary Education
27:181-3 Observation and Laboratory Practice in Elementary Education

Majors in teaching and coaching must apply to the Director of Admissions, L. George, III, in addition to the secondary education program. For details concerning application for admission and for certification requirements, see College of Education.
PHYSICAL EDUCATION FOR MEN

TP-143 Introduction to Statistics 6:15
60:151 Elementary Statistical Inference in Medicine

Electives may be selected from the following:
27:155 Advanced Anatomy and Physiology
27:157 Advanced Anatomy and Kinesiology
27:197 Advanced Physical Education
27:255 Advanced Physical Education
27:211 History of Physical Education
27:233 Applied Anatomy
27:237 Curriculum in Physical Education
27:203 Motor Learning
104:221 Philosophy and Trends in Recreation

Programs Leading to M.A. Degrees

The programs for M.A. candidates are designed to prepare students for professional careers in physical education and athletics. Study programs leading to the M.A. degree with thesis and to the M.A. degree without thesis are provided.

Admission to programs of study leading to M.A. degrees is granted on the basis of the student's grade-point average on all undergraduate work attempted and his scores on the Graduate Record Examination Aptitude Test. The student must have earned on all undergraduate work attempted a grade-point average of 3.50 or higher to be admitted to regular status. Conditional admission may be granted to students with grade-point averages not lower than 3.00, however, such students must qualify for regular status within two semesters of registration in the Graduate College by attaining a grade-point average of at least 3.50 or be dismissed.

M.A. with thesis. The program leading to the M.A. degree with thesis is designed as the final step in a graduate program of study leading to the Ph.D. Particular emphasis is placed on techniques of research. Undergraduate prerequisites. The specific undergraduate courses listed below are recommended as a prerequisite for the M.A. with thesis. Any or all of these courses may be taken after the student has been admitted to graduate study in physical education. They should, however, be taken at the earliest opportunity.

In addition to the courses listed below, graduate courses in chemistry, physics, zoology, mathematics, and the physiology of exercise, recreation, and sport may be included as electives in related areas.

Semester Hours (minimum)
Undergraduate Courses
Human Physiology 3
Human Anatomy 3
Methods in Physical Education 3
Administration of Physical Education and Allied Activities
Intermediate Algebra (or equivalent) 3
Teaching of Recreational Sports (or equivalent) 4
Practice Teaching (or equivalent) 2
Electives in physical education and related areas 15

Total 30

requirements. The specific course schedule listed above, together with elective courses sufficient to total 30 semester hours in physical education and related areas, are required for the M.A. degree with thesis.

Semester 1
27:416 Seminar: Mechanical Analysis of Human Movement
27:427 Seminar: Motor Learning 1
27:457 Seminar: Motor Learning II
27:462 Seminar: Motor Learning III
27:462 Seminar: Motor Learning IV
27:457 Seminar: Motor Learning V
27:416 Seminar: Motor Learning VI
27:416 Seminar: Motor Learning VII
27:416 Seminar: Motor Learning VIII
27:416 Seminar: Motor Learning IX
27:416 Seminar: Motor Learning X
27:416 Seminar: Motor Learning XI
27:416 Seminar: Motor Learning XII
27:416 Seminar: Motor Learning XIII
27:416 Seminar: Motor Learning XIV
27:416 Seminar: Motor Learning XV
27:416 Seminar: Motor Learning XVI
27:416 Seminar: Motor Learning XVII
27:416 Seminar: Motor Learning XVIII
27:416 Seminar: Motor Learning XIX
27:416 Seminar: Motor Learning XX
27:416 Seminar: Motor Learning XXI
27:416 Seminar: Motor Learning XXII
27:416 Seminar: Motor Learning XXIII
27:416 Seminar: Motor Learning XXIV
27:416 Seminar: Motor Learning XXV
27:416 Seminar: Motor Learning XXVI
27:416 Seminar: Motor Learning XXVII
27:416 Seminar: Motor Learning XXVIII
27:416 Seminar: Motor Learning XXIX
27:416 Seminar: Motor Learning XXX
27:416 Seminar: Motor Learning XXXI
27:416 Seminar: Motor Learning XXXII
27:416 Seminar: Motor Learning XXXIII
27:416 Seminar: Motor Learning XXXIV
27:416 Seminar: Motor Learning XXXV
27:416 Seminar: Motor Learning XXXVI
27:416 Seminar: Motor Learning XXXVII
27:416 Seminar: Motor Learning XXXVIII
27:416 Seminar: Motor Learning XXXIX
27:416 Seminar: Motor Learning XL
27:416 Seminar: Motor Learning XLI
27:416 Seminar: Motor Learning XLII
27:416 Seminar: Motor Learning XLIII
27:416 Seminar: Motor Learning XLIV
27:416 Seminar: Motor Learning XLV
27:416 Seminar: Motor Learning XLVI
27:416 Seminar: Motor Learning XLVII
27:416 Seminar: Motor Learning XLVIII
27:416 Seminar: Motor Learning XLIX
27:416 Seminar: Motor Learning L
27:416 Seminar: Motor Learning LI
27:416 Seminar: Motor Learning LII
27:416 Seminar: Motor Learning LIII
27:416 Seminar: Motor Learning LIV
27:416 Seminar: Motor Learning LV
27:416 Seminar: Motor Learning LVII
27:416 Seminar: Motor Learning LVIII
27:416 Seminar: Motor Learning LIX
27:416 Seminar: Motor Learning LX
27:416 Seminar: Motor Learning LXI
27:416 Seminar: Motor Learning LXII
27:416 Seminar: Motor Learning LXIII
27:416 Seminar: Motor Learning LXIV
27:416 Seminar: Motor Learning LXV
27:416 Seminar: Motor Learning LXVI
27:416 Seminar: Motor Learning LXVII
27:416 Seminar: Motor Learning LXVIII
27:416 Seminar: Motor Learning LXIX
27:416 Seminar: Motor Learning LXX
27:416 Seminar: Motor Learning LXXI
27:416 Seminar: Motor Learning LXXII
27:416 Seminar: Motor Learning LXXIII
27:416 Seminar: Motor Learning LXXIV
27:416 Seminar: Motor Learning LXXV
27:416 Seminar: Motor Learning LXXVI
27:416 Seminar: Motor Learning LXXVII
27:416 Seminar: Motor Learning LXXVIII
27:416 Seminar: Motor Learning LXXIX
27:416 Seminar: Motor Learning LXXX
27:416 Seminar: Motor Learning LXXXI
27:416 Seminar: Motor Learning LXXXII
27:416 Seminar: Motor Learning LXXXIII
27:416 Seminar: Motor Learning LXXXIV
27:416 Seminar: Motor Learning LXXXV
27:416 Seminar: Motor Learning LXXXVI
27:416 Seminar: Motor Learning LXXXVII
27:416 Seminar: Motor Learning LXXXVIII
27:416 Seminar: Motor Learning LXXXIX
27:416 Seminar: Motor Learning XL</span>
Program Leading to Ph.D. Degree

The program leading to the Ph.D. degree in physical education is designed to provide the student with a comprehensive background in the various areas in the field of physical education. A broad knowledge of the research techniques that may be applied to problems in physical education and the specific course work in at least one of the areas in physical education. A dissertation which deal with a topic that is of the research field elected by the student is required. The selection of a dissertation supple

3. Evidence that the dissertation has been submitted for publication to a reputable journal.

Eligibility for comprehensive examination.

4. Degree program in Physical Education.

Core requirements for the degree, if required.

5. Completion of undergraduate deficiencies and M.A. requirements.

Program of Advanced Study (PPA61 or 194-291).

1. A grade-point average of 3.0 or higher on all graduate work attempted at this University.

Academic requirements. The doctoral dissertation is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the student is expected to have completed at least three years of residence in the University. At least two semesters of at least 6 semester hours each must be spent in full-time residence on campus at this University. The dissertation must be completed before the final 24 semester hours of graduate study. The dissertation must be submitted for publication to a reputable journal before the Ph.D. is granted.

During the dissertation, the student is expected to complete the course work leading to the Ph.D. degree on the basis of the student's grade-point average. The dissertation must be approved by the student's dissertation committee at the University. The dissertation must be submitted for publication to a reputable journal before the Ph.D. is granted.

Financial support. Students for financial support positions include teaching assistantships, research assistantships, and other grants. For information on research assistantships, teaching assistantships, research assistantships, and graduate fellowships, the Office for Graduate Education offers financial aid to students in graduate school.
PHYSICAL EDUCATION FOR MEN

27.31 Teaching of Recreational Sports I 2 s.h.
27.32 Teaching of Recreational Sports II 2 s.h.
Continuation of 27.31. Second semester.

27.33 Fencing
1 s.h.
First semester.

27.31 Teaching of Gymnastics
3 s.h.
Teaching techniques of conditioning exercises, elementary apparatus, and tumbling exercises. Both semesters.

27.32 Coaching of Gymnastics
3 s.h.
Prerequisite, high school varsity experience or equivalent.

27.33 Coaching of Football
2 s.h.
First semester. Prerequisite, high school varsity experience or equivalent.

27.34 Coaching of Baseball
2 s.h.
Second semester. Prerequisite, high school varsity experience or equivalent.

27.35 Coaching of Track and Field Athletics
2 s.h.
First semester. Prerequisite, high school varsity experience or equivalent.

27.36 Coaching of Basketball
2 s.h.
First semester. Prerequisite, high school varsity experience or equivalent.

27.37 Teaching of Swimming
2 s.h.
Both semesters.

27.38 Coaching of Competition
2 s.h.
Second semester. Prerequisite, high school varsity experience or equivalent.

27.39 Coaching of Wrestling
2 s.h.
Second semester. Prerequisite, high school varsity experience or equivalent.

27.40 Methods of Teaching Tennis
1 s.h.
Summer session only.

27.41 Coaching of Tennis
2 s.h.
Prerequisite, high school varsity experience or equivalent.

27.42 Administration of Intramural Athletics
2 s.h.
Both semesters.

27.53 Human Anatomy
2 s.h.
Both semesters.

27.54 Laboratory Practice in Special Physical Education
2 s.h.
Prerequisites: Physiology 27.12 and 27.28. Laboratory experience in adapted physical education, exercise therapy, and corrective therapy. Both semesters.

27.58 Laboratory Practice in Special Physical Education
2 s.h.
Continuation of 27.57. Both semesters.

27.59 Honors Seminar
3 s.h.
Prerequisites, junior or senior standing, grade-point average of 3.0 or above, major in physical education or recreation.

27.60 Honors Research Paper
3 s.h.
Leadership experiences under staff supervision. Both semesters. Prerequisites, 27.59.

27.99 Leadership Training
2 s.h.
Consult instructor before registering
For Undergraduates and Graduates

27:201 Practical Problems of the Teacher-Counselor cr.arr.
27:203 Administration of Physical Education and Athletics 2 or 3 s.h.
both semesters.
27:205 Advanced Physical Education 2 s.h.
Prerequisites: 27:105, Second semester.
27:129 Advanced Theory of Wrestling 1 or 2 s.h.
27:131 Advanced Theory and Techniques of Swimming and Diving 2 s.h.
27:136 Physical Education for High Schools 3 s.h.
Summer session only.
27:146 Intramural Programs in Schools and Colleges 2 s.h.
Summer session only.
27:153 Advanced Anatomy and Kinesiology 2 s.h.
Emphasis on preparation for teaching anatomy and kinesiology at undergraduate level. First semester.
27:157 Mechanical Analysis of Athletic Performance 3 s.h.
Prerequisite: 27:105 or equivalent. First semester.
27:159 Physical Education for Elementary Schools 3 s.h.
Same as Education 73:341.
27:167 Advanced Measurement in Physical Education 1 2 s.h.
First semester.
27:180 Scientific Foundations of Physical Education 1 4 s.h.
Physiology, exercise physiology, and growth and development.
27:181 Scientific Foundations of Physical Education 2 4 s.h.
27:183 Laboratory in Athletic Training 1 2 s.h.
First semester.
27:183 Laboratory in Athletic Training 2 2 s.h.
Continuation of 27:183. Second semester.
27:199 Supervision of Physical Education for Boys 3 s.h.
Same as Education 73:341.

Primarily for Graduates

27:201 Problems cr.arr.
Consult Mr. Airy before registering. Both semesters.
27:205 Advanced Adapted Physical Education and Rehabilitation 4 s.h.
Prerequisite: 27:105 and 27:106. First semester.
27:307 Advanced Administration of Physical Education 2 s.h.
First semester.
27:311 History of Physical Education 2 s.h.
First semester.
27:313 Advanced Theory of Athletics 3 s.h.
Advanced theories of coaching football, basketball, baseball, and track and field athletics for graduate students who are well-grounded in coaching methods. Summer session only.
27:334 Applied Anthropometry 2 or 3 s.h.
27:337 Public School Curriculum in Physical Education 3 s.h.
Same as Education 73:341.
27:340 Professional Preparation in Physical Education 2 s.h.
Critical analysis of current undergraduate and graduate programs in physical education.
27:341 Scientific Principles of Physical Conditioning 3 or 4 s.h.
27:347 Philosophy of Physical Education 2 or 3 s.h.
Prerequisite, consent of instructor.
27:351 Seminar: Mechanical Analysis of Human Movement cr.arr.
27:367 Advanced Measurement in Physical Education II 3 s.h.
Second semester.
27:301 Seminar: Non-Theists 3 s.h.
Required of students enrolled in 28-semester-hour program leading to M.A. without thesis.
27:306 Motor Learning I 3 s.h.
Motor learning principles and practical implications for teaching.
27:310 Colloquium no cr.
Special lectures. Summer session only.
27:311 Orientation to Graduate Study no cr.
27:312 Seminar: Motor Learning II 3 s.h.
Students not having completed previous course in motor learning should first complete 27:306. Evaluation of research literature in motor learning and motor performance.
27:334 Learning and Performance of Motor Skills Laboratory 3 s.h.
Construction, utilization, and use of research equipment specifically related to the building and performance of motor skills. Test subjects and analysis of research data obtained from experiments in the learning and performance of motor skills.
27:337 Seminar: Research in Physical Education Curriculum 3 s.h.
Required of candidates for M.A. with thesis. Should be completed during first 6 semester hours of graduate study. Guidelines in selection of topics for research and in research procedure. Both semesters.
27:403 Seminar: Thesis III (Ph.D.) cr.arr.
Both semesters.
27:404 Seminar: Thesis IV (Ph.D.) cr.arr.
Prerequisite, 27:403. Credit for 27:403 and 27:404 not to exceed 12 semester hours. Both semesters.
PHYSICAL EDUCATION FOR WOMEN

Head of Department, M. Gladys Scott
Office, 114 Women's Gymnasium

At the undergraduate level the Department of Physical Education for Women provides professional education in all areas of physical education in preparation for pre-physical therapy. It cooperates on an interde-partmental level in recreation education. It administers a general major in health and physical education known as General Studies in Health, Physical Education, and Recreation. The dance curriculum may be oriented to dance training as to the arts, depending upon responses. Thus graduates of the department enter teaching positions in physical education or dance in public schools or at the college level or positions in recreation; or they undertake advanced work in dance leading to a career in the theatre or advanced work in physical therapy, depending upon the curriculum elected.

The teaching or physical therapy curriculum may lead to either the B.A. degree or the B.S. degree. The non-professional and dance curricula lead to the B.A. degree. Graduate work is also offered in the physical education, dance, and recreation fields. Curricula lead to the M.A. degree in physical education or dance, and to the Ph.D. degree in physical education.

The department offers courses in physical education skills as a part of the general requirements for all women in the College of Liberal Arts. Further, it promotes and advises a student-run recreational program open to both men and women.

### Programs for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:9, 7, 22, 23, 24 Techniques or equivalent experience</td>
<td>12 to 16 h.</td>
<td></td>
</tr>
<tr>
<td>28:15</td>
<td>Structural and Applied Anatomy</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:16</td>
<td>Kinesiology</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:17</td>
<td>Correctives</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:19</td>
<td>Orientation</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:20</td>
<td>Social Forms of Dance</td>
<td>1 or 2 h.</td>
</tr>
<tr>
<td>28:25, 26, 31, 32 Teaching and Officiating Sports</td>
<td>4 to 6 h.</td>
<td></td>
</tr>
<tr>
<td>28:26</td>
<td>Dance</td>
<td>4 h.</td>
</tr>
<tr>
<td>28:27</td>
<td>First Aid (or Red Cross certification)</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:29</td>
<td>Laboratory Dance</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:130</td>
<td>Organization and Administration of Physical Education</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:131</td>
<td>History of Physical Education</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:132</td>
<td>Administration of Athletics or equivalent</td>
<td>2 h.</td>
</tr>
<tr>
<td>74:141, 142 Elementary School Physical Education</td>
<td>4 h.</td>
<td></td>
</tr>
<tr>
<td>74:143, 144 Physical Education</td>
<td>4 h.</td>
<td></td>
</tr>
<tr>
<td>74:181 or 182, and 74:191 or 192 Laboratory Physical Education</td>
<td>8 to 12 h.</td>
<td></td>
</tr>
</tbody>
</table>

Each student may elect a wide variety of activities, thus preparing for general public school teaching. Or, she may elect a specialization in team sports, individual sports, aquatics, gymnastics, dance, or physical education for the elementary school. This will be started in the sophomore year after a core of activities. She will thus be prepared for teaching more advanced levels in that area or to go into teaching in that area.

For certification requirements in education see College of Education.

Each student must make application not later than the sophomore year for departmental recommendation to the College of Education and professional education courses. Any student failing to maintain a grade-point average of 2.0 or having displayed marked inadequacies for teaching or a leadership role may be dropped from the program.

For the general requirements of the College of Liberal Arts see College of Liberal Arts.

### Physical Education-Therapy Concentration for Elementary Education Majors

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:15</td>
<td>Structural and Applied Anatomy</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:16</td>
<td>Kinesiology</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:17</td>
<td>Correctives</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:20</td>
<td>Social Forms of Dance</td>
<td>1 or 2 h.</td>
</tr>
<tr>
<td>28:27</td>
<td>First Aid (or Red Cross certification)</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:191 or 192 Elementary School Physical Education</td>
<td>4 h.</td>
<td></td>
</tr>
</tbody>
</table>

### Physical Education-Therapy Concentration for Secondary Education Majors

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:119</td>
<td>Methods and Principles of Physical Education</td>
<td>3 h.</td>
</tr>
<tr>
<td>Electives of 5 to 8 semester hours should be taken from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28:120</td>
<td>Orientation</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:21-23, 24, 25 Techniques</td>
<td>5 to 9 h.</td>
<td></td>
</tr>
<tr>
<td>28:122</td>
<td>Organization and Administration of Physical Education</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:123</td>
<td>Physical Education-Therapy Concentration for Secondary Education Majors</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:124, 125, 126, 127</td>
<td>Physical Education-Therapy Concentration for Secondary Education Majors</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:125</td>
<td>Structural and Applied Anatomy</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:126, 127</td>
<td>Teaching Sports (Prerequisite, college course or equivalent experience in soccer, volleyball, basketball, softball, tennis, baseball, swimming)</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:127</td>
<td>Teaching Sports (Prerequisite, college course or equivalent experience in soccer, volleyball, basketball, softball, tennis, baseball, swimming)</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:128</td>
<td>Organization and Administration of Physical Education</td>
<td>2 h.</td>
</tr>
<tr>
<td>Electives of 5 to 8 semester hours should be taken from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28:129</td>
<td>Orientation</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:130</td>
<td>Social Forms of Dance</td>
<td>1 or 2 h.</td>
</tr>
<tr>
<td>28:131-133, 134, 135 Techniques</td>
<td>5 to 9 h.</td>
<td></td>
</tr>
<tr>
<td>28:135</td>
<td>Organization and Administration of Physical Education</td>
<td>2 h.</td>
</tr>
</tbody>
</table>

### Dance Curriculum

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:16, 17</td>
<td>Beginning and Intermediate Modern Dance</td>
<td>5 or 6 h.</td>
</tr>
<tr>
<td>28:18</td>
<td>Ballet</td>
<td>1 or 2 h.</td>
</tr>
<tr>
<td>28:19</td>
<td>Structural and Applied Anatomy</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:20</td>
<td>Kinesiology</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:30</td>
<td>or 28:112 Rhymata Analysis</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:129</td>
<td>Dance Accompaniment</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:131, 134</td>
<td>History of Dance</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:135, 136</td>
<td>Beginning Choreography</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:137, 138</td>
<td>Advanced Modern Dance</td>
<td>4 h.</td>
</tr>
</tbody>
</table>

In addition, the student must elect 15 semester hours from the following courses, or from others which may be offered later by the department or transferred from another institution, and approved by the advisor for the student's program:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:139, 140</td>
<td>Ballet (in addition to first course required above)</td>
<td>1 or 2 h.</td>
</tr>
<tr>
<td>28:13</td>
<td>Stage Movement</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:20</td>
<td>Social Forms of Dance</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:21</td>
<td>Folk and Ceremonial Dance</td>
<td>1 h.</td>
</tr>
<tr>
<td>28:27</td>
<td>Teaching of Social Forms of Dance</td>
<td>1 or 2 h.</td>
</tr>
<tr>
<td>28:28</td>
<td>Teaching of Ceremonial Dance</td>
<td>1 or 2 h.</td>
</tr>
<tr>
<td>28:111</td>
<td>Children's Dance</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:112</td>
<td>Dance in Education</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:129, 130, 131</td>
<td>Dance Production</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:132</td>
<td>Dance Recital</td>
<td>1 h.</td>
</tr>
</tbody>
</table>

Students desiring to teach in elementary or secondary schools must supply certification requirements in education, and must take 28:27 First Aid or hold Red Cross certification in first aid. Minimum electives above are reduced to 12 semester hours for these students, and a grade-point average of at least 2.5 must be maintained.

### Pre-Physical Therapy Curriculum

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:15</td>
<td>Structural and Applied Anatomy</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:16</td>
<td>Kinesiology</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:21-23, 24, 25 Techniques</td>
<td>5 to 9 h.</td>
<td></td>
</tr>
<tr>
<td>28:27</td>
<td>First Aid (or Red Cross certification)</td>
<td>2 h.</td>
</tr>
<tr>
<td>28:30, 31, 32</td>
<td>General Zoology</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:32</td>
<td>General Chemistry</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:33</td>
<td>College Physics</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:34</td>
<td>Elementary Psychology</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:18</td>
<td>Principles of Nutrition</td>
<td>3 h.</td>
</tr>
<tr>
<td>or two of the following three courses:</td>
<td>9 h.</td>
<td></td>
</tr>
<tr>
<td>28:35, 36</td>
<td>Introduction to Sociology</td>
<td>3 h.</td>
</tr>
<tr>
<td>66:501</td>
<td>Health Science</td>
<td>3 h.</td>
</tr>
<tr>
<td>28:112</td>
<td>Mental Hygiene of the Normal Child</td>
<td>3 h.</td>
</tr>
</tbody>
</table>
In addition, the student must do 4 semester hours of advanced course work in one science. It is recommended that some of the electives be taken from the following:

28.1  Techniques  2 or 4 h.
28.17  Correctives  3 h.
106.65  Physical Education  3 h.
106.61  Recreation Leadership  3 h.
106.113  Measurement  3 h.
106.185  Recreation for the Ill and Handicapped  3 h.

General Studies in Health, Physical Education, and Recreation

The purpose of this program is to give a background in health, physical education, and recreation, not as a preparation for a career in this field but as a broad social-service experience with material relevant in personal and family recreation and healthful living. Each student's program is planned with her adviser on the basis of the student's objectives in selecting this major.

Basic courses for all in the nonprofessional major are:

28.1, 7, 29, 50 or equivalent experience 7-8 h.
106.1, 12, 25 3-4 h.

Supplementary courses of 20 to 35 semester hours may be elected to complete a major of 50 semester hours. These elective hours should be from the following fields:

art, drama, music, mass communications, psychology, social science, sociology, physical education, psychology, recreation, and sociology. At least 15 of the 50 semester hours must be in courses for upper-level students (i.e., in the 300 series).

Honors in Physical Education for Women

To be eligible for Honors, the student must have at least a B average at the beginning of the junior or senior year when the Honors courses are taken. She must maintain the B average throughout the remainder of her college work.

To qualify for the B.A. or B.S. in physical education with Honors the student must:

1. Complete one of the curricula in physical education;
2. Satisfactorily complete any two of the following three courses: Honors Seminar, 28.36 Honors Project, or 28.25 Honors Seminar and include the presentation of a creative or experimental Honors Thesis as part of 28.34 or 28.50.

Graduate Study Requirements

M.A. degree: Awarded on completion of at least 21 semester hours of graduate work including thesis and in courses for which prerequisites for this degree have been completed. To complete the program, the student must have had previous education and anticipated future career. The curriculum may lead to teaching, administration, or supervision in the schools.

Prerequisites. Background in anatomy, kinesiology, psychology, educational psychology, educational methods, physical education, organization and administration of physical education, and physical education techniques.

Graduate Field Requirements

28.31  Techniques in Physical Education 2 or 4 h.
28.37  Correctional Methods 4 h.
28.41  Analysis of Human Motion 4 h.
28.42  Theory of Physical Education 1 or 2 h.
28.44  History of Physical Education 3 h.
28.46  Measurement in Physical Education 2 h.

Electives. The remainder of the program is planned according to the needs and interests of the student, subject to the approval of the adviser and the head of the department.

In very exceptional cases a student may be permitted to take a nonthesis M.A. Such a curriculum requires a minimum of 28 semester hours, a project instead of thesis, and other specified courses. Permission must be received from the graduate school of the department and from the head of the department.

Ph.D. degree. Awarded on completion of approximately 32 semester hours of graduate work, including general requirements for the master's degree and credit for the dissertation.

Prerequisites. Background in anatomy, kinesiology, psychology, educational psychology, educational methods in physical education, organization and administration of physical education, and physical education techniques.

Tools of research. Certain abilities are required as a prerequisite for admission to the Department of Physical Education for Women:

a) Reading ability in one foreign language. Must be passed by courses at The University of Iowa or by passing the GRE language test.

b) Statistical methods. May be satisfied by passing a graduate course in statistical methods at The University of Iowa.

General Field Requirements

Techniques of Research 5 or 6 h.
M.A. Thesis or Problems 0 to 4 h.
Seminar in Research 2 h.
Dissertation 10 h.
Analysis of Human Motion 2 h.
Hygiene or Physiology (any graduate course) 2 or 3 h.
Advanced Administration 2 h.
*Principles of Physical Education 2 h.
*History of Physical Education 1 or 2 h.
*Correctives 2 h.
*Measurement in Physical Education 2 h.
Specializations. At least 20 semester hours are required in one area or in two related areas at the discretion of the adviser. Suggested areas:

Anatomy 2 h.
Outdoor Education and Camping 2 h.
Correctives (Adaptive) 2 h.
Philosophy and History of Physical Education 2 h.
Curriculum 2 h.
Physical Education in the Elementary School 2 h.
Motor Learning 2 h.
Kinesiology 1 h.
Psychology of Sport and Exercise 1 h.
Motor Skills 1 h.
Research 1 h.
Kinesiology 1 h.
Psychology of Sport 1 h.
Motor Skills 1 h.
Measurement 1 h.
Statistical Analysis 1 h.
Supervision 1 h.

The dissertation should deal with some problem in the area of specialization.

Related field requirements. The student is required to complete at least 9 semester hours of work in one or more allied fields. This may be done in the form of a minor of approximately 20 semester hours which may be completed jointly with the department or in any course of approximately 20 semester hours in one or more allied departments, which represent an area or field of concentration.

STAFF


Assistant Professors: Elwood W. Baker, Virginia Pettigrew, and Miriam Taylor.

Assistant Professor Emeritus: Miriam Taylor.

COURSE DESCRIPTIONS

Primarily for Undergraduates

28.1 Intermediate Physical Education 2 h.

Elective. Open to those who have completed the requirements for physical education majors. May be repeated.

28.6 Modern Dance 1 or 2 h.

28.17 Advanced Physical Education 1 h.

Elective. Open to those who have completed the requirements for physical education majors. May be repeated.

28.18 Intermediate Modern Dance 1 or 2 h.

28.34 Honors Thesis 1 or 2 h.

Open to those who have completed the requirements in physical education majors.

*A maximum of 5 semester hours may be counted in credit for graduation. Not required of those having undergraduate courses.
PHYSICAL EDUCATION FOR WOMEN

28:10 Ballet 1 or 2 s.h.
Prerequisite: 28:9 or equivalent experience.

28:11 Stage Movement 2 s.h.
Same as Speech 28:11. Theory and practice in movement for dramatic and other stage performances. Dance from Renaissance to the present time.

28:13 Intermediate Ballet 2 s.h.
Open to those who have completed 28:9 and 28:10 or the equivalent.

28:15 Advanced Ballet 2 s.h.
Open to those who have completed 28:12 or the equivalent.

28:15 Structural and Applied Anatomy 3 or 4 s.h.
Required of all students majoring or minoring in physical education. General human anatomy with emphasis on framework and factors influencing movement.

28:16 Kinesiology 3 s.h.
Prerequisite: 28:15. Mechanics of motor skills and posture.

28:17 Corrections 3 s.h.
Prerequisite: 28:15. Common abnormalities of spine and feet, developmental and preovasive problems. Essential work for functional diagnosis and athletic injuries.

28:18 Senior Life Saving and Water Safety Instructor's Course 1 or 2 s.h.
Leads to Red Cross Senior Water Safety Certificate or Instructor's Certificate. Register after consultation with instructor.

28:19 Movement Fundamentals 1 s.h.

28:20 Social Forms of Dance 1 or 2 s.h.
Folk, square, and social dance.

28:21 Technique 3 s.h.
Sports and aquatics.

28:22 Technique 3 s.h.
Gymnastics and sports techniques.

28:24 Technique 2 or 3 s.h.
Sports, aquatics, and dance.

28:25 Teaching of Sports 2 or 3 s.h.
Track, and elective activities.

28:25 Teaching of Sports 2 or 3 s.h.
Teaching team and individual sports. Third hour is official.

28:26 Teaching of Sports cr.arr.
Continuation of 28:25. Includes teaching of swimming.

28:27 Teaching of Social Forms of Dance 1 or 2 s.h.
Dance.

28:28 Teaching of Modern Dance 2 s.h.
Teaching of modern dance in the secondary schools and at college level.

28:30 Recreational Physical Education cr.
Varied activities open to all students.

28:31 Officiating 1 or 2 s.h.
Officiating techniques for team sports.

28:32 Officiating 1 or 2 s.h.
May follow 28:31 or may be taken as an independent unit.

28:37 First Aid 2 s.h.
Standard and Advanced Red Cross courses. Leads to first aid certification on completion of requirements.

28:46 Problems in Weight Control 2 s.h.
Prerequisite: consent of instructor.

28:50 Rhythmic Analysis 2 s.h.
Form and analysis of music with application to movement.

28:71 Methods and Materials in Elementary School Physical Education 2 or 3 s.h.
Same as Education 28:141. For physical education majors only.

28:72 Methods and Materials in Elementary School Physical Education 2 or 3 s.h.
Emphasis on dance in the school program. Continuation of 28:71, but may be taken for credit with permission of instructor. Same as Education 28:141. For physical education majors only.

28:73 Laboratory Practice 3 s.h.
Required of major students in senior year. May be repeated. Same as Education 28:151 or 152 or 28:153 or 154.

28:74 Laboratory Practice 3 s.h.
Continuation of 28:73, but may be taken as an independent unit. May be repeated. Same as Education 28:155 or Education 28:156.

28:81 Independent Study cr.arr.

28:84 Honors Reading 3 s.h.

28:95 Honors Seminar 3 s.h.

28:95 Readings in Kinesiology 2 s.h.

For Undergraduates and Graduates

28:104 Health Education Workshop 2 s.h.
Same as Preventive Medicine 28:104.

28:105 First Aid and Care of Athletic Injuries 2 s.h.

28:106 Fitness for the Individual 2 or 3 s.h.
Physiological processes in conditioning, methods of achieving fitness, and adult needs.

28:107 Corrections 2 or 3 s.h.

28:108 Advanced Coaching 2 s.h.
Reading and discussion concerning teaching, coaching, and officiating procedures in the light of recent findings pertaining to selected sports.

28:109 Intramural and Extramural Programs 2 s.h.

28:110 Workshop: Methods of Teaching Sports 1 to 3 s.h.
Emphasis on analysis of skillful and teaching methods of selected sports, aquatics, or gymnastics.

28:111 Children's Dance 2 s.h.
Dance for children of preschool to high school age.

28:112 Rhythmic Analysis of Dance 2 s.h.
Rotation, analysis, and observational use of rhythm, and composition of perception across for dance. Style and techniques of baroque, romantic, and modern dance for the choreographer.

28:113 Measurement 2 s.h.
Selection and administration of physical measurement and motor tests. Use of data.

28:114 History and Appreciation of Dance 3 s.h.
Origins and development of dance. Emphasis on changing
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:115</td>
<td>History and Appreciation of Dance</td>
<td>3</td>
<td>Study of the historical development of dance and its role in culture, society, and individual expression.</td>
</tr>
<tr>
<td>28:116</td>
<td>Dance in Education</td>
<td>2-3</td>
<td>Emphasis on dance forms, traditions, and cultural significance across different time periods and geographical locations.</td>
</tr>
<tr>
<td>28:117</td>
<td>Workshop in Relocation</td>
<td>1</td>
<td>Focus on the physical and psychological aspects of relocation, including dance as a means of transition and emotional adaptation.</td>
</tr>
<tr>
<td>28:119</td>
<td>Methods and Principles</td>
<td>3</td>
<td>Introduction to dance techniques, theories, and practices, including contemporary and classical styles.</td>
</tr>
<tr>
<td>28:120</td>
<td>Organization and Administration of Physical Education</td>
<td>2</td>
<td>Planning, implementation, and evaluation of physical education programs, focusing on the needs of students in diverse settings.</td>
</tr>
<tr>
<td>28:121</td>
<td>History of Physical Education</td>
<td>1-2</td>
<td>Historical overview of physical education, emphasizing cultural and societal influences.</td>
</tr>
<tr>
<td>28:122</td>
<td>Beginning Choreography</td>
<td>2</td>
<td>Introduction to the basics of choreography, including improvisation, structure, and expression.</td>
</tr>
<tr>
<td>28:124</td>
<td>Beginning Swimming</td>
<td>2</td>
<td>Basics of synchronized swimming, including stroke techniques and drills.</td>
</tr>
<tr>
<td>28:135</td>
<td>Advanced Modern Dance</td>
<td>1-2</td>
<td>Advanced techniques and concepts in modern dance, focusing on contemporary and innovative forms.</td>
</tr>
<tr>
<td>28:126</td>
<td>Advanced Modern Dance</td>
<td>2</td>
<td>Continuation of 28:135, with a focus on individual technique development and performance.</td>
</tr>
<tr>
<td>28:127</td>
<td>Dance Production</td>
<td>2</td>
<td>Practice in choreographed dance routines, focusing on technique, expression, and musicality.</td>
</tr>
<tr>
<td>28:128</td>
<td>Dance Production</td>
<td>2</td>
<td>Practice in dance forms, focusing on group dynamics and collaboration.</td>
</tr>
<tr>
<td>28:129</td>
<td>Dance Accompaniment</td>
<td>2</td>
<td>Study of music and percussion techniques, focusing on their role in dance performance.</td>
</tr>
<tr>
<td>28:130</td>
<td>Extracurricular Programs in Physical Education in High School</td>
<td>2</td>
<td>Exploration of extracurricular activities, focusing on the integration of dance into school life.</td>
</tr>
<tr>
<td>28:148</td>
<td>The School Camp</td>
<td>2-3</td>
<td>Planning and implementation of camp activities, focusing on safety, logistics, and program design.</td>
</tr>
<tr>
<td>28:149</td>
<td>Elementary School Physical Education</td>
<td>3</td>
<td>Overview of physical education programs for elementary schools, including curriculum design and implementation.</td>
</tr>
<tr>
<td>28:150</td>
<td>Movement Exploration</td>
<td>2</td>
<td>Exploration of movement concepts and their application in a creative and exploratory manner.</td>
</tr>
<tr>
<td>28:151</td>
<td>Seminar: Leadership &amp; Extra-curricular Activities</td>
<td>2</td>
<td>Discussion and planning of leadership roles and extra-curricular activities in the school setting.</td>
</tr>
<tr>
<td>28:160</td>
<td>Workshop: Elementary Physical Education</td>
<td>1</td>
<td>Hands-on experience in elementary physical education, focusing on practical and theoretical components.</td>
</tr>
<tr>
<td>28:170</td>
<td>Readings in Dance</td>
<td>cr,arr</td>
<td>Reading assignments related to dance, covering a range of topics and perspectives.</td>
</tr>
<tr>
<td>28:171</td>
<td>Dance Theatre</td>
<td>0-3</td>
<td>Experience in a performing group, focusing on performance skills and dance repertoire development.</td>
</tr>
<tr>
<td>28:172</td>
<td>Dance Theatre</td>
<td>0-1</td>
<td>By permission only, focusing on advanced performance skills and dance choreography.</td>
</tr>
<tr>
<td>28:173</td>
<td>Advanced Choreography</td>
<td>2</td>
<td>Advanced techniques in choreography, focusing on complex and innovative movement patterns.</td>
</tr>
<tr>
<td>28:174</td>
<td>Advanced Choreography</td>
<td>2</td>
<td>Advanced techniques in choreography, focusing on the integration of music, rhythm, and movement.</td>
</tr>
<tr>
<td>28:175</td>
<td>Theory and Criticism of Dance</td>
<td>3</td>
<td>Critical analysis of dance forms, focusing on historical, cultural, and aesthetic dimensions.</td>
</tr>
<tr>
<td>28:176</td>
<td>Theory and Criticism of Dance</td>
<td>3</td>
<td>Continuation of 28:175, with a focus on advanced critical thinking and analysis.</td>
</tr>
</tbody>
</table>

For Graduates:

- 28:201 Problems in Physical Education cr.arr: Pre-requisite, consent of instructor.
- 28:211 Analysis of Human Motion 3: Pre-requisite: 28:176, advanced level.

For Graduates:

Primarily for Undergraduates

29:1 College Physics
4 s.h.
Open to freshmen. For premedical, preprofessional, and pre- 
mar students and other interested in elementary physics.
Descriptive lectures, laboratory, and problem work in
mechanics, heat, and light. Prerequisite: one course
in science. Corequisite: Mathematics 221 or 222.

29:2 College Physics
4 s.h.
Continuation of 29:1, which is prerequisite. Electricity,
mechanics, magnetism, light, and modern physics.
Both semesters and summer session.

29:17 Introductory Physics I
4 s.h.
Mechanics, heat, and sound. Three lecture-discussion
sessions and one laboratory per week. Recommended for
majors in physics, astronomy, and other sciences and for
business students. Corequisite: Mathematics 221 or 222.

29:18 Introductory Physics II
4 s.h.
Electricity, magnetism, and light. Continuation of 29:17.

29:19 Introductory Physics III
4 s.h.
Astronomy and nuclear physics and relativity. Continuation
of 29:18.

29:53 Physics I
3 s.h.
Unity of the sciences of classical and modern physics.
Mechanics, electricity, magnetism, and wave phenomena.
Introduction to quantum mechanics. Primarily for junior
engineering students.

29:53 Physics II
3 s.h.
Continuation of 29:53. Atomic and nuclear physics. Other
applications of fundamental concepts to modern physics.
Primarily for senior engineering students.

29:93 Reading in Physics
cr. arr.
Credit given for departmental reading in physics.

29:95 Undergraduate Seminar
1 s.h.
Recent topics. Each semester a selected topic in physics
with laboratory under guidance of an instructor. The topic
and instructor will be announced in advance of each
semester. May be repeated.

29:99 Honors Thesis
cr. arr.
Supervised original research project, leading to a written
report and oral defense. For junior and senior honors
candidates majoring in physics or astronomy.

For Undergraduates and Graduates

29:103 Reading in Physics
cr. arr.
Credit given for departmental reading in physics.

PHYSICS AND ASTRONOMY

29:113 Physics of Sound and Music
3 s.h.
Properties of sound waves and their propagation, refor-
raction, and absorption. Production of sound by voices and
musical instruments. Musical scales. Mechanical and
electrical generation, recording, and reproduction of
sound. A descriptive course with no mathematical pre-
requisites.

29:117 Optics
3 s.h.
Properties of lenses and simple optical instruments; phenomena of propagation of
light, interference, diffraction, and refraction of light.
See 29:135 for laboratory work.

29:118 Kinetic Theory and
Thermodynamics
3 s.h.
The kinetic theory of matter. Macroscopic description
of thermal phenomena. The fundamental laws of ther-
modynamics and their application.

29:127 Electricity and Electrical
Measurements
3 s.h.
Electrical circuits, measurements, and electronics. Intro-
duction to electromagnetic fields. Two lectures and one
laboratory each week. Prerequisites, 29:52 or 29:18 and
Mathematics 221 or 222.

29:128 Electronics
3 s.h.
Characteristics of vacuum tubes and transistors. Design
and study of analog and digital circuits. Two lectures and
one laboratory each week. Prerequisite, 29:127 or
equivalent.

29:129 Electricity and Magnetism
3 s.h.
Electromotive force, magnetic field, thermoelectric
induction, and introduction to Maxwell's equations. See 29:132 for
laboratory work. Prerequisite, Mathematics 221 or
equivalent.

29:129 Electricity and Magnetism
3 s.h.
Magnetic properties of materials, electromagnetic waves,
and applications of electromagnetism to atomic physics,
optics, plasma physics, and other selected topics.
Continuation of 29:129, which is prerequisite. See 29:132 for
laboratory work.

29:129 Intermediate Laboratory
2 s.h.
Laboratory work in electricity, magnetism, and electron-
ics; atomic, nuclear, and solid state physics; optical spec-
trum; one laboratory period each week. May be
repeated.

29:133 Advanced Laboratory
2 s.h.
Laboratory work in optical spectroscopy, solid state, nu-
clear physics, and cosmic rays. One laboratory period
each week. May be repeated.

29:171 Methods of Theoretical Physics
3 s.h.
Functions of a complex variable, integration methods,
linear vector spaces, and matrix algebra. Prerequisite,
Mathematics 221 or 222.

29:172 Methods of Theoretical Physics
3 s.h.
Continuation of 29:171. Hilbert space, special functions,
vector and tensor transforms, and expansions in orthogonal poly-
nomials, differential equations, and Green's functions.

29:181 Atomic Physics
3 s.h.
Introduction to quantum theory and wave mechanics.
Atoms and molecular spectra, and atomic structure. Prerequi-
site, 29:128 or Mathematics 221 or equivalent. See
29:135 for laboratory work.

29:192 Nuclear Physics
3 s.h.
Nuclear models, the neutron, proton, alpha, beta, and gamma
rays, spectrum, nuclear energy levels and nuclear structure,
nuclear reactions, the neutron, fission and fusion reac-
tions, passage of radiating through matter, mass and
energy and elementary particles, and experimental techniques.
Prerequisites, 29:129 or equivalent. See 29:135 for laboratory work.
29:205 Classical Mechanics 3 s.h.
Dynamics of some points. Lagrange's and Hamilton's equations; canonical transformations and Hamilton-Jacobi theory. Prerequisites, Mathematics M251, M252, and M253.
29:211 Mechanics of Continua 3 s.h.
Conservation laws; dynamics of ideal fluids; both incompressible and compressible; viscous flow; the chemical theory of elasticity. Prerequisites, Mathematics M252 and M253.
29:212 Statistical Mechanics I 3 s.h.
The problems of Boltzmann; the H-theorem and general principles of classical statistical mechanics; specific heat theory and condensate gases; stochastic processes; Einstein-Ross and Fermi-Dirac statistics and applications. Prerequisites, M251, M252, M253, M254, M255, and M256.
29:213 Classical Electrodynamics 3 s.h.
Adiabatic electro-magnetization, boundary value problems, Green's functions, Maxwell's equations, radiation theory, physical optics, and multiple expansion of radiation field. Prerequisites, M252, M253, M254, M255, and M256.
29:214 Classical Electrodynamics 3 s.h.
Special relativity, motion of charges in fields, theories of radiation, gravitation, and special relativity. Prerequisites, M252, M253, M254, M255, M256, and M257.
29:220 Individual Critical Study 3 s.h.
An essay is to be written on a topic chosen in consultation with a member of the faculty. For candidacy for the M.S. degree without thesis in physics or astronomy.
29:245 Advanced Mechanics I 3 s.h.
Nonrelativistic quantum mechanics; Schrödinger wave mechanics, Hilbert space methods; perturbation theory; scattering; spin and angular momenta; identical particles, selected applications; introduction to relativistic theory. Prerequisites, M252 and M253.
29:246 Quantum Mechanics II 3 s.h.
Condensation of 29:245.
29:249 Advanced Nuclear Physics 3 s.h.
The phenomena of nuclear physics and their interpretations. Properties of nuclei, nuclear moments, shell model, collective model, y transitions, E2, nuclear reactions, and other topics. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252, M253, and M254. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated. Prerequisites, M252 and M253. May be repeated.
POLITICAL SCIENCE
Chairman of Department, Russell M. Ross
Office, 315 Schaeffer Hall

The program in political science deals with general principles of human behavior and organization which enable one to understand and explain political situations, events, and problems in the world around us. Both the graduate student and the Ph.D. program, which leads to the M.A. and the Ph.D. degree, emphasizes these broad areas rather than narrow specialization on restricted aspects of the subject. The facilities of the Laboratory for Political Research and the Regional Social Science Data Archive offer a unique opportunity for both undergraduate and graduate students to come to grips with real problems through the analysis of real data. And, particularly at the graduate level, the methodological segments of the department's program provide opportunities for acquiring expertise and experience which are matched by very few other institutions.

At the undergraduate level the program is general and not vocational. Political science majors often enter careers in law, public service, or teaching, but many also enter careers in business, journalism, medicine, and other fields. At the graduate level the department emphasizes the general Ph.D. program, which is particularly appropriate for students planning a scholarly career. It is also available for entry into the executive ranks of the civil service of federal, state, and city governments. There is a special M.A. program in municipal administration, designed to prepare students for careers as city managers. The undergraduate program frequently leads to careers in civil service and in municipal or other governmental research bureaus, as well as to careers in teaching.

Requirements for a Major
The department offers a standard major (Plan A) and a special teaching major (Plan B). The special major is for those who seek a public school teaching certificate. The standard major is for all others, whether they are pursuing a four-year program or a special combined program in liberal arts and law.

Plan A: The Standard Major
Undergraduates seeking a standard major must meet the following requirements:

A. Complete at least 24 semester hours of work in political science including:
1. 321 American Government
2. Two of the following four introductory courses
   a) 3211 Introduction to Political Science
   b) 3211 Introduction to Political Theory
   c) 3213 Introduction to Politics
   d) 3213 Introduction to World Politics
3. Twelve or more semester hours of political science offerings numbered 200 and above. Of these no more than 6 semester hours may be in those

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Graduate Study Requirements

Graduate students in political science must meet the general requirements of the Graduate College which are detailed in the University Catalog. In addition, the graduate student is expected to be thoroughly familiar with and is held responsible for, the specific departmental requirements set forth in the Guide to Graduate Study in Political Science available in the office of the chairman of the department.

Admission requirements are fixed by the Graduate College. To be eligible for subsequent candidacy for a master's degree, the student applies to good standing. The student seeking the award of an M.A. degree must maintain a grade-point average of at least 3.0; the student seeking a Ph.D. degree must show promise of scholarly distinction and achievements beyond that indicated by a minimum of 3.0 grade-point average. Graduate study consists of work in courses, seminars, reading and research. Graduate students in political science may take for credit only those courses offered specifically for graduate students, i.e., these courses numbered 30300 and above.

The M.A. Program

To obtain a master's degree, the student must complete at least 30 semester hours of work with a grade-point average of at least 3.0 and submit a thesis. The Graduate College requirements for the maximum hours of work allowed, in addition, the student must meet the following specific departmental requirements:

1. Three hours of work in the department.

2. At least 12 semester hours of work, not including core courses or courses taken in lieu of those, chosen as follows:
   a. 6 semester hours of work in survey courses in an area of concentration.
   b. 6 semester hours of work in advanced courses in the area of concentration.

Honor in Political Science

Honor sections of some courses are scheduled for limited groups of outstanding students. These courses should be regularly scheduled at the time of regular offerings in the department.

In addition, the department has a program for majors in political science leading to a B.A. degree with Honors. It is open to a limited number of students with a minimum grade point average of 3.0. Selection is based on the student's record and recommendation of the department. The student must maintain a grade-point average of at least 3.0 in addition to a general grade-point average of at least 3.0. For graduation work, the student must maintain the grade-point average just indicated; complete at least two hours of work in the advanced Honors Seminar (30-397, 398) with a grade of B or better such seminars should be an extension of the field of political science, at the end of the semester.

Students interested in seeking a B.A. degree with Honors shall see the departmental honors advisor prior to the beginning of the junior year.

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Politec Science

A student seeking a Ph.D. degree is expected to complete at least three academic years in residence in a graduate department. During the first two academic years, a Ph.D. candidate is normally required to work toward a Ph.D. Students who wish to achieve the Ph.D. degree will not be considered for Ph.D. candidates unless they have completed M.A. degree courses. The student may apply to the advisor for a waiver of the requirement for an M.A. degree, and the advisor will present the application to the student's examining committee which will examine the student's qualifications in the department chair.

Doctoral requirements. Within the first month of his Ph.D. work, the student must consult with the chairman of the department concerning his Ph.D. dissertation advisor and Ph.D. examining committee. The doctoral examining committee is elected by the chairman of the department. It consists of one member of the graduate faculty for each of the four fields, one of whom is the student's advisor and a fifth member, normally a professor with whom the student has had work. The student's thesis advisor is the chairman of the committee.

Field requirements. Ph.D. programs will include a maximum of seminar work. This will include 1 semester hour in the philosophy and methods of political inquiry. This requirement is met by taking 15 hours of Methods of Political Research and 26300 Philosophy of Political Science.

The Ph.D. student seeking a Ph.D. degree must also demonstrate command of at least one foreign language or other tool of research, selected with the approval of his doctoral committee. If a foreign language is selected, he must give proof through a special examination of his reading knowledge of the language. In the specific area of political science, the foreign language is selected by the student's doctoral committee. The student's doctoral committee will specify the criteria for the examination; which will be administered by the departmental secretary. Upon notification of the results of the examination, the student will have a minimum of six semester hours before he will be considered for the examination.

Teaching and research training. Every Ph.D. candidate in political science must acquire at least one semester of supervised teaching in teaching and use in research. This instruction is normally given in association with the student's service as a teaching assistant. Students are required to serve as teaching assistants when they are completing 30 or more semester hours of instruction and have been recommended by the department chair for the period of their service.

A student seeking a Ph.D. degree should apply for admission to candidacy in the middle of the second year in the Graduate College before taking the comprehensive examinations. Students are required to take the comprehensive examinations after the completion of the second full year of graduate work. Comprehensive examinations are given approximately every two years, generally during October, February, and May.

At the time he files his Ph.D. Plan of Study or at any time prior to the beginning of his comprehensive examinations, the student should request the departmental secretary to forward the Graduate College a request for his comprehensive examinations on his behalf. Subsequently to filing this request, the student's grades will be recorded in the graduate examination status of the student will be sent to the department.

The department will notify the student by mail of the results of the analysis. The student must take the responsibility of scheduling the analysis so that he has fulfilled all requirements and has removed any incomplete grades.

Doctoral candidates who wish to take the comprehensive examinations must do so within the departmental office no later than two weeks before the beginning of the examination period. If a request for an examination is not made in writing, the examination in each area will be posted and any student expecting to take the examination must take it on the announced day.

At some time prior to his completion of the written comprehensive examinations, the candidate must consult with his thesis advisor concerning the time of his oral examination. The examining committee will fix a date and time for the oral examination. The examining committee will notify the departmental secretary concerning the date and time for the examination. The candidate will be notified of the examination date and time to the committee and the candidate about the room reserved, and the department secretary concerning the day, time, and place.
local levels. Formulation, enactment, and execution of governmental budgets. Sources of revenue, debt administration, and intergovernmental fiscal relations. Pre-requisite: 30:121. Junior standing.

30:121 Foundations of Political Theory 3 s.h. The major writers and intellectual trends in political thought from the pre-Socratic to the Enlightenment. Pre-requisite: 30:121 or junior-senior standing.

30:122 Modern Political Theory 3 s.h. The major writers and intellectual trends in political thought from the 19th century to the 20th century. Prerequisite: 30:121 or junior-senior standing.

30:123 Contemporary Political Theory 3 s.h. Controversy thought concerning democracy and related problems.

30:146 Government and Politics of Western Europe 3 s.h. Political institutions and processes of selected Western European countries, including Great Britain, France, Germany, and Scandinavia. For the specific country or countries under specialization, consult the current Schedule of Courses. May be repeated with the consent of the instructor.

30:146 Introduction to the Government and Politics of the Soviet Union 3 s.h. Internal system of government, politics, economics, and social order from the Revolution of 1917 to the present.

30:148 Government and Politics of the Soviet Union and Eastern Europe 3 s.h. The Soviet political system, emphasizing changes in the post-Stalin period, with comparison to Eastern European systems.

30:143 Government and Politics of the Far East 3 s.h. The functioning and the institutions of government in the countries of the Far East, with special attention given to the social, economic, and historical environments which condition them.

30:146 Introduction to Latin American Government 3 s.h. Governmental institutions and major interest groups in Latin America; the general focus is upon the area as a whole.

30:145 Major States of Latin America 3 s.h. Comparison of the political systems of selected major states in Latin America; historical background with emphasis on the contemporary political scene. May be repeated with the consent of the instructor.

30:147 Voting Behavior and Elections 3 s.h. Determinants of voting behavior, correlates of political participation and political apathy, political participation processes and the nature and functions of elections.

30:145 The Legislative Process 3 s.h. Comparative legislative processes and behavior focusing on alegislative systems analysis, legislative institutionalization, the legislature and its environment, organizational structure, legislative procedures, and legislative voting behavior.

30:149 The Judicial Process 3 s.h. The role of courts, lawyers, judges, and interest groups in the American and foreign legal systems.

30:150 Problems of Comparative Politics 3 s.h. Selected problems in the study of comparative politics. For specific subject consent various course schedules. May be repeated with the consent of the instructor.

30:160 International Politics 3 s.h. Comparative analysis of international political forms and determinants of the interaction of states.


30:162 American Foreign Policy 3 s.h. Role, purpose, problems encountered, and major events employed by the United States in its relations with other states and with international organizations. Pre-requisite: 30:123 or consent of instructor.

30:163 Inter-American Relations 3 s.h. Development and application of the Monroe Doctrine, especially with regard to selected Latin American nations; examination of the organization and functioning of the Organization of American States and the current United States policy toward Latin America.

30:164 Problems of International Politics 3 s.h. Selected problems in the analysis of international politics. For specific subject consent current Schedule of Courses. May be repeated with the consent of the instructor.

30:165 Human Rights 3 s.h. Theory and practices in domestic and international efforts to define and implement human rights.

Honors and Independent Study

30:180 Independent Study 3 s.h. Individually supervised special projects. Registration permitted only with the consent of the faculty member concerned.

30:187 Honors Seminar 3 s.h. An intensive examination of the major ideas and problems of a particular area of political science. Open to honors candidates in political science and others with consent of in-structor.

30:188 Honors Seminar 3 s.h. Continuation of 30:187.

Core Graduate Courses

30:200 Introduction to Political Analysis 3 s.h. Conceptual problems of political analysis. Types of explanation in contemporary political science.

30:201 Methods of Political Research 3 s.h. Techniques of investigating selected questions of interest to political scientists. Uses of qualitative and quantitative data.

30:220 Administrative Theory and Behavior 3 s.h. Literature and research on organizational and administrative theory, behavior, and politics.

30:260 Comparative Politics 3 s.h. A graduate-level survey of current approaches to comparative politics.

30:260 American Political Systems and Behavior 3 s.h. Review and analysis of the major literature of American politics, stressing comparative, systematic, and behavioral approaches.

30:260 International Politics 3 s.h. An introductory graduate-level course emphasizing various approaches in the study of international politics.

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30:352 Problems of Comparative Politics 4 e.h.
Selected problems in the comparative analysis of political systems. May be repeated with the consent of the instructor.

30:553 Community Political Systems 4 e.h.
Comparative analysis of community decision-making with special emphasis on the political institutions within the local community.

30:561 Problems of International Politics 4 e.h.
Close examination of selected topics of international politics, emphasizing problems of theoretical analysis. May be repeated with the consent of the instructor.

30:565 Human Rights and World Community 4 e.h.
The nature of human rights, international obligations relating to them; problems of implementation. An independent seminar. May be repeated with the consent of the instructor.

30:380 Readings cr.arr.
Consent of supervising faculty member required.

30:382 Master's Thesis cr.arr.
Consent of supervising faculty member required.

30:383 Internships cr.arr.
Consent of supervising faculty member required.

Advanced Research Seminars

30:420 Public Administration 4 e.h.
Selected issues in public administration. May be repeated with the consent of the instructor.

30:421 Urbanization 4 e.h.
Analysis and consequences of the urbanization process. Political, economic, and social study of metropolitan areas. An independent seminar. May be repeated with the consent of the instructor.

30:430 Political Theory 4 e.h.
Selected problems in political theory. Prerequisite: 20:300 or its equivalent. May be repeated with the consent of the instructor.

30:440 Comparative Politics 4 e.h.
Selected problems, systems, or areas. Permission of the instructor is required. May be repeated with his consent.

30:441 Political Parties 4 e.h.
Systematic investigation of roles, organizations, competition, leadership, and functions of parties in other American and European political systems. May be repeated with the consent of the instructor.

30:442 Legislative Behavior 4 e.h.
Consent of instructor required for admission. May be repeated with his consent.

30:443 Judicial Behavior 4 e.h.
Particular emphasis on recent law approaches to the study of the judicial process. May be repeated with the consent of the instructor.

30:444 Political Elites and Leadership 4 e.h.
Consent of instructor required for admission. May be repeated with his consent.

30:445 Political Integration 4 e.h.
Selected problems in the development and unification of selected political communities at the international level. May be repeated with the consent of the instructor.

30:446 Political Socialization 4 e.h.
Selected problems of socialization, attitudes, and orientations in political systems. Emphasis on theoretical and comparative approaches. May be repeated with the consent of the instructor.
Honors in Psychology

The Department of Psychology has an Honors program open to students with a grade-point average of at least 3.5 in psychology courses and in their major. Students interested in pursuing such a program should consult the Department's Junior Advisor before the beginning of the junior year, if possible.

Graduate Study

The department provides specialized training leading to the Ph.D. degree in the following four major areas: the psychology of learning and motivation; physiological psychology; social psychology, and clinical psychology and personality. Most graduate students are encouraged to concentrate their coursework in one of these major divisions. Students may also specialize in areas which are not reflected in the normal titles given to the department's divisions; e.g., sensation, perception, psychophysiology, human engineering, quantitative methods, verbal processes, clinical and developmental neuropsychology, etc.

The aim of the department is to provide training that will enable the individual to make original contributions as a scholar, investigator, teacher, and in the application of his psychological knowledge to the solution of important practical problems.

The graduate training programs in the areas of learning and motivation, physiological, and social psychology encompass much of what has traditionally been described as "experimental psychology." The clinical program also places considerable emphasis upon laboratory research and carefully controlled experimentation.

Admission requirements. It is recommended that students who plan to take graduate work in the department have had undergraduate training in psychology (e.g., experimental psychology and statistics), along with extensive work in the natural sciences, mathematics, and the social sciences. A foreign language is not required. Applicants should take the Graduate Record Examination, a formalized Test of English Language Proficiency, and the Graduate Record Examination in Psychology. The Graduate Record Examination in Psychology is given in the fall of the year preceding the year in which the graduate degree is expected to be conferred. The Graduate Record Examination in Psychology is given in the fall of the year preceding the year in which the graduate degree is expected to be conferred.

Elective program. The program followed by students training for the doctoral degree is best described as a joint program for the master's and doctoral degrees. All students desiring to obtain the Ph.D. at Iowa are required to obtain an M.A. with thesis, generally at the end of the fourth year. The model time required to complete the Ph.D. degree is four years (or five years in the case of clinical students who elect to take a preclinical interim). Usually, during their first year in residence, candidates are required to take the Ph.D. degree, and the program is designed to acquaint them with a wide range of psychological science. The degree program for the doctoral degree is concluded on the receipt of the Ph.D. degree in courses satisfactory performance in the examination course, while advancement to candidacy for the degree does not conclude the course work. The degree is conferred upon the successful completion of an intensive examination over the subject matter areas in which the student has chosen to specialize. During his final year the student designs and conducts his doctoral dissertation and must attend seminars and courses as well as contributing to a thorough mastery of the field. The dissertation committee is determined by the student and his advisor.

Master of Arts without thesis. More limited training terminating in the M.A. degree is also provided under certain conditions. The purpose of this program is to prepare the student for service and administrative positions in various institutions, clinical, government, or educational/psychological facilities where he would work with the supervision of a senior psychologist or personnel director. The student is exposed to the distinctive techniques and professional skills required for positions of an intermediate level of responsibility. 113
PSYCHOLOGY

A minimum of 36 semester hours must be completed for the degree. There is no thesis requirement. The program ordinarily consists of 20 semester hours of basic required courses plus a minimum of 8 semester hours of electives. The required courses are selected from those that constitute the core program for all graduate students, while the electives are chosen in the light of the student's vocational objectives in consultation with his advisor.

An experimental action on the student's application for the M.A. degree will be taken after completion of the specified coursework with a minimum grade-point average of 2.7, and satisfactory performance on a written and/or oral examination covering the area of specialization.

Student Support

Various forms and amounts of financial assistance are available to students. The following are representative of the various forms and amounts which are available: teaching, research, and clinical assistantships; National Science Foundation traineeships; National Defense Education Act Fellowships; U. S. Public Health Service traineeships (clinical-personality, social, physiological); teaching-research fellowships; VA training appointments; Graduate College scholarships and fellowships; summer assistantships and fellowships.

In addition, there are also appointments for research assistants on various government-sponsored research projects of individual staff members. The department provides, insofar as available funds permit, financial support for all qualified students seeking support upon admission to our program.

Special Facilities

The department has excellent laboratory and library facilities for graduate work in psychology. Special equipment and libraries are available for research in the fields of animal and human learning, motor skills, emotion, motivation, sensation and perception, physiological processes, personality, and social psychology.

In the areas of clinical and counseling psychology, the department maintains a close relationship with the research and training activities of the University Counseling Service, Office of Student Affairs, University Hospital, Campus Health Service, Speech and Hearing Clinic, Reading Clinic, VA Hospital, Child Development Center, and Adult Mental Health Clinic. In addition, the department operates a psychology clinic for the training of students and for the conduct of research.

STAFF


Associate Professors: Arnold M. Smilk, D. B. Strott.

Professors Emeriti: Don Lewis, J. B. Stroud.


Affiliated Staff: John K. Korn.

Clinical Assistant Professor: Arthur Cantr, Eugene Geer.

Clinical Assistant Professor: Jane R. Anderson, Patrick A. Boudrey.


COURSE DESCRIPTIONS

For Undergraduates Only

31:1 Elementary Psychology 3 s.h.

Recommended for B.A. majors in psychology and students taking B.A. or B.S. degrees with majors other than psychology. Basic procedures in study of behavior and the elementary principles of behavior. Either this course or 31:3 is a prerequisite to all other courses in psychology except 31:17 and 31:143. (Either but not both 31:1 and 31:3 are acceptable courses for the social science core requirements and behavioral variables considered in the context of standardized psychological test procedures.

31:17 Psychological Measurement 3 s.h.

Representative research recently reported in psychological journals and new in progress in major psychological laboratories. A study of existing methods or improved methods of obtaining and analyzing experimental data.

31:91 Special Readings and Projects cr.arr.

For undergraduate majors in psychology. Prerequisites, permission of a staff member and approval of the department.

31:95 Honors Seminar in Psychology 3 s.h.

Supervised laboratory research leading to an oral presentation and written paper on a substantive issue in psychology. Admission by invitation of the department Honors advisor.

31:99 Honors Thesis Research 3 s.h.

Supervised original research project, leading to a written thesis and oral defense. Open only to Honors students.

Advanced Courses

General, Historical, and Theoretical Psychology

31:103 General Semantics 3 s.h.

Same as Speech Pathology and Audiology 31:90.

31:151 General Psychology 4 s.h.

Same as 31:5, but includes additional assignments. Recommended for mature students who have not had an elementary college in psychology and who need additional basic work.
History of Psychology 3 s.h. Major systematic views and theoretical issues in psychology.

Differential Psychology 3 s.h. Individual differences in behavior phenomena and interpretation of the nature of these phenomena. Prerequisite: 31:143.

Systematic Approaches to the Study of Behavior 3 s.h. Review of major conceptual and paradigmatic issues identified with diverse strategies and behavioral inquiry.

History and Systems of Psychology 3 s.h. The historical and methodological development of psychology. Prerequisite: MS 26:20.

Foundations of Operationism in Measurement and Psychology 2 s.h. Philosophy and methodology of psychology.

Philosophical Problems of the Social Sciences 2 s.h. Same as Philosophy 26:203.

Laboratory Techniques I 3 s.h. Basic skills essential to design, construction, and use of laboratory apparatus. Lectures and laboratory. Prerequisite: consent of instructor.

Laboratory Techniques II 3 s.h. An introduction to digital logic and real-time computing applications in experimental psychology. It is assumed that the student has an elementary background in electronics and computer programming. This course begins with "black-box" design of control and data-acquisition systems using electronics and military or industrial programmable switch circuits. Following a general introduction to real-time computing principles, specific instruction and guidance is provided in the programming and operation of the PDP-8 family of computers for use in laboratory settings. Prerequisites: 31:253, 31:200 Seminar: Symbolic Processes 3 s.h. Same as Spanish 36:321, Spanish Pathology 3:531. Prerequisite: 31:200 or equivalent.

Seminar: History of Neuropsychology 3 s.h. Selective review of development of knowledge and concept of behavioral relations from antiquity to the present day.

Quantitative Methods and Psychometrics 3 s.h. Mathematical Approaches to Psychology 3 s.h. Introduction to applications of mathematics to psychology. A variety of areas will be considered such as scaling and data theory, decision-making, signal detection theory, mathematical learning theory, and sequential processes. Prerequisites: one semester of calculus; recommended, 31:138.

Introduction to Statistical Methods 3 s.h. Same as Education TP 170 and Statistics 225:15.

Statistical Inference in Behavioral Science 2 s.h. A second course in statistics emphasizing concepts and techniques of statistical inference relevant to research in the behavioral sciences. Topics include basic design and an introduction to the analysis-of-variance, Chi-square applications, sequential and nonparametric statistics, and an introduction to multiple correlation and regression analyses.

Techniques of Attitude Scaling 3 or 4 s.h. Individual projects optional. Prerequisites, 31:153 and 31:149.

Statistical Analysis I 4 s.h. Review of statistical concepts and techniques as used in the investigation of behavioral phenomena. Lectures, laboratory and analysis of simple and complex behavioral experiments; simple correlation techniques and regression analyses. Prerequisites, 31:143 or equivalent and consent of instructor.

Correlation Methods 3 s.h. Same as Education TP 264 and Statistics 225:3. Prerequisites, 31:143 and Education TP 264 or equivalent.

Quantitative Methods in Psychology 3 s.h. Mathematical methods necessary for the understanding of statistical methods in psychology. Applications will be considered; short review of calculus.

Statistical Analysis II 4 s.h. Further topics: Mathematical Continuation of 31:243 to include partial and multiple correlation, multiple regression analysis, and the planning and analysis of more complex investigations and experiments. Prerequisites, 31:263 or consent and consent of instructor.

Applications of Multivariate Analysis 3 s.h. Application of theory of multivariate analysis emphasizing correlation matrices using elementary matrix algebra and geometrical concepts in investigating psychological problems. Prerequisites, 31:200 or consent of instructor.

Mathematical Models in Psychology 3 s.h. Stimulation sampling theory and linear operator theory. Emphasis on application to problems in learning, motivation, and related areas, including concept identification, retention, and impression formation.

Psychophysics and Scaling 3 s.h. Review and analysis of various mathematical models in perception and psychophysics. Both contemporary and historical psychophysical models will be covered, with special emphasis on signal detection theory.

Computer Simulation of Psychological Processes 3 s.h. An introduction to the rationale, techniques, and evaluation of computer simulation as applied to psychological problems. Includes a survey of existing simulations and experiences in simulator development. Prerequisites, Computer Science 225:7 and 31:203.

Seminar: Mathematical Models in Perception and Psychophysics 3 s.h. Related problems in application of mathematical models to animal and human behavior.

Seminar: Mathematical Models in Perception and Psychophysics 3 s.h. Various mathematical models in perception and psychophysics. Detailed study of literature and models in signal detection theory.

Seminar: Statistical Analysis 3 s.h. Prerequisite, consent of instructor.

Experimental Methods 3 s.h. The logic and application of experimental methods to the analysis of behavioral phenomena. Includes an overview of some of the major problem areas of experimental psychology. Prerequisites, 31:143.

Experimental Psychology I 3 s.h. Detailed study of major problem areas in experimental psychology. Various sections under the course number deal with different problem areas, such as learning and memory, social behavior, sensory processes, and animal behavior. May be repeated for credit when topics vary. Prerequisite, 31:120.
31:223 Psychology of Learning 3 s.h.
Theoretical and experimental bases of learning in animal and human behavior. Prerequisite: 31:125 or consent of instructor.

31:232 Motivation 3 s.h.
Recent contributions to motivational research with a critical examination of their methodologies and implications of contemporary theory. Prerequisites: 31:125, 31:129, or equivalents.

31:223 Conditioned and Learning 3 s.h.
Methodology, results, and interpretation of conditioning and simple learning experiments with humans and animals.

31:224 Sensory Processes 3 s.h.
Modalities through which information is obtained regarding the organism's external environment.

31:225 Verbal Processes and Language Behavior 3 s.h.
Fundamental variables affecting acquisition, transfer, and retention of verbal behavior, including the role of language structures and language habits.

31:226 Perception 3 s.h.
Selected experiments and theories.

31:237 Contemporary Theories of Behavior 3 s.h.
A brief review of the history of learning theory followed by a critical examination of the attitudes, methodology, concepts, problems, and representative results from such contemporary approaches to infrhuman behavior as neo-Learn. Theories of analysis, behavior, information processing, and behavior genetics. Prerequisites: 31:125.

31:271 Psychodiagnostics 3 s.h.
Same as Speech Pathology and Audiology 5:524.

31:272 Psychodiagnostics Laboratory 2 s.h.
Same as Speech Pathology and Audiology 5:525.

31:330 Seminar: Motivation 2 s.h.
Theoretical and experimental treatments of selected topics in the areas of reinforcement, punishment, conflict, emotion, and frustration.

31:331 Seminar: Behavior Theory 2 s.h.
Selected theory and data concerning systematic problems in infrhuman behavioral analysis. Prerequisites: 31:127 and consent of instructor.

31:332 Seminar: Verbal Processes and Problem Solving 2 s.h.
Experimental findings and theoretical interpretations in the fields of verbal learning, language behavior, concept formation, and problem solving. Prerequisite, consent of instructor.

31:333 Seminar: The Role of Memory in Behavioral Processes 2 s.h.
Contemporary theoretical views regarding the nature of human memory including a discussion of recent research findings which bear on these viewpoints.

31:334 Seminar: Classical Conditioning 2 s.h.
Method, theory, and empirical outcomes in classical conditioning and their relation to instrumental learning.

31:339 Seminar: Perception 2 s.h.
Current experimental work in visual perception. Prerequisites, 31:228 or consent of instructor.

Physiological Psychology

31:125 Brain Function and Learning 3 s.h.
Survey of physiological psychology with emphasis on sensory and motor systems and integrative processes of the nervous system.

31:227 Introduction to Physiological Psychology 3 s.h.
Major facts and principles.

31:228 Neuroendocrinology and Behavior 3 s.h.
Development of behavioral concepts as they relate to neuroendocrinology and neuroendocrine aspects of thirst, hunger, and sex. Prerequisites: 31:227.

31:229 Neural Mechanisms and Learning 3 s.h.
Information processing in brain, electroencephalogram, sensory and motor coding, integrative functions, sleep, waking, and attention as related to behavior. Prerequisites: 31:227 or consent of instructor.

31:239 Biochemistry and Behavior 3 s.h.
Biochemistry of the central nervous system with special emphasis on chemical systems affecting brain function and behavior, and alterations in chemistry and behavior produced by drugs, injuries, and genetic abnormalities. Prerequisites: 31:227, 90:163, or consent of instructor.

31:320 Behavioral Pharmacology 3 s.h.
Behavioral analysis of drug action in experimental animals including iron, with special emphasis on physiological and biochemical mechanisms. Prerequisites: 31:220 or consent of instructor.

31:321 Seminar: Chemical Influences on Behavior 2 s.h.
Selected topics on the relation between brain chemistry and behavior. Prerequisites, consent of instructor.

31:335 Seminar: Brain Mechanisms and Behavior 2 s.h.
Selected topics on nervous system control of behavior.

31:336 Seminar: Physiological Psychology 2 s.h.
Selected topics on the somatic and neuroendocrine bases of behavior. Prerequisite, consent of instructor.

31:337 Seminar: Neuropsychology 2 s.h.
Afferent, central, and efferent processes. Prerequisites, consent of instructor.

Social Psychology

31:101 Advanced Social Psychology 3 s.h.
Current research activities in social psychology with 156
primary emphasis on the laboratory study of social behavior. Critical evaluation of contemporary theories and methodologies.

31.104 Experimental Social Psychology 2 a.h. Experimental approaches to attitude modification, social perception, judgment, and related social processes. Theory and critical evaluation of methodology in representative types of problems.

31.193 Attitude Development and Change 3 a.h. Review of research involving attitude measurement. The experimental analysis of variables influencing the formation and modification of attitudes.

31.204 Group Dynamics 3 a.h. Theoretical and statistical analysis of social power, social norms, social roles, interpersonal exchange, and bargaining.

31.205 Social Influences on Behavior 3 a.h. Methodological, statistical, and interpretative studies of the influence of social variables on learning, judgment, attitude development and modification, group processes, and segregation.

31.207 Personality Factors in Social Behavior 3 a.h. Examination of research investigating the relation between personality attributes (stability, authoritarianism, achievement, etc.) and social behavior (conformity, social perception, intergroup processes, etc.).

31.209 Psychology of Group Behavior 3 a.h. Methodological, statistical, and interpretative studies of the structural properties of groups, leadership, group problem-solving and communications, public opinion, and interpersonal relations.

31.210 Seminar: Social Psychology 2 a.h. Review of selected topics. Prerequisite, consent of instructor. May be repeated.

Educational and Child Psychology


31.114 Introduction to Child Psychology 3 a.h. Same as Child Behavior 5311. Prerequisite, 31.11. Consent of instructor: E 31.11. These lectures and one laboratory weekly.

31.115 Educational Psychology 3 or 4 a.h. Same as Education TP 1317.

31.117 Exceptional Children 3 a.h. Same as Education TP 1317.


Consulting, Personnel, and Industrial Psychology

31.114 Personnel Psychology 3 a.h. Psychological principles in personnel; development and conduct of technical tests in selection, placement, and training of personnel; psychological techniques in worker efficiency. Prerequisites, 31.143 or its equivalent and senior standing.

31.155 Human Engineering 3 a.h. Same as Industrial and Management Engineering 31.155.

31.156 Psychology in Management 2 a.h. Application of psychological principles to human relations and management. Discussion of motivation, leadership, communication, group pressures, and other topics. Same as Industrial and Management Engineering 31.156.

31.252 Introduction to Rehabilitation Services 2 a.h. Same as Education TC 2341.
research; also consideration of the development and func-
tion of classification systems.
31:361 Theory and Methods in Clinical Psychology 3 a.h.
Survey of the field of clinical psychology, analysis of
clinical theories, methods, and the scientific and profes-
sional tenets of the clinical psychologists.
31:382 Psychological Appraisal: Intellectual Functions 3 a.h.
Theory, research, and techniques relating to psychologi-
cal assessment of intellectual abilities and disabilities.
Training in clinical interview and clinical utilization of
widely employed test methods. Prerequisite, 31:183.
Psychodiagnostic procedures currently employed in clini-
cal practice. Requirements for clinical utility analyzed and
applied to each technique. Research needs discussed.
Lectures, case conferences, and clinical practicum.
Theory and basic concepts underlying projective meth-
ds; current research; lectures and clinical practice to
administration, scoring and interpretation of the Ror-
schach, Thematic Apperception Test, and a general survey
of other projective techniques. Prerequisite, 31:380 and
consent of instructor.
31:255 Clinical Neuropsychology 2 a.h.
Conceptions of brain-behavior relationships in man;
analysis of behavioral disturbances associated with cer-
bral abnormality; current application of psychological
tests methods for inferring cerebral status.
31:266 Mental Deficiency 3 a.h.
Survey of research and theory in the field of mental
deficiency.
31:267 Seminar in Advanced Psychodiagnosics 2 a.h.
Consideration of a series of children and adolescents with
varied behavior and school problems who have been
studied intensively with psychodiagnostic procedures and
for whom extensive follow-up data are available.
Prerequisite, 31:264 and permission of instructor.
31:268 Child Clinical Psychology 3 a.h.
Psychological and environmental factors associated with
developmental inadequacies in children and adolescents.
Survey of various approaches to treatment of child
psychopathology. Prerequisites, 31:260 and consent
of instructor.
31:269 Theory and Techniques of Psychotherapy 3 a.h.
Survey course in major psychological techniques of behav-
ior change; critical evaluation of theories and tech-
niques. Prerequisite, consent of instructor.
31:273 The Aphasic Disorders 2 a.h.
Same as Neurology 64:233.
31:276 Schizophrenia 2 a.h.
Theories of etiology and treatment, and their empirical
and experimental bases.
31:275 Behavioral Therapy 2 a.h.
Learning or conditioning approaches to the treatment
of psychopathology will be covered. These include the
techniques of behavior modification, dependent condition-
ing, systematic desensitization, impulsive therapy, and
some others.
31:301 Seminar: Personality 2 a.h.
Systematic review of selected topics. Prerequisite, con-
sent of instructor. May be repeated.
31:361 Seminar: Clinical Psychology 2 a.h.
Selected topics in the area of clinical psychology. Prerequisite, sen-
sent of instructor. May be repeated.
31:461 Psychodiagnostic Techniques 2 a.h.
Practicum in the Psychology Clinic for Training and Research under supervision of clinical psy-
diagnostic faculty members. Prerequisite, permission of
Clinical Training Committee.
31:462 Practicum in Psychopathy 2 a.h.
Supervised practice in psychological techniques of be-
havior change. Prerequisite, permission of Clinical
Training Committee.
31:463 Practicum: Stuttering 2 a.h.
Same as Speech Pathology and Audiology 210:211.
Projects and Research
31:291 Problems in Psychology 2 a.h.
Readings and papers under the individual guidance of a
staff member. Consent of instructor before registering.
31:297 Research Projects 2 a.h.
31:395 Seminar: Research Principles and Methods 2 a.h.
Specialized, advanced research methods and techniques
uniquely characteristic of the discipline subject-matter
areas of different instructors. By permission of instruc-
tor only.
Related Courses in Other Departments
Anatomy: 60:218 Neuroanatomy.
Child Behavior and Development: 60:461 Motivational
Determinants of Child Behavior, 62:462 Visual Psycho-
logy in Children, 62:600 Verbal Processes in Children,
62:502 Social Behavior of the Child, 62:680 Advanced Psy-
chology of Children.
Computer Science: 121:121, 122:122 Computer Pro-
gramming I and II.
Psychology 183 Psychology of Reading, 18:368 Theo-
ry and Techniques of Educational Measurement;
Electrical Engineering: 186:106 Elements of Applied
Electronics, 125:371 Elementary Electronic Instrumenta-
Pharmacology: 71:201 General Pharmacology,
Philosophy: 62:263 Philosophical Problems of the Social
Sciences, 62:268 Philosophy of Science,
Philosophy of Science: 73:221, 222 Advanced Mammalian Physiol-
ogy.
Speech Pathology and Audiology: 9:120 Fundamentals of
Laboratory Instrumentation, 9:129 Articulation Dis-
orders, 9:290 Advanced Laboratory Instrumentation, 9:291,
292 Experimental Phonetics, 2:250 Physiology of Hearing,
2:541 Pathological Auditory Systems, 9:258 Signal Analy-
lysis, 12:15 Introduction to Psychopathology;
Zoology: 31:165, 166 General Physiology, 31:110 Principle
of Heredity.

RECREATION EDUCATION
Chairman of Program, Phyllis M. Ford
Office, 120 Fieldhouse
Committee on Recreation Education: Linda S. Alley, M.
Clayton Bixby, Phyllis M. Ford, chairman.
Study programs in recreation education are open
to students majoring in the Bachelor of Science in
Physical Education for Women and the Department of Physical Education
for Men. Programs leading to the Bachelor of Science and
the Master of Arts degrees are provided.
Requirements for B.S. Degree
The program of study leading to the Bachelor of Science
degree with a major in recreation education is designed
in preparation for professional careers in recreation. A minimum of 6 semester hours in a foreign language is required for this degree.

Major in Recreation Education must satisfactorily complete the following:

Course in Recreation

28:20 Social Forms of Dance
27:22 Techniques of Swimming Instruction (or equivalent)
194:80 Foundations in Recreation
27:27 Techniques of Swimming Instruction (or equivalent)
194:82 Social Recreation
194:81 Recreation Leadership (or equivalent)
194:110, 111 Field Work in Recreation
194:121 Administration of Recreation
194:134 Recreation Program
24:120 Principle of Outdoor Recreation

Courses in related areas
27:27 First Aid
26:27 First Aid
24:53 Public Speaking
34:125 Principles of Social Psychology
65:125 Written Communications in Business

In consultation with his advisor, the student must elect one course area for special emphasis (municipal recreation administration, recreation program supervision, outdoor recreation, or therapeutic recreation) and one program area (aquatics, crafts, dance, drama, outdoor recreation, sports, or music).

Requirements in program areas may be met by completing courses or by presenting evidence of equivalent experience.

Programs Leading to M.A. Degree
Study programs leading to the Master of Arts degree with thesis and the Master of Arts degree without thesis are provided.

Admission to these programs is granted on the basis of the student's grade-point average as all undergraduate work attempted and the student's score on the Graduate Record Examination. The student must have earned an undergraduate grade-point average of 2.5 or higher to be considered for admission.

M.A. with thesis. The program leading to the Master of Arts degree with thesis is primarily designed as the first step in a graduate program of study leading to an advanced degree. Emphasis is placed on techniques of research.

M.A. without thesis. The undergraduate courses listed below (or equivalent), together with elective courses in the related areas sufficient to total 30 semester hours, are required. Prerequisite credit may be given for experience and competence in techniques when such competence is demonstrated by examination.

- Undergraduate Courses
  - Foundations of Recreation
  - Administration of Recreation
  - Recreation Leadership (or equivalent)
  - Elective Area A (1 of the following):
    - Outdoor Recreation-Education
    - Special Recreation (or equivalent)
    - Arts or Crafts (or equivalent)
    - Recreation and Sports and Games (or equivalent)
  - Electives

- Semester Hours (minimum)
  - 3
  - 3
  - 3
  - 2
  - 2
  - 12
  - Total 30

Any or all of the courses listed above may be taken after the student has been admitted for graduate study in recreation. They should, however, be taken at the earliest opportunity.

Requirements. The specific courses listed below, together with elective courses sufficient to total 30 semester hours in recreation and related areas, are required for the Master of Arts degree with thesis.

RECREATION EDUCATION

<table>
<thead>
<tr>
<th>Semester Hours</th>
<th>Description</th>
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<tbody>
<tr>
<td>54:113</td>
<td>Methods of Social Research</td>
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<td>29:113</td>
<td>Techniques of Research</td>
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<tr>
<td>24:61</td>
<td>Elementary Social Statistics</td>
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<tr>
<td>75:143</td>
<td>Introduction to Statistical Methods</td>
</tr>
<tr>
<td>104:21</td>
<td>Seminar: Group Activities for Therapists</td>
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<tr>
<td>104:231</td>
<td>Philosophy and Trends in Recreation</td>
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<td>104:482</td>
<td>Seminar: Thesis I</td>
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<tr>
<td>104:483</td>
<td>Seminar: Thesis II</td>
</tr>
<tr>
<td>104:501</td>
<td>Seminar: Research Administration</td>
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<tr>
<td>104:521</td>
<td>Philosophy and Trends in Recreation</td>
</tr>
<tr>
<td>104:522</td>
<td>Seminar: Thesis II</td>
</tr>
<tr>
<td>24:113</td>
<td>Methods of Social Research</td>
</tr>
<tr>
<td>29:113</td>
<td>Techniques of Research</td>
</tr>
<tr>
<td>24:61</td>
<td>Elementary Social Statistics</td>
</tr>
<tr>
<td>104:221</td>
<td>Seminar: Recreation Administration</td>
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<tr>
<td>104:231</td>
<td>Philosophy and Trends in Recreation</td>
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<td>104:231</td>
<td>Seminar: Nonthesis</td>
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<tr>
<td>24:113</td>
<td>Methods of Social Research</td>
</tr>
<tr>
<td>29:113</td>
<td>Techniques of Research</td>
</tr>
</tbody>
</table>

STAFF
Associate Professor: Wurville M. Ford
Assistant Professor: Martha M. Glennock, Donald D. Lindley
Instructor: Donald G. Robb
Lecturers: Loren Kottin, Ronald Lough

COURSE DESCRIPTIONS

Primarily for Undergraduates
104:20 Foundations of Recreation 3 s.h.
Basic philosophical, historical, and scientific foundations and developments in leisure and recreation. The function and setting of organized recreation and a survey of the organizations and agencies concerned with recreation.
104:31 Recreation Leadership 3 s.h.
Leadership principles and program administration.
104:32 Social Recreation 2 s.h.
Practical application of the techniques in planning, directing, and conducting activities and programs designed for a broad variety of social events.
104:33 Recreational Crafts 2 s.h.
Crafts for camp-playground, club, family, and personal leisure interests. Emphasis on crafts from inexpensive natural materials and laboratory techniques.
104:64 Advanced Recreational Crafts 3 s.h.
Continuation of 104:33, but may be taken as an independent unit.
104:65 Camp Leadership 3 s.h.
Camping skills and techniques for the camp counselor. ACA Certification program.
104:66 Orientation to Rehabilitation 3 s.h.
Institutional and community rehabilitation programs accompanying the following: psychiatrists, retarded, physically handicapped, corneal-burned, aging, and the aged.

For Undergraduates and Graduates
104:103 Readings in Leisure 3 c.r.
Conceptual readings, conferences, and written reports related to a specific area or field of leisure in which the student has a special interest.

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104:110 Field Work in Recreation cr.arr.
Practical 6-12 experience arranged to include direct leadership, program planning, and administrative procedures. Prerequisites: 104:125.

104:111 Field Work in Recreation cr.arr.
Continuation of 104:110.

104:113 Colloquium cr. 3 cr.
Exploration of current issues. Required of all master's and graduate students majoring in recreation. Meets one time a month; each semester.

104:260 Introduction to Therapeutic Recreation 4 s.h.
Basic concepts of recreation's role in rehabilitation; organization and development of programs, approaches to understanding the behavior of patients, and the adoption of activities to the specific disability areas.

104:211 Role of Therapeutic Recreation in Rehabilitation 3 s.h.
Role of therapeutic recreation in the total institutional and community rehabilitation effort. Specific attention is given to the cooperative role of therapeutic recreation in relation to the total therapeutic program.

104:129 Administration of Recreation I 3 s.h.
Programming, personnel, finance and budgets, liability areas and facilities, and other administrative aspects of recreation. Prerequisites: 104:134.

104:130 Administration of Recreation II 3 s.h.
A continuation of 104:129, for students specializing in municipal recreation administration.

104:131 School and Community Recreation 3 s.h.
An analysis of the role of the schools in educating for leisure, and a survey of total community involvement in recreation through recreation through school, church, voluntary agency, commercial, private industrial, institutional, military, and municipal programs.

104:134 The Recreation Program 3 s.h.
All phases of the planning and evaluation of the recreation program; organization, promotion, utilization of resources, use of facilities, and leadership. Prerequisite: 104:211.

104:140 Principles of Outdoor Recreation 3 s.h.
The application of natural resources and public land on the national, state, local, and private levels. Responsibilities of the recreation professional in the various phases of natural resource recreation and multiple use of public wild lands.

104:141 Camp Administration 3 s.h.
Public relations, personnel, finance and budgets, areas and facilities, ACA standards, administrative structure, legal aspects, evaluation, and other administrative aspects of organized resident camping.

104:142 Principles of Outdoor Education 3 s.h.
Analysis of the development and scope of outdoor education programs and techniques. Emphasis on philosophy, organization, administration, methodology, and content. Particular attention is given to iterative programs in ecology for recreation and education majors.

104:143 Practicum: Environmental Education 2 or 3 s.h.
Organization, administration, leadership, and programming for the school camp. Integration into the school curriculum.

104:150 The Role of the College Union 3 s.h.
Relationship of the college union to higher education; its role in the educational, cultural aspects of campus life; its relationship to other student services.

104:155 Workshop: Camp Program 1 s.h.

104:180 Independent Study cr.arr.
Investigation of a problem related to a specific area of interest.

Primarily for Graduates

104:201 Problems Same as 27:201.

104:210 Seminar: Administration of Recreation 3 s.h.
Problems of administration, supervision, and programing in recreation programs.

104:211 Philosophy and Trends in Recreation 3 s.h.
Historical and philosophical development of attitudes toward leisure and recreation, emerging program patterns, current issues, and education for leisure living.

104:222 Seminar: Therapeutic Recreation 3 s.h.
A seminar and special project approach to therapeutic recreation in a specific setting such as psychiatric, physically handicapped, mentally retarded, correctional, etc., and administrative techniques and procedures unique to activity therapy programs.

104:233 Seminar: Camping cr.arr.
Special topic camp program for various types of groups. Campsite development.

104:234 Design and Maintenance of Recreation Facilities and Areas 3 s.h.
Principles, terminology, and standards of design, planning, construction, use, and maintenance of areas and facilities for recreation and physical education.

104:235 Seminar: College Union Management 3 s.h.
Management of college union food services, recreation facilities, guest rooms, bookstore, maintenance, etc. Emphasis on administrative problems.

104:230 Seminar: Nursing 3 s.h.

104:001 Seminar: Thesis I (M.A.) cr.arr.

104:002 Seminar: Thesis II (M.A.) cr.arr.

RELIGION

Director of School, George W. Farell
Office, 307 Gilmore Hall

The School of Religion is designed to help students gain an understanding of the history and literature of religion and insight into its nature and meaning. Emphasis is put on the religious view of the Judeo-Christian tradition. Courses are offered, however, which include other religions of the world. The School of Religion also offers a variety of courses for students who are not majoring in religion, and in addition provides opportunities for coursework at both the undergraduate and graduate levels. Programs leading to the B.A. and the Ph.D. degree in religion are described below. The School of Religion is not a theological seminary and does not prepare students for ordination.

An undergraduate student majoring in religion is required to complete 24 semester hours in the field of religion and to take two years of a foreign language approved by his advisor. Courses in the field of religion should be selected so as to provide an introduction to the living religions of the world, with special emphasis on the history and thought of Judaism, Christianity, and Protestantism. A total of 12 semester hours is required in related subjects at the direction of the department. For general requirements, see College of Liberal Arts.
Graduate study in religion is offered in five areas, including 13 fields as follows:

Area A—Jewish and Christian Scriptures
1. Tanakh
2. New Testament

Area B—History of Christianity
4. Early (to 1000)
5. Modern (since 1500)
6. American

Area C—Theology and Ethics
7. Anglican
8. Lutheran
9. Roman Catholic
10. Baptist

Area D—World Religions
11. History of Religions
12. Religious Studies
13. Pastoral Counseling

Area E—Religion and Personality
14. Religion and personality development
15. Primal Counseling

The Master of Arts degree. A student must have a reading knowledge of either French or German. He may substitute another foreign language if it is related to his field of study and is approved by his advisor.

The formal course requirement is four courses or seminars, at the 200-level or above, in each of three areas, for a total of not less than 15 hours in each area and 36 hours altogether. Four years of thesis research can be counted toward the total of hours and credits required. In a manner determined by the advisory committee for each case. Each of the three areas the student will be responsible to one faculty member, who will advise him on courses in that area; the three faculty members together will constitute the student's advisory committee. By his second semester in this program a student should have decided on his areas of concentration. By this time, the committee should have been formed.

The committee conducts the master's examination, written toward the end of a student's fourth semester, in one area, and intended as an examination on the twelve courses or seminars taken. A student who fails the examination may, with the approval of his faculty committee, retake it once, but not sooner than the next regularly scheduled examination time.

A thesis is also required. It must be approved by the advisory committee and shall be submitted to the Graduate Committee, which will then act on the recommendation. The dissertation or thesis as well as the defense of the dissertation or thesis shall be made by the student to the committee.

If his work is sufficiently competent, a student who has completed the master's degree may continue in the Ph.D. program by petitioning for a change in degree objective, in such a case he will be expected to take and pass the qualifying examination and meet all the requirements for the degree. The Doctor of Philosophy degree. Each student is required to submit to the departmental office as soon as possible but not later than two years from the date of admittance a program of study for the Ph.D. degree. This program, which must be approved by the student's advisor and the Graduate Committee, shall represent both breadth and depth in the field of religion and shall enable the student to meet the following requirements:

In qualifying examinations, the student will be examined in three of the five areas listed above. The purpose there will be three major written examinations. A student who fails any of the examinations may, with the approval of the faculty, present himself for reexamination in the area in which he has failed, but not sooner than the next regularly scheduled qualifying exam.

Comprehensive examinations, which shall consist of two major written examinations, are to be taken after the dissertation is begun and are necessary for the degree.

The student's major field (e.g., Old Testament, Protestant Theology and Ethics).

b. A special topical within the student's major field (e.g., liturgical criticism and the prophetic literature, patristic).

c. Any one of the other 12 fields listed above, or a related field outside the School of Religion, approved by the thesis advisor and the Graduate Committee.

The dissertation requirements, each student will be required to take course work at the 200 level or above, as follows: 10 semester hours outside the School of Religion and 30 semester hours in one of the fields of religion other than the major field. The courses offered to meet this requirement must be approved by the thesis advisor and the Graduate Committee. Only work passed with a grade of A or B may be counted.

A reading knowledge of French and German is required in all cases. Since languages are tools for basic research, students are advised to acquire them as early as possible, and their primary language is for qualifying examinations. Students must have passed the reading examination in both French and German languages. If the nature of the student's specific program of study warrants it, another language may, with the permission of the faculty, be substituted for French or German. In addition to French and German several areas have special language requirements. Students in New Testament, for example, must satisfy departmental requirements in Greek. All students are advised to enroll with their advisors as early as possible concerning the special requirements in their field.

A dissertation, for which not more than 12 semester hours of credit may be allowed, is also required. An oral examination on this dissertation and related materials will be conducted by a committee of five or more members, at least one of whom shall be chosen from outside the department. The director of the dissertation will serve as chairman of the committee.

Note: Any student whose grade-point average in graduate study at least 3.0 below 3.5 will be placed on probation. If he fails to bring his average up to 3.5 within one semester, he will be ordinarily disqualified from further graduate study in the School of Religion.

STAFF
Professor: David Belz, George W. Furr, Sidney F. Mead, John S. Russell, Robert J. Walsh.
Associate Professor: Robert D. Baird, James F. McCune, Roderick J. Payne.
Assistant Professor: Raye T. Goldstein, Jay A. Halgin, Robert L. Stanga, William M. Wilkins. Assistant Professor Emeritus: Margaret A. Jackson, Alexander A. Goldstein, James M. Warden, William L. Sibley, Donald W. Sutherland, J. Richard Wilkins, R. Howard Witsen

K0URSE DESCRIPTIONS
Primarily for Undergraduates
303: Old Testament Survey
2.0 h.
2.0 h.
305: Prophets through Daniel
2.0 h.
306: Major Figures of the Bible
2.0 h.
307: Principal contributors to the development of biblical life and thought
2.0 h.
308: The Nature and Relevance of Biblical Thought
2.0 h.
309: Structures of biblical thinking developed through a study of central themes within the Old and New Testaments and their bearing upon the present
2.0 h.
301: New Testament Survey
2.0 h.
302: Introduction to Catholicism
2.0 h.
303: Principal teachings and practices of the Catholic faith
2.0 h.
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32:32 Introduction to Catholicism 3 s.h.
Continuation of 22:31.
32:35 Religion in Human Culture 4 s.h.
Same as core course 12:35. For undergraduate religion majors, but cannot be counted for both the major and the core course requirement. May be elected as an independent unit.
32:36 Religion in Human Culture 4 s.h.
Continuation of 22:35, but may be elected as an independent unit.
32:45 Living Religions of the West 2 s.h.
Religious thought and practice in the Mediterranean area, Western Asia, North Africa, Europe and the Americas.
32:46 Living Religions of the East 2 s.h.
Religious thought and practices in India, China, and Japan, from Chinese and Oriental Studies 28:82.
32:72 Religion in American History, 1607-1800 3 s.h.
Development of religious thought patterns and institutional life during the colonial and constitutional periods. Same as History 18:72.
32:73 Religion in American History, 1800-Present 3 s.h.
Development of religious thought patterns and institutional life in the United States. This is a continuation of 32:72 (18:72), but may be taken independently. Same as History 18:73.

For Undergraduates and Graduates
32:100 The Interpretation of Biblical History 3 s.h.
The Hebrew Bible as interpreted in the writings of Philo, Josephus, Mattheus, Philo, and Yehuda Kastell. 32:101 Biblical Archaeology 2 s.h.
Critical and constructive research to the understanding of the historical and cultural backgrounds of the biblical period.
32:102 Introduction to Rabbinic Literature 3 s.h.
32:103 Jewish Mysticism 3 s.h.
Martin Buber and the Jewish mystical tradition.
32:104 Jewish Religious Philosopher 3 s.h.
Readings in Plato, Hasdai, and Mattheus on selected problems.
32:105 Introduction to the Inter-testamental Period 3 s.h.
History and theology of Judaism from 300 B.C.E. to 132 C.E. Readings from English translations of sources. Archaeological evidence.
32:106 The Synoptic Gospels 2 or 3 s.h.
Interpretation of one of the three gospels with references to the other two. Spring, 1967. Lecns.
32:107 Paul 3 s.h.
Aspects of Pauline theology in their historical context.
32:108 Christian Ethics 2 s.h.
Specific nature of Christian ethics and a survey of leading ethical theories, according to the directives and dynamics of the Christian kerygma.
32:109 History of Christian Ethics 2 s.h.
History of Christian social and ethical thought treating its development from the Old and New Testaments to the present.
32:110 Problems of Christian Ethics 2 s.h.
Moral choice as viewed by the Christian faith. Application to problems of marriage, vocation, economics, politics, race relations, war, and peace.
32:111 Biblical Hebrew I 3 s.h.
Vocabulary, grammar, oral expression, composition; selected readings.
32:112 Biblical Hebrew II 3 s.h.
32:115 The World of the Old Testament 3 s.h.
Historical and intellectual background of the Old Testament with special attention to common patterns of thought and religion in the ancient Near East and their relation to the religion of Israel.
32:116 Critical Approaches to the Old Testament 2 or 3 s.h.
Examination of available methodologies (e.g., literary, historical, form-critical, socio-historical, archaeological, theological) used in approaching the Old Testament in the context of ancient academy study. One previous course in Old Testament is recommended.
32:118 New Testament Epistles 2 or 3 s.h.
32:119 History of Theology: Patristic Era 3 s.h.
From the end of the New Testament period to the end of the 8th century.
32:120 History of Theology: Scholasticism and Reformation 3 s.h.
Scholastic theology; their relation to the theologies of Luther and Calvin and to the Council of Trent.
32:121 Protestant Faith 2 s.h.
Christian faith as understood by Protestantism. Selected readings in the major Reformers and in contemporary Protestant theology.
32:122 Theology of Luther 2 s.h.
Analysis of the religious thought of the 16th century reformation.
32:125 Prophetic Thought in Ancient Israel 3 s.h.
Classical Israelite propheticism from the 16th through the 6th centuries B.C.
32:126 Theology of the Old Testament 3 s.h.
God, man, sin, and salvation as advanced by Old Testament thought.
32:127 Theological Questions I 3 s.h.
Treatment of basic questions of religious thought, such as the meaning of "God," the nature of religious symbols, the phenomena of skepticism and faith.
32:128 Theological Questions II 3 s.h.
Treatment of questions related to Christology and its counterparts in secular and non-Christian thought.
32:130 The World of the New Testament 3 s.h.
The background and setting of Early Christianity and the New Testament; early post-Biblical Judaism, Hellenism, pagan religions, gnosticism, the Roman Empire.
32:128 History of Catholic Moral Theology 3 s.h.
32:133 The Catholic Church to 1500 3 s.h.
History of Church from its foundation to the end of Middle Ages. Issues of development and inner relationships.
32:134 The Catholic Church Since 1500 3 s.h.
Continuation of 22:133. History of Church from Protestant Reformation to present day.
32:135 Catholic Social Thought 3 s.h.
History and development of Catholic social teaching on the problems of the reconstruction of the social order with special emphasis on the encyclicals of Pope John XXIII.

32:128 Christian Marriage 3 s.h.
Christian view of marriage with consideration of questions of contract, sex, mixed marriage, responsible parenthood, divorce and remarriage, sacramental view of marriage.

32:137 Catholic Life and Worship 3 s.h.
Catholic sacramental theology with emphasis upon recent thought and practice concerning the liturgy: the Mass, sacraments, and prayer.

32:138 Recent Developments in Catholic Theology 3 s.h.
Principal recent developments and present situation in Roman Catholic theology.

32:141 Major Themes in Judaism Philosophy 3 s.h.
God, faith, revelation, and Medieval epistemology.

32:142 Readings in Contemporary Jewish Philosophy 3 s.h.
A thematic examination of selected writings of Franz Rosenzweig, Leo Baeck, Martin Buber, and Mendel Kaplan.

32:143 The Social Institutions and Social Dynamics in Ancient Israel 3 s.h.
An analysis of the priesthood, prophecy, and monarchy in ancient Israel from her semi-legendary beginnings to the Babylonian exile.

32:151 Religion in India 3 s.h.
Movements, doctrines, and religious practices in India both in its history and in its modern expressions. Same as Oriental Studies 32:147.

32:152 Religion in China 3 s.h.
Study of the main religions in China. Same as Oriental Studies 32:145.

32:153 Religion in Japan 3 s.h.
Study of the study of religions in Japan. Same as Oriental Studies 32:145.

32:155 Buddhist Sacred Texts 3 s.h.
Mahayana and Theravada texts in translation. Same as Oriental Studies 32:152.

32:157 Anthropology of Religion 2 or 3 s.h.
Religious activity in folk and tribal setting. Focus upon religious thought, myth, ritual, and symbolic systems and upon the utilization of theories of the origin and functions of religion in human affairs. Same as Anthropology 128:142.

32:158 Sociology of Religion 3 s.h.
Comparative study of religious beliefs and practices; basis in social organizations; social consequences in literate societies. Prerequisite: Sociology 24:1. Same as Sociology 34:177.

32:159 Religion and Personality 3 s.h.
Religious factors and influences as they relate to personality development and adjustment.

32:160 Pioneers in Psychology of Religion 3 s.h.
An historical survey of various psychological interpretations of religious experience and behavior from William James and Freud to the present.

32:162 Religion and Health 3 s.h.
Religious aspects of psychosomatic and mental illness, as well as the role of religion in therapy and the reintegration of the individual.

32:165 History of the Jews 3 s.h.
The Jew in the Greek, Roman, Sassanid, and Muslim Worlds.

32:167 History of First Century Christianity 3 s.h.
John the Baptist, the life and ministry of Jesus, the history of the first century church.

32:159 The Religious and Democratic Traditions of the U.S. 3 s.h.
An historical examination of what is commonly called "the church-state question," based primarily on an analysis of select Supreme Court decisions on matters pertaining to religion. Same as History 16:159.

32:173 Survey of American Jewish History 3 s.h.
Analysis of the genesis and development of the American Jewish community.

32:174 The Catholic Church in America 3 s.h.
Beginnings, development, and present condition of the Catholic Church in the United States.

32:176 The Genius of American Religious Institutions 3 s.h.
Characteristics which define the peculiar genius of institutionalized religion in the United States. Same as History 16:158.

32:177 Puritans in the Shaping of America 3 s.h.
"The last representatives of the medieval ambition to synthesize all experience" and their influence on the development of the American ethos. Same as History 16:158.

32:180 Theology of Thomas Aquinas 3 s.h.
Principal topics in Aquinas' theology.

32:181 Religious Thought in the 17th Century 3 s.h.
Main trends in Western religious thought: 1600-1660.

32:182 Religious Thought in the 18th Century 3 s.h.
Trends in Western religious thought during the Age of Reason: 1700-1800.

32:183 Religious Thought in the 19th Century 3 s.h.
History and analysis of the main developments in religious thought from 1800-1915.

32:184 Religious Thought in the 20th Century 3 s.h.
History and analysis of the main developments in religious thought from 1915 to the present.

32:185 Religious Thought of Soren Kierkegaard 2 s.h.

32:186 Religious Thought in Tudor/Stuart England 3 s.h.

32:187 The Theology of Paul Tillich 2 s.h.
An exposition and analysis of Tillich's thought.

32:189 Readings in Religion 2 or 3 s.h.
Identification and analysis of problems areas: nature of religion, relatedness of religions, influence of religion and culture, the future of religion. Prerequisites: 11:26, 36, or 20:26, 36.

32:193 Honors Tutorial cr.arr.

32:194 Honors Essay cr.arr.

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Honor in Russian

Russian majors of junior or senior standing with a grade-point average of at least 3.5 both overall and in Russian, may enroll in this program upon approval by the department. The student chooses an instructor in the field of his special interest under whom he works. An extensive reading program with discussions, regular reports, and a seminar paper is required for each work unit (2 semester hours). A total of 6 to 8 semester hours may be taken in this program. A comprehensive examination in the senior year terminates the program.

Graduate Study Requirements

Master of Arts degree in Russian. The major emphasis of the graduate program at Iowa is literary, though improvement and refinement of the students' Russian is not neglected. Graduate students therefore study the development of Russian literature, both as a national phenomenon and as a part of European literature, and are expected to analyze writers' styles, pervasive literary devices, recurrent literary influences, and develop the ability for second criticism of form, content, and language of works in all genres. All Master of Arts degree candidates are responsible for having read the works in the department's master's reading list of Russian literature.

Candidates for the master's degree must have completed the equivalent of the undergraduate major in Russian. Deficiencies in previous training may be removed by taking appropriate courses.

Candidates for the master's degree are required to complete a minimum of 28 semester hours of graduate work, with or without thesis. This program consists of courses over and above those which constitute an undergraduate major in Russian and should include courses in related fields (comparative literature, history, philosophy, other languages, etc.); 4 to 6 semester hours may be reserved for thesis preparation. The candidate must pass a written and oral examination; they must also demonstrate a reading knowledge of French or German.

The program for the M.A. must include the following courses or their equivalents.

Account Composition and Conversation 3 s.h.
Advanced Composition and Conversation 3 s.h.
18th-Century Russian Literature 3 s.h.
Russian Short Stories 3 s.h.
History of the Russian Language 3 s.h.
Principles and practice in one course in pre-1935 Russian literature.

Special Facilities

The department shares in the facilities of a fully-equipped Language Laboratory (radio tape recorders, record players, soundproof recording room) which allows students to study and record the entire Russian language and make recordings of their own voices.

STAFF

Professor: Helena Stipanicz
Associate Professor: Norman Luxenburg
Instructor: George Clemons, Harry Weber
Instructor: V. N. Hamilton Lebedeva

COURSE DESCRIPTIONS

For Undergraduates and Graduates

41:101 Elementary Russian 4 s.h.
41:102 Elementary Russian 4 s.h.
Prerequisite: 41:101 or equivalent.
41:203 Second-Year Russian 4 s.h.
Prerequisite: 41:102 or equivalent. Emphasis on reading, writing, and technical Russian material.
41:208 20th-Century Russian Literature 2 s.h.
41:301 18th-Century Russian Literature 2 s.h.
41:303 Old Russian Literature 2 s.h.
41:311 19th-Century Russian Literature 2 s.h.

especially those majoring in science, who need primarily to develop reading ability for research purposes.

41:104 Second-Year Scientific Russian 4 s.h.
Prerequisite: 41:103 or equivalent.
41:105 Second-Year Scientific Russian 4 s.h.
Prerequisite: 41:103 or equivalent. Standard second-year course recommended for students satisfying their foreign language requirement for a B.A. degree and desiring further training in the active use of the language.
41:106 Second-Year Russian 4 s.h.
Prerequisite: 41:105 or equivalent.
41:107 Supplemental Russian Reading 2 s.h.
Primarily for graduate students who wish to develop reading ability for purposes of research, with emphasis on science and related fields. Prerequisite: 41:103 or equivalent.
41:108 Special Readings 2 or 3 s.h.
Prerequisite: 18 semester hours of language instruction.
41:111 Third-Year Russian 4 s.h.
Prerequisite: 41:106 or equivalent.
41:112 Third-Year Russian 4 s.h.
Prerequisite: 41:111 or equivalent.
41:113 Advanced Composition and Conversation 3 s.h.
Prerequisite: 41:112 or equivalent.
41:114 Advanced Composition and Conversation 3 s.h.
Prerequisite: 41:113 or equivalent.
41:121 Linguistic Analysis of Contemporary Russian 3 s.h.
41:125 Russian Pronunciation 1 s.h.
41:126 Russian Pronunciation 1 s.h.
41:151 Russian Literature in Translation (1800-1860) 3 s.h.
Conducted in English.
41:152 Russian Literature in Translation (1860-1917) 3 s.h.
Conducted in English.
41:171 Readings in Representative Russian Literature 3 s.h.
Given in Russian. Prerequisite: 41:113 or equivalent.
41:172 Readings in Representative Russian Literature 3 s.h.
Given in Russian. Prerequisite: 41:112 or equivalent. Concentration in 41:171, but may be taken as an independent unit.
41:181 Readings in Soviet Literature 3 s.h.
Given in English.
41:191 Russian Civilization 3 s.h.
Given in English.
41:195 Short Story 3 s.h.
41:199 Honors Program in Russian cr.arr.
May be repeated to a maximum of 8 semester hours. Prerequisite: consent of the department.

Primarily for Graduates

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SOCIAL STUDIES

41:212 19th-Century Russian Literature 3 a.h.
41:224 Russian Drama 3 a.h.
41:231 Soviet Literature 3 a.h.
41:241 Russian Phonetics 2 a.h.
41:244 Literary Criticism 3 a.h.
41:251 Seminars: Great Events 2 or 3 a.h.
41:253 Seminar: Tolstoy 2 or 3 a.h.
41:253 Seminar: Pushkin 2 or 3 a.h.
41:254 Seminar: 20th-Century Literature 2 or 3 a.h.
41:255 Seminar: Turgenov 2 or 3 a.h.
41:256 Seminar: Emirgil Literature 2 or 3 a.h.
41:257 Seminar: Dostoevsky 2 or 3 a.h.
41:261 History of the Russian Language 3 a.h.
41:279 Special Work 4 a.h.
41:310 Master's Thesis 4 a.h.

MASTER OF ARTS IN SOCIAL STUDIES
Advisers: John H. Hazen
Office, 352 University High School
Robert M. Flach
Office, 339 University High School
Barbara M. Olmo
Office, 413 Jefferson Building

The program in concentration in the area of the social studies provides a sound, nonprofessional preparation. The program is primarily intended, however, for those preparing to teach the social studies in public schools and junior or community colleges. Together with professional requirements, the social studies major meets the standards established by the North Central Association of Colleges and Secondary Schools.

The program includes courses, tailored to meet individual needs and interests, to give breadth of training and establish relationships between disciplines, are planned in consultation with the adviser. A component consisting of members from the departments of Anthropology, Economics, Geography, History, Political Science, and Sociology serves in an advisory capacity to the staff members in charge of the area.

The program leads to the degree Bachelor of Arts with a major in social studies, Master of Arts with a major in social studies, and Ph.D. in social studies education.

Bachelor's Degree in Social Studies

Admission requirements. Students wishing to major in the social sciences must have the permission of the adviser. Normally students will not be permitted to major in this area unless they have earned a minimum grade-point average of 2.5 on all work undertaken in the fields of anthropology, economics, geography, history, political science, sociology, and in the core areas of the social sciences and the historical and cultural studies.

Degree requirements. A minimum of 30 semester hours constitutes a major in social studies for a bachelor's degree. These 30 semester hours shall be distributed in the five departments of Anthropology, Economics, Geography, History, Political Science, and Sociology. Minimum distribution of work in the five departments shall be as follows:

- Economics: 4 a.h.
- Geography: 4 a.h.
- History: 12 a.h.
- Political Science: 4 a.h.
- Sociology or Anthropology: 6 a.h.

Total: 36 a.h.

The Department of History recognizes the importance of:

- A minimum of 30 semester hours in history.
- A minimum of 6 hours in upper-level history.
- A minimum of 3 hours in American history.
- A minimum of 3 hours in foreign history.

The minimum history requirement of 12 semester hours must include at least 6 semester hours in one of the following: American history, European history, Asian history, or Latin American history.

The remaining 18 semester hours of work in the major shall be distributed among one or more of the five social studies departments in accordance with the needs and interests of the student, with the advice and consent of the social studies adviser.

Approval of candidacy for the B.A. in this area will be granted to only students who have a grade-point average of at least 2.5 in all college work undertaken in the social studies departments.

Students interested in a teaching certificate in the area of the social studies should consult the appropriate departments for the requirements for teacher majors in anthropology, geography, history, political science, and sociology.

(Form for the general requirements of the College of Liberal Arts, see College of Liberal Arts.)

Master's Degree in Social Studies

Admission requirements. A student wishing to major in social studies for a master's degree must present a minimum of 30 semester hours of credit in the area of the social sciences earned as an undergraduate in an accredited institution. The transcript of the applicant must show a minimum grade-point average of 3.0 in all work undertaken in the area of the social sciences.

A level of performance which is consistent with the standards of scholarship of the graduate departments of the College, with a minimum of 3.5 in all work undertaken in the area of the social sciences, is required. After having declared a social studies major, a student must maintain a 3.5 grade-point average in all work undertaken in the social studies departments.

Degree requirements. In the master's degree program, the student of the department of anthropology shall take a degree with thesis or a terminal degree (without thesis). A minimum of 30 semester hours is required under either plan. These 30 semester hours of work are normally distributed in three of the six departments of Anthropology, Economics, Geography, History, Political Science, and Sociology. The student shall be a member of one and only one department. The student shall make a program of work in his department and in courses offered by the College and the departments with which the department has made formal agreements.

The minimum distribution of 30 semester hours in education will be counted toward the degree requirements of 36 semester hours.

A minimum of nine semester hours of the total 36 semester-hour requirement shall consist of graduate courses bearing courses numbers of 500 or above.

Comprehensive written and oral examinations are required of the candidate. The written examination consists of a six-hour examination over the fields in which the candidate has distributed his work. These are intended to be comprehensive, not course examinations, and are submitted by staff members from the fields in which the candidate is concentrating his work. The oral examination is conducted by the candidate's committee as a whole.

In the case of the candidate's election to write a thesis, the degree committee consists of two cochairmen and the chairman of the College of Liberal Arts is the third cochairman; the other is a member of that department in which the candidate is writing his thesis.

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Approved of candidacy for the M.A. in this area will be granted only to students who have a grade-point average of at least 2.5 in all college work undertaken at the graduate level in the social studies departments.

Doctoral Program

Purpose. To prepare secondary departmental chairman, supervisors, curriculum directors, teacher education personnel, and college instructors in the social sciences and pedagogy.

Admission. A candidate's degree in history or the social sciences; master's degree in history, the social sciences, or pedagogy.

Degree requirements.

1. Required courses-A minimum of 40 semester hours of coursework and dissertation credit beyond the bachelor's degree and not including tool requirement established by the College of Education.

A. The 40 semester hours are to be distributed among two of the following disciplines: anthropology, economics, geography, history, political science, and sociology, and in the field of education. Work in the two disciplines chosen will constitute between 60 and 75 per cent of the total 40 semester hours; work in education, between 25 and 40 per cent of the total.

B. Seminars and courses numbered 202 or above are required in each of the three fields constituting the major.

2. Comprehensive examinations-Normally three three-hour examinations, one in each of the fields, will be required. Depending on the distribution of work taken, the nine hours of written examinations may be arranged. An oral examination in defense of the dissertation will be conducted by the committee as a whole.

3. Dissertation-A research problem in history or the social sciences, in which case the dissertation director will be a faculty member of the College of Education; or a research problem in social studies education, in which case the dissertation director will be a faculty member of the College of Education.

Committee on Social Studies Education: Professors William Yudkowsky, Clyde Kolen, Chester Morgan, James Murray, Harold Smeclund, John Haecher, chairman.

COURSE DESCRIPTIONS

Almost all courses marked as the social studies major consist of courses in the departments of Anthropology, Geoscience, or Sociology, Political Science, Sociology, and the College of Education. However, candidates may elect a maximum of 4 semester hours in courses listed in the area of social studies education.

98:201 Seminar: Readings in Social Science 1 or 2 s.h.

Reading and discussion of recognized works selected from the social sciences. Insufficient by these books are used for understanding the contemporary scene and relating the points of view of the social science disciplines.

Continuation of 98:201 may be elected as an independent unit.

SOCIAL WORK

Director of School, Frank Z. Glick
Office, 220 Social Work Building
201 Grand Avenue

The School of Social Work offers a graduate curriculum leading to the Master of Social Work degree. The School also offers a program which leads to the B.A. degree in the College of Liberal Arts. The basic objective of the Iowa School is to give each graduate a good foundation for entering and growing in professional practice. It also recognizes that all social work practice requires, in varying degrees, competence in working with individuals, groups, and communities.

Master's degree graduates of the School are employed in a wide variety of agencies, clinics and hospitals. Opportunities exist in family casework, psychiatric social work, child welfare work, community organization, social administration, and in many other areas. The number positions open to the number of available people. Therefore, a graduate in social work has no difficulty in finding career work.

Many agencies have positions open to B.A. degree graduates. Among these are local public welfare, some children's institutions, and some positions in corrections.

For more information regarding career possibilities consult the School or request a special bulletin from the school or the registrar's office.

Undergraduate Program

The program is a four-year course of study in the College of Liberal Arts, meeting requirements for a major and a minor in the Bachelor of Arts degree in social work. With the exception of the social service courses taught by the social work faculty, it consists entirely of regular courses in other departments of the University.

Advisory Service

The student may declare for the major in social work when he enrolls as a freshman or at any later time when completion of the major remains feasible. The declaration should be made in the Liberal Arts Advisory Office, to whom he will be assigned an undergraduate adviser on the faculty of the School of Social Work.

Honors in Social Work

The School of Social Work has an Honors program leading to a Bachelor of Arts with Honors in Social Work. Honors students interested in such a program should contact the School of Social Work.

Requirements of the Undergraduate Program

I. Undergraduate students majoring in social work must select one of the following Liberal Arts basic skills, core, and foreign language requirements, excluding the social science requirement.

II. The following specific courses are required:

62.1 Introduction to American Politics or
62.10 American Political System
62.13 Elementary Psychology
62.1 General Psychology
62.1 Principles of Economics
62.2 Principles of Economics (or E2.1)
62.8 The Field of Social Service
(same as Sociology 34.12)
42.17 Social Welfare Programs and Policy
62.10 Introduction to Social Work Methods

II. A minimum of 15 semester hours of coursework is required in one department in group A or B and a minimum of 12 semester hours is required from departments in the other group. Courses listed under II or IV may be applied toward the II-semester-hour requirement.

A. Social Science Economics

Political Science

Psychology

Sociology

Anthropology

B. Humanities

American Civilization

English

European Environment and Thought

Geography

History

Philosophy

Religion

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IV. Any of the following courses are recommended:  
G 250  Biological and Psychological Aspects of Aging  3 s.h.  
G 250  Child Development  3 s.h.  
G 250  Principles of Guidance  2 s.h.  
G 250  Introduction to Group Counseling  2 s.h.  
G 250  Educational Psychology and Measurement  3 s.h.  
G 250  Exceptional Children  3 s.h.  
G 250  Teaching the Emotionally Disadvantaged  3 s.h.  
G 250  Social Realization  3 s.h.  
G 250  Orientation to Rehabilitation of the  3 s.h.  

G 250  Principles of Nutrition  3 s.h.  
G 250  Administration of Family Resources  3 s.h.  
G 250  Family Housing  3 s.h.  
G 250  Marriage and Family Interaction  3 s.h.  
G 250  or 322 Seminar: Parent-Child Relations  3 s.h.  

19.19  Communication: Concepts and Perspectives  3 s.h.  
19.19  Communication  3 s.h.  
19.19  Psychology of Adjustment  3 s.h.  
19.19  Social Psychology  3 s.h.  
19.19  Psychological Measurement  3 s.h.  
19.19  Introduction to Research Methods  3 s.h.  
19.19  Abnormal Psychology  3 s.h.  
19.19  Religions in Contemporary Culture  3 s.h.  
19.19  Problems of Christian Ethics  3 s.h.  
19.19  The Pursuit of Happiness  3 s.h.  
19.19  Myths and Legends  3 s.h.  
19.19  The Good Society  3 s.h.  
19.19  Values in the Contemporary World  2 s.h.  
19.19  Science and the Future of Man  3 s.h.  
20.19  Introduction to Sociology: Problems  3 s.h.  
21.19  Introduction to Social Science  3 s.h.  
21.19  Introduction to Field Study  2 s.h.  
21.19  Criminology  3 s.h.  
21.19  Juvenile Delinquency  3 s.h.  
21.19  Race and Ethnic Relations  3 s.h.  
21.19  Sociological Aspects of the Family  3 s.h.  
21.19  Sociology of Family Formation  2 s.h.  
21.19  Social Problems  3 s.h.  
24.19  Psychopathy in Criminal Behavior  3 s.h.  
27.19  Psychiatry for Related Professions  1 to 2 s.h.  
27.19  Social Casework  2 s.h.  
27.19  Rehabilitation  3 s.h.  
27.19  Deviation to Rehabilitation Settings  3 s.h.  
113.19  Introduction to the Study of Culture  3 s.h.  

113.19  The World's Peoples  4 s.h.  
V. The following courses are offered in social work:  
42.191  Individual Study  cr.arr.  
42.191  Social Work in Work  cr.arr.  
42.191  Field Experience  cr.arr.  

Admission to Graduate Program  
A bachelor's degree from an accredited college or university is required. No particular courses are rigidly required, but there should be a broad background in the social sciences and humanities, plus some work in biological science. From among those who apply, those with strongest qualifications are selected. In this selection, consideration is given to the undergraduate record and individual qualities evidenced by experiences, interviews and the application materials. Regular admission requires a grade-point average of 2.5 or better on a 4-point scale. The Graduate Record Examination Aptitude Test should be taken and scores sent to the Director of Admissions. Applicants who meet all other admission requirements, may be admitted without the GRE on condition that they take the GRE at the first subsequent test date.  

Graduate Curriculum  
Under the Iowa plan the student begins his M.S.W. program in September and remains continuously in school until all work is completed. He is or it through the summer, and he finishes correspondingly early the next spring. The three general content areas of the curriculum are social welfare programs and policies, human behavior in the social environment, and methods used in practice. The program of instruction aims to provide the basic and technical preparation needed for professional practice in almost any setting today. In keeping with this, the program is now, and increasingly will be, designed to take account both of what the entering student brings with him and his particular needs and desires for learning. Individualized opportunities are available in academic courses and in the practicum.  

During the first and final terms all students are on the campus in Iowa City spending full time in academic work. Students may receive a term of leave from about February first until near the end of the calendar year—the student is in the province and having courses approved by the program. Social agencies and social work departments in Iowa City and Des Moines areas are utilized. The practicum course meets both in the Iowa City and Des Moines Educational Centers, and each student attends the one nearest his practicum agency.  

Requirements for the Master of Social Work  
The Master of Social Work 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 20 semester hours in graduate social work study, including a research requirement.  
3. A final comprehensive examination, written or oral or both, covering all work for the degree.  

STAFF  
Professor: Frank Z. Glick  
Associate Professors: Ralph E. Anderson, W. Stanley Copen, Wayne Johnson, A. Krasa, Mildred D. Goode  
Assistant Professors: Charles M. Arel, John Compton, Juan Corraer, Louisa C. Johnson, Olga M. Matjes, Dedic D. Mesch, E. Jean Williams, Ruth Zabor  
Instructor: Irer Carter  
Lecturers: Ralph E. Anderson, Hans Glassman, Richard Matting, Charles Palmer  

COURSE DESCRIPTIONS  
Primarily for Undergraduates  
42.126 Elementary Statistical Concepts  cr.arr.  
A required course for ensuring graduate students demonstrating grasp in this area. Consideration of the rationale and use of various descriptive statistical tools including measures of central tendency, variability, and correlation. Introduction to selected inferential statistical concepts most frequently used in social work research.  
42.126 The Field of Social Work  3 s.h.  
Social welfare as a social institution; historical development; setting of social work practice; the profession of social work. Same as Sociology 318.  
42.126 Introduction to Social Work  4 s.h.  
Processes of social treatment used by social workers with individuals, groups, families, and communities; principles, methods, and techniques in all social work practice. Pre- requisite: 42.126 or consent of instructor.  
42.126 Individual Study  cr.arr.  
A project related to the student's interest is carried out under direction of a faculty member.  
42.126 Honors in Social Work  cr.arr.  
Supervised individual research. Prerequisite, admission to Honors program in social work.
42:139 Field Experience cr.arr.
Supervised observation and experience with the activ-
ties of selected social welfare agencies and organizations.
Requires approximately sixty hours in agency participa-
tion per credit hour, plus conference or seminar time.
Prerequisites, 42:136 and consent of instructor.

For Graduate and Undergraduate Students

42:131 Human Behavior in the Social Environment I cr.arr.
Selected theoretical approaches to understanding human behavior. Changing character of social and cultural forces and their impact upon individual, family, and society. Processes of personality growth; developmental tasks and modes of adaptation.

42:132 Human Behavior in the Social Environment II 3 cr.
Major personal and social stress situations; range and var-
iability of adaptive responses to these stresses. Structures and manifestations of social dysfunction. Assessment approaches to evaluation of social functioning.

42:171 Social Welfare Program and Policy 4 cr. or cr.arr.
Selected programs which demonstrate the organization and provision of individualized social services, through both government and voluntary agencies, to deal with major social and health problems in the fields of depen-
dency (old age, children, handicaps); ill health, and af-
fairness; evolving social problems, policies and provision relevant to respective programs; role of government; role of social work. Undergraduate candidates for 4 semester hours. Prerequisites, 42:136 or consent of instructor.

Primarily for Graduate Students

Admitted to the School of Social Work

42:211 Historical and Legal Foundations of Social Welfare 3 cr.
Selected pre-20th century antecedents of modern social welfare programs under public and voluntary auspices, including origins in Family, School, and Church, in 18th and 19th-cen-
tury United States. Statutory basis of certain social wel-
fare provisions; legal aspects of administering modern social welfare services.

Critical exploration of selected aspects of current social welfare provisions, with emphasis upon relevance, ef-
fectiveness, and directions of change in substantive and procedural policy.

The profession of social work in modern society, includ-
ing historical development; community and governmental sanctions, standards, and regulations; professional ethics, values, regulation, and social policy; function, knowledge base, and education necessary for practice.

42:241 Social Work Practice 1 cr., cr.arr.
Skills and responsibility of social work; common con-
ceptual basis for all social work practice; frame of refer-
ence for student, educational experience.

42:242 Social Work Practice II 3 cr.
Further consideration of the common conceptual basis of social work practice with special emphasis on specific application to differential social work experiences.

42:248 Social Group Work 3 cr.
Differential use of groups in social work; main elements of selected social group work, with special emphasis on the in-
dividual-in-the-group, the program, the worker's role as diagnostician, carrier of values, agent of influence or treatment.

42:253 Community Organization for Social Welfare 3 cr.
Community organization as a social work process. Medi-
ations and mechanisms for bridging individual and group

42:254 Administration in Social Welfare 3 cr.
Analysis of structure and process in social welfare or-
dinances. Behavior and administration. Struc-
ture and importance of role of agency workers in policy determination and administration.

42:263 Social Work Research 3 cr.
Selected research skills appropriate to participation in research, in social work research. Emphasis on research techniques, methods and problems involved in formulating a research problem, sampling, instrumentation, data collection, classification, analysis, and presentation of findings.

42:264 Seminar in Social Work Research 2 cr.
Critical examination of the theoretical framework, re-
search methodology, and findings of contemporary social work research in a circumscribed area. Substantive areas examined will vary from year to year.

Individual or group research projects related to social work or social welfare, through a subject and research design, chosen and formulated by students and carried out under faculty supervision.

42:266 Practice in Ongoing Research cr.arr.
Participation in several discrete aspects of an ongoing research project administered by the project agency, another social welfare agency, or the School of Social Work under the supervision of a research faculty mem-
ber. Submission of a major project paper upon com-
pletion of the research.

Critical examination of the current methods, techniques, and procedures in a substantive area of social work practice and its application in fulfilling the role of the social work professional; trends in practice and findings of research.

Full-time supervised work practice of qualified social work teachers. Understanding and use of knowledge and skill in the performance of all aspects of social work practice; specific knowledge and skill distinctive to each method. Integra-
tion of learning from the entire curriculum is emphasized.

Continuation of 42:271.

42:274 Practicum in Social Work Practice II cr.arr.
Continuation of 42:271.

42:291 Individual Study cr.arr.

Chairman of Department, James L. Price
Sociology Office, Machibbee Hall

An undergraduate program in this department is pri-
marily intended to provide a broad general education with concentration in social science. It also constitutes a basis for graduate study in sociology. A number of courses in the department serve as well the need of non-
majors seeking an understanding of society, culture, and personality.

In principal vocational goals toward which a major may direct himself are teaching at the elementary and high school levels; professional preparation for social wel-
fare work; work in government, business, or public health agencies; social work administration; professional and lay enforcement work; industrial relations work where a fundamental

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knowledge of human relations is required; public rela-
tions work; and social research positions with either edu-
cational institutions, private research foundations, or
governmental agencies.

Students seeking one of the specific vocational goal
listed above should plan their programs in such a way
as to include the necessary course work from the Depart-
ment of Sociology and also allied degree-requirements
which provide a well-rounded preparation in the appro-
priate background. These selections are made with the advice and consent
of the departmental advisor. For more information con-
cerning undergraduate "core" opportunities, consult the
undergraduate advisor. These interests in an univer-
sity graduate preprofessional background for social work
should contact an undergraduate advisor in sociology.

Graduates with a B.A. and Ph.D. degrees in sociology
have open to them wide choices of professional positions.
Examples of the positions sociologists enter on comple-
tion of their graduate programs are college professor. re-
search director; demographer; vital statistician; social psy-
chologist; marriage counselor; public opinion analyst;
survey research analyst; social geographer; human
epidemiologist; criminologist; sociologist-actuary; probation
or parole officer; classification officer for a penal institution;
police administrator; city planner; community specialist;
and industrial sociologist.

Students who complete the B.S. or B.A. degree may
apply for admission to the master's degree program in
urban and regional planning.

Undergraduate Requirements

In addition to the general requirements of the college of
Liberal Arts (see College of Liberal Arts), there are
departmental requirements which depend upon the selec-
tion of sociology as the major.

Research Facilities

The University Library affords a large number of books,
manuscripts, periodicals, and other materials (including the
Human Relations Area Files) of a varied and diversified
character for the study of sociology.

Students specializing in criminology have access to
specialized equipment and course work required for research
and teaching purposes. The department's research labora-
tory is equipped with such modern electronic data
processing machines. Laboratory facilities are also avail-
able for special research and small group interaction.

The Iowa Urban Community Research Center was
established in 1967 to conduct research on the urban
area, a bank, and laboratory.

The Center for Human Resource in Interpersonal Behavior
was also established in 1968 as a laboratory for research in social
psychology. The basic facility is a five-room semi-
group laboratory complex with audio, video, and
interactive process recording equipment.

STAFF

Professor: Robert G. Caldwell, Georgette R. Hillery, Jr.,
Harold A. Muffet, James L. Price, Harold W. Sander,
Robert V. Morris, John W. Elson, John W. Hovland,
Audrey Bacas, Janet Brown, Carl J. Conisch,
Edward J. Bassett, Wallace Davis, John R. Stirrat,
Robert T. Terry, Pochata A. Monreal, John G. Walpig,
Ethel Kettler, Bell J. Franklin, Jan-ee Kim,
Frank Robert, William T. Mott, Robert Woodworth.
Affiliated Staff: H. Wayne Johnson.

Sociology

Undergraduate Advisors

Assigned at Department Office

128 Marbridge Hall

Students may elect a program leading either to a
Bachelor of Arts or a Bachelor of Science degree. A
preparation for graduate work is required within the
department for either degree.

For either a B.A. or B.S. degree, students must take the
following courses:

444 Introduction to Sociology: Principles
444 Introduction to Sociology: Problems
444 and 3411 Theory, Research, and Statistics
12 additional semester hours in sociology.

For the Bachelor of Science degree the following addi-
tional requirements must be fulfilled:

2663 Logic or 2664 Introduction to the Philosophy of Science; (2)
A course in mathematical analysis (a total of 32 semester hours)
(a) 3233 Trigonometry (prequisites, 2663 or two years of high school mathematics) and 2664 Analytic
Geometry, or (b) 2621 Introduction to Computer Con-
cepts (prequisites, 2663 or equivalent) and 2668 Programming with Algebraic Languages.
Mathematics 2625 and 2626 may be substituted for either option
(a) or (b) by students who have had the equiva-
 lent of 2663 and 2664 for high school.
(2) 2668 Elementary Probability and Statistics.

Undergraduate majors, both B.A. and B.S., are advised to
take, in addition to the above requirements, 4 semes-
ter hours in one of the following departments: Anthrop-
ology, Economics, Geography, Political Science, or Psy-
chology. In addition, they are advised to include in their programs at least one basic course in history and philos-
ophy.

Undergraduate majors planning to teach the social sciences at the high school level with emphasis on soci-
ology and who wish a teaching major in sociology in the College of Education must meet the following require-
ments:

1261 21st Century: Middle Ages to 1815 4 cr.
2162 Western Civilization: 1815 to Present 4 cr.
2641 Introduction to Sociology Principles 4 cr.
2642 Introduction to Sociology Problems 4 cr.
2633 Introduction to the Study of Culture and Society 4 cr.

A minimum of 18 semester hours in the Department of
Sociology and a minimum of 6 semester hours in each of
these three of the following fields: economics, geography,
politics, and history. Courses taken to fulfill the core
requirement will not be counted toward this minimum
requirement.

The required courses in teaching methods and practice
are offered in the College of Education.

Departmental elections should be selected from the
departmental majors in consultation with the chairperson
and major in the department, giving the more specialized
division courses for graduate study.

Honors in Sociology

Honors Advisor: Richard Wilmeth

Students wishing to graduate with Honors must include
the following in the undergraduate major:

2430 Honors Seminar in Sociology 2 cr.
2640 Research 2 to 4 cr.
2641 Elementary Probability and Statistics 3 cr.

Each candidate for Honors is required to have an Hon-
ors advisor and to take an Honors examination at the end
of the senior year.

Graduate Study Requirements

The requirements for admission to graduate training in
sociology vary with the undergraduate preparation of
the individual student. As a general rule, a student
should have had a minimum of 24 semester hours in
sociology, including a basic introductory course. A
minimum overall undergraduate grade-point average of
2.2 is recommended. As a combined score of 500 on the
Graduate Record Examination (GRE) Verbal and 600
on the Graduate Record Examination (GRE) Quantitative
is given to those students with undergraduate degree,
as well as an additional amount of additional coursework is imposed in order training in undergraduate preparation.
men. In cases where the undergraduate major was not in
Master of Arts Degree in Sociology

The Master of Arts in Sociology may be obtained either in a 30-semester-hour program with thesis or in a 36-semester-hour program without thesis. With the exception of the courses of the two programs, the core courses are essentially the same. The program without thesis is intended for those candidates who desire a terminal degree and for whom a wider range of content courses in sociology and the applied social sciences is appropriate. Information concerning the general requirements for the M.A. and 36.56.00 degrees in the Department of Sociology may be obtained from the chairman. The specific requirements vary with the student's concentration or specialization. In all cases, 34.113 Elementary Statistics and Data Analysis, 34.114 Sampling, Measurement, and Observational Techniques, 34.251 History of Sociology, and 34.263 Principles of Sociology are specifically required and must be passed with a grade of B or better. The possible areas of concentration are social theory, methodology, social psychology, criminology and penal policy, stratification, political sociology, sociology of the family, industrial sociology, social problems and social change, community and population, organizations, and intergroup relations.

The student through consultation with the department advisor plans a program of study specifically designed to prepare him for a definite vocational objective. A more highly specialized curriculum available at the master's level leads to the Master of Arts degree with concentration in criminology.

Doctor of Philosophy Degree in Sociology

The doctorate is awarded to students who complete approved course requirements and work at the graduate level and who fulfill the following requirements: passing following courses in statistics: 34.215 Intermediate Statistics and Data Analysis, 34.217 Theory and Research Design, and 34.218 Advanced Statistics and Data Analysis; passing the comprehensive examinations; and preparing a dissertation.

A student, becomes a doctoral candidate when he presents his dissertation for the oral examination. All candidates are examined in theory and methods. In addition to theory courses and research, they are given a broad coverage of other areas and one minor area chosen from the following: macro, micro, social psychology, social philosophy, social methodology, social psychology, stratification, political sociology, sociological theory, industrial sociology, social problems and social change, community and population, organizational behavior, and research methods. The dissertation must maintain a grade point of 3.55 in the department in order to be acceptable.

A detailed statement of regulations for graduate study in the department is available upon request.

Master of Arts Degree with Concentration in Criminology

Program Advisers
Robert G. Caldwell
Office, 124 Machrude Hall
John R. Stratton
Office, 111A Machrude Hall
Robert M. Terry
Office, 111D Machrude Hall

The program provides the student with the latest information regarding the nature of crime and delinquency, their conseptual and treatment and work in an opportunity to gain insight into some of the problems that will confront him in his future work. Arrangements have been made to utilize Iowa's penal institutions, training schools, and correctional institutions to supplement the course work.

A comprehensive examination will be given to all students who complete the program.

The following additional courses are required:

34.224 Evaluation of Parole and Probation
34.245 The American Prison System
34.255 The American Police System
34.147 Prevention of Crime and Delinquency
34.240 Seminar: Criminological Theories and Methods
34.241 Seminar: Theory of Criminal Behavior and Laws
34.323 Seminar: Sociology of Law
34.383 Seminar: Juvenile Delinquency and Reform

The following additional courses are required:

34.135, 346, 347 Crime and Justice

2.5 s.h.

Two of the following courses:
34.215, 346, 347 Evaluation of Parole and Probation
34.245 The American Prison System
34.255 The American Police System
34.147 Prevention of Crime and Delinquency
2.5 s.h. per course

Recommended courses:
34.240 Seminar: Criminological Theories and Methods
34.241 Seminar: Theory of Criminal Behavior and Laws
34.323 Seminar: Sociology of Law
34.383 Seminar: Juvenile Delinquency and Reform

The professional experience gained during the summer or semester in a correctional institution or agency, for which research credit may be obtained. Students who are awarded this degree may be eligible for continued work toward the Ph.D. in sociology.

Master of Arts Degree with Concentration in Law Enforcement and Corrections

Program Director, Robert G. Caldwell
Office, 124 Machrude Hall

The purpose of this program is to provide the student with a broad education in the social and behavioral sciences. A course work in criminal law and procedure and administrative justice, an understanding of the concepts and techniques of investigation and legal thinking in law enforcement agencies and institutions, familiarity with the role of community, neighborhood, and family in crime prevention, and training in interviewing, counseling, supervision, and record keeping.

The program is founded upon the conviction that sociology can make important contributions to the law enforcement agencies and institutions. Therefore, corrections and sociological orientation will be emphasized.

As in the case of the Master of Arts degree with concentration in Sociology, the courses included in the program have been designed to utilize Iowa's penal institutions, training schools, and correctional institutions as laboratories for graduate instruction. The successful completion of this program will result in a minimum of 46 graduate credits and leads to an M.A. degree in Law Enforcement and Corrections without thesis. Students who obtain this degree will be qualified for a variety of positions in law enforcement and corrections.

To be admitted to the program the student must have a B.S. or a B.A. degree, a grade point of 3.55, in criminology.

The following courses or their equivalents are required:
34.111 Elementary Psychology
34.113 Abnormal Psychology
34.311 Introduction to Criminal Prisons
34.113 Elementary Statistics and Data Analysis
34.114 Sampling, Measurement, and Observational Techniques
34.240 Principles of Social Psychology
34.245 Administrative Behavior
34.140 Criminology
34.311 Juvenile Delinquency

After the student has completed the prescribed course work at the required level of performance, he must pass a comprehensive examination. A dissertation will be required. A comprehensive examination at the master's level is required and in conjunction with the program may be found under the section Criminology and Penology.
Program in Social Psychology
Program Director, Howard J. Ehrlich
Office, CSRE
Associate Director
Carl J. Couch
Office, CSRE

The Program in Social Psychology places primary emphasis on the training of graduate students in areas concerned with problems of professional and personal importance. The major substantive academic areas of study are: interpersonal and intergroup processes; they are manifest in the human and social behavior of individuals in small groups and in naturally occurring social situations. Work in this substantive area focuses on the social psychological problems in laboratory and field settings, under the direction of the program staff, to provide students with the skills needed to conduct theoretical research for the improvement and development of research in social psychology and in various areas of the social sciences. The possible training experiences are selected to fit individual students and the areas of concentration of the program.

COURSE DESCRIPTIONS

Sociology
For Undergraduates Only

Sociology majors are required to take 34:314 and 34:316.

34:31 Introduction to Sociology: Principles 4 s.h.

Sociology majors are required to take this course. This course provides an introduction to the discipline and major areas of sociological study. Students will be introduced to the basic concepts and principles of sociology and will learn to analyze and interpret sociological data.

34:32 Introduction to Sociology: Social Problems 4 s.h.

Continuation of 34:31. Analysis of selected varieties of deviant and deviant behavior from sociological perspectives. Prerequisite: 34:31. This course is designed to provide an introduction to the study of social problems and to develop an understanding of the methods and theories used in the study of social problems.

34:10, 11 Theory, Research, and Statistics 3 s.h.

A year-long introduction to basic statistical concepts. Emphasis on theoretical thinking, the statement of research hypotheses, and the logic and meaning of proof as they are used in the research process. General concepts associated with designing research, including the concepts of sampling and measurement, analysis and presentation of data, and interpreting research findings. Elementary methods of classification and data handling, including descriptive statistics and variability, and the meaning of association and causality.

34:75 Individual Study 0.25-3.0 s.h.

Supervised reading in some special area of subdivision of sociology in which the student has had a basic course.

34:90 Honors Seminar 3 s.h.

For undergraduate majors with superior academic records. Selected theoretical and methodological issues. Prerequisites: senior standing and consent of instructor.

34:97 Honors Research 2 to 4 s.h.

The honors candidate undertakes a special research project under the Honors chairman, chosen after consultation with the Honors advisor. May be repeated.

ADVANCED COURSES

Social Theory

34:201 History of Sociology 3 s.h.

Modern sociological thought from its origins to the present. Historical, political, social, and intellectual development of sociological theory. Prerequisites: graduate standing and consent of instructor.

34:202 Principles of Sociology 3 s.h.

Nature and functions of sociological theory. Systems of sociological thought. Concepts and principles of sociological theory. Prerequisites: graduate standing and consent of instructor.

34:203 Seminar: Sociological Theory 3 s.h.

Selected problems in sociological theory. Prerequisites: 34:201 and 302 or consent of instructor. May be repeated.

34:204 Sociology of Knowledge 3 s.h.

Role of ideas and ideologies in modern society. Interaction among ideologies and the social context within which they develop and function; their structure and internal relations. Competing ideologies in contemporary social change. Prerequisites: graduate standing and consent of instructor.

34:205 Seminar: Contemporary Social Theory 3 s.h.

Comparison and examination of leading contemporary sociological approaches and theories in light of empirical research studies. Prerequisites: graduate standing and consent of instructor.

Statistics and Methods of Research

34:110 Methods of Social Research 3 s.h.

Research process, from problem formulation through use of specific techniques such as interviewing, questionnaires, etc., to derivation of scientific knowledge. Prerequisite: 34:31.

34:111 Elementary Social Statistics 3 s.h.

Applications of statistical methods to research problems in sociology: classification and presentation of statistical data, analysis of descriptive statistics, and mathematical models of social relationships. Prerequisite: 34:31.

34:112 Nonparametric Statistics 3 s.h.

Techniques which do not make numerous stringent assumptions about the nature of the population from which data are drawn; emphasis on application to each-order and classificatory data in small samples. Prerequisite: 34:111 or equivalent.

34:113 Elementary Statistics and Data Analysis 3 s.h.

Techniques of drawing theoretical inferences from data in studies using very simple measures, study designs, and analytical techniques. Commonly used measures of statistical association. The logic of statistical inference and hypothesis testing. Contingency and linear regression as tests of statistical control. Causal interpretation and table elaborate. Electronic data processing. Prerequisite: Introductory statistics or consent of instructor.

34:114 Sampling, Measurement, and Techniques 3 s.h.

Problems of gathering data from which valid theoretical and/or descriptive inferences may be drawn. Basic sampl
SOCIOMETRY

Social Psychology

3.120 Principles of Social Psychology 3 a.h.
Basic concepts and principles of social psychology, personality, interpersonal, and intergroup processes. Prereq. 3.121.

3.121 Social Structure and Personality 3 a.h.
Research and theory relating social structural variables to processes of socialization, development of personality, conceptions of role and self. Prerequisites, 3.120.

3.122 Sociology of Personality

3.123 Mass Communication 3 a.h.
Problems of conceptions and measurement of the opinion process. Influence of mass media, reference groups and categories, interpersonal relations, personality factors. Same as Journalism 39.142. Prerequisites, 3.120.

3.125 Small Group Analysis 3 a.h.
Study of the small group as a fundamental unit in the structure of larger social organizations; as a subject of research interest in its own right. Prerequisites, 3.120 and Psychology 51.1 or graduate standing and consent of instructor.

3.126 Seminar: Collective Behavior 3 a.h.
Social unrest, crowd behavior; social movements treated as a form of social change. Prerequisite, 3.120.

3.127 Interaction Processes 3 a.h.
Reviews various approaches to the study of interaction processes in both laboratory and field settings. Special emphasis given to problems of measurement and interaction. Students acquire experience in observing, coding, analyzing social interaction. Prerequisites, 3.121 and 3.125.

3.127 Field Methods in Social Psychology 4 a.h.
Field experiments, case-experiments, various natural observation techniques. Open to advanced undergraduate and graduate students, enrollment by permission of instructor. Prerequisite, 3.121.

3.129 Group Organization and Leadership 3 a.h.
Primary groups in modern society; interpersonal relations in small groups; processes of group formation and change; social functions of leadership. Prerequisites, 3.121 and 3.125.

3.137 Research Practicum in Social Psychology 3 to 6 a.h.
Guided group research on selected topics in social psychology. Prerequisites, consent of instructor. May be repeated.

3.200 Contemporary Approaches to Social Psychology 3 a.h.
Reviews and critical analysis of current theoretical approaches and systems of social psychological analysis. Prerequisites, 3.120 and departmental standing as a major for doctoral training in social psychology; other students by consent of instructor.

3.211 Seminar: Selected Topics in Social Psychology 3 a.h.
Selected theoretical and methodological issues. Prerequisites, advanced standing and consent of instructor. May be repeated.
34:22 Seminar in Social Structure and Personality 3 s.h.
- Selected problems. Prerequisites, advanced graduate standing and consent of instructor. May be repeated.

34:23 Seminar in Social Psychiatry 3 s.h.
- Selected problems. Prerequisites, advanced graduate standing and consent of instructor. May be repeated.

34:24 Seminar in Small-Group Analysis 3 s.h.
- Selected problems. Prerequisites, advanced graduate standing and consent of instructor. May be repeated.

34:25 Seminar in Collective Behavior 3 s.h.
- Selected problems. Prerequisites, advanced graduate standing and consent of instructor. May be repeated.

34:27 Seminar: Processes of Deviation 3 s.h.
- Critical analysis of dynamic models of deviance with particular emphasis upon significant theoretical and methodological issues. Prerequisites, graduate standing and consent of instructor.

Criminology and Penology

34:140 Criminology 3 s.h.
- Nature and causes of crime; criminal investigation and prosecution; punishment, correctional treatments, and crime prevention. Prerequisites, 34:21, 34:541 Juvenile Delinquency 2 s.h.
- Delinquency as an individual and a social problem; theories of delinquency etiology, law enforcement, and the juvenile court; methods of correction and prevention. Prerequisites, 34:21.

34:143 Probation and Parole 2 s.h.
- Development, organization, administration, operation, and results of probation and parole. Prerequisites, 34:140 or 141.

34:143 Crime and Justice I 3 s.h.
- Crime, justice, and law as social phenomena; justice in theory and practice; problems in the criminal law considered in the light of recent developments in the social sciences. Prerequisites, 34:140 or consent of instructor.

34:144 Crime and Justice II 3 s.h.
- Continuation of 34:143. Prerequisite, 34:143 or consent of instructor.

34:145 American Prison Systems and Their Administration 2 s.h.
- Origins of the prison system in the United States; present institutional correction and problems of administration. Prerequisites, 34:140.

34:146 American Police Systems and Their Administration 2 s.h.
- Origin, organization, administration, operation, legal basis, and problems of law enforcement agencies in the United States. Prerequisites, 34:140.

34:147 Prevention of Crime and Delinquency 2 s.h.
- Principles, programs, and problems of crime and delinquency prevention in the United States; relation of public and private agencies in the field. Prerequisite, 34:146.

34:148 Internship in Corrections I cr.arr.
- Supervised training in correctional counseling and casework in the prison setting with formal instruction in theory and technique. Prerequisites, 34:140 and consent of instructor.

34:149 Internship in Corrections II cr.arr.
- Supervised training in probation and parole in the criminal court setting with formal instruction in theory and techniques. Prerequisites, 34:140 and consent of instructor.

34:240 Seminar: Criminological Theories 3 s.h.
- Theories of crime causation and their relationships to the cultures in which they have functioned. Prerequisites, graduate standing and consent of instructor.

34:241 Seminar: Theory of Criminal Law 3 s.h.
- Basic doctrines and principles of criminal law and their functional relationship to culture and social change. Prerequisites, graduate standing and consent of instructor.

34:242 Seminar: Sociology of Law 3 s.h.
- Law as a social institution; its origin, development, and relationship to culture, the social processes, social groups, and other means of social control. Prerequisites, graduate standing and consent of instructor.

34:243 Seminar: History and Theory of Punishment 3 s.h.
- History and theory of punishment and its cultural influences and social change. Prerequisites, graduate standing and consent of instructor.

34:244 Seminar: Current Research in Criminology, Penology, and Deviancy 3 s.h.
- Critical analysis of current research contributions with particular emphasis upon their theoretical contributions and their methodological foundations. Prerequisites, graduate standing and consent of instructor.

34:245 Field Research in Criminology cr.arr.
- Prerequisites, graduate standing and consent of instructor.

34:246 Crime and Justice III 2 s.h.
- Continuation of 34:145 and 34:146. Particular attention is given to the law on evidence as it is related to criminal proceedings.

34:247 Investigative Techniques 2 s.h.
- Various techniques, such as surveillance interrogation, and the use of law enforcement agents in the identification and apprehension of alleged criminals and the accumulation, preservation, and presentation of evidence relating to their alleged crimes.

34:248 Internship in Law Enforcement cr.arr.
- Training in the training of police agencies and formal instruction in theory and technique.

Social Institutions and Social Change

Social Institutions is a large area consisting of the following courses in sociology. These courses are aimed at social institutions, social organization, and the social processes.

34:150 Political Sociology 3 s.h.
- Sociological analysis of political behavior and belief, group conflict and political process, group consumption, political institutions, and power and policy-making in society and the social system. Prerequisites, 34:21. Same as Political Science 34:120.

34:151 Social Problems of Underdeveloped Areas 3 s.h.
- Economic development as a sociological problem. Social institutions and social organization of underdeveloped areas and their relation to social and economic development programs. Social change and the consequences of industrialization and urbanization in underdeveloped areas. Prerequisites, an introductory course in sociology, economics, or anthropology and junior standing.

34:153 Public Opinion 3 s.h.
- Public opinion as a factor in the decision-making process. Critical problems in the description and conceptualization of public opinion. Role of the social and political structure in the development of public opinion. Influence of public opinion on legislative and executive decision-making. Same as Political Science 34:125.

34:154 Social Movements 3 s.h.
34:159 Race, Community, and the American Political System 3.0h
Social and political analyses of the American Negro. Structure and ideology of the Negro protest movement and other minority groups. Examination of the factors that have determined the political status of the Negro and the Negro community. Prerequisites: 34:155.

34:157 Comparative Sociology 3.0h
Historical, developmental, and current status of the comparative approach in sociology. Methodological issues and conceptual problems encountered in cross-cultural testing of sociological and social-psychological propositions. Relationships among the three institutional forms and social processes in different societies. Prerequisites: 34:151.

34:158 Sociology of Medicine 3.0h
Introduction to new and expanding field of medical sociology. Disease and the sick person; health practices and practitioners; health institutions (the hospital), the role and organization of health services, and medical education. Prerequisites: 34:151 and 34:22.

34:159 The Family in Various Societies 3.0h
American family in a universal perspective. Comparisons between diverse and composite cultures such as Japanese, Chinese, Japanese, Russian, Russian post-revolution family. Prerequisites: 34:151.

34:160 American Society 3.0h
American society in comparative perspective; its structure and integration. Approaches to the study of large, complex modern societies; institutional interrelationships; institutions as agencies of social control, and institutional disorganization as an effect of social change. Prerequisite: 34:151.

34:161 Sociology of the Family 3.0h
Family as an institution; comparative, functional, historical, and structural approaches; similarities with other institutions; processes and implications of social change. Prerequisite: 34:151.

34:163 Sociology of Family Formation 3.0h
Analysis of courtship structure in American society. Way in which love, dating, and sexual standards are integrated into this structure. Varieties in courtship behavior in ethnic and religious subgroups. Behavior of seeking intimacy in secular courtship. Relation of courtship institution to other social institutions. Prerequisite: 34:151.

34:164 Large-Scale Organizations 3.0h
Structure and process in simple systems—formal and informal aspects. Prerequisites: 34:151.

34:165 Occupational Sociology 3.0h
Occupational differentiation in modern industrial society. Institutions of work, role of workers and work organizations; impact of technological change on organization of business and industry; sources of friction and problems of maintaining stability and productivity. Prerequisites: 34:151.

34:166 Social Stratification 3.0h
Structure and processes of social stratification among the American system. Current trends in social mobility and relationship to economic change. Prerequisites: 34:151.

34:167 Sociology of Religion 3.0h
Comparative study of religious beliefs and practices, fundamental aspects of religious organizations in contemporary societies. Prerequisite: 34:151.

34:168 The Field of Social Work 3.0h
Changing pattern of welfare services leading to emergence of professional social work; organization and nature of contemporary public and voluntary agencies. Same as Social Work 4259. Prerequisites: 34:151 and consent of instructor.

34:169 Stratification Theory and Measurement 3.0h
Various approaches to the problem of measuring interclass differences within homogeneous populations. Theories accounting for social differentiation using stratification to account for other social phenomena. Prerequisites: 34:158 or its equivalent.

34:250 Seminar: Political Sociology 3.0h
Selected theoretical, methodological, and research issues. Prerequisites: 34:158 or consent of instructor.

34:251 Introduction to the Sociology of Law 3.0h
Interplay between sociology and law; methodological problems in legal research; sociological perspective on the nature of law; the utility of social science research to the legal profession; the use of legal concepts and categories in sociological research; the criminal justice process. Prerequisites, consent of instructor.

34:260 Seminar: Social Institutions and Social Control 3.0h
Institutions; bases, functions, structure; processes of formation, change; and relations to personal and social problems. Prerequisites, graduate standing and consent of instructor.

34:262 Seminar: Medical Sociology 3.0h
Theory and research on health institutions in modern society; social anatomy of disease; sociological components in treatment, hospital organization and medical practice, sociology of medical education. Prerequisites, graduate standing and consent of instructor.

34:263 Seminar: Prejudice and Intergroup Relations 3.0h
Research and theory on prejudices and intergroup behavior. Prerequisites, 34:158 or 34:160 and consent of instructor.

34:264 Seminar: Deviant Behavior 3.0h
Deviant behavior functionally related to family formation. Research on social disorganization and deviance; interpersonal, divorce, parasocial; their methodological and theoretical importance for understanding deviant behavior. Prerequisites, graduate standing and consent of instructor.

34:265 Seminar: Sociology of the Family 3.0h
Current theories, methods, and findings of research on family structure, socialization, marital interaction, and marital dissolution. Prerequisite graduate standing and consent of instructor.

34:266 Seminar: Theory and Research in the Family 3.0h
Contemporary theory and method related to sociological studies of the family area. Several major studies will be carefully examined in terms of their theoretical propositions and their methodology including the types of multivariate analysis employed. The general problem of theory building and multiple analysis will be illustrated by references to these current family studies. Prerequisites, graduate standing and consent of instructor.

34:267 Seminar: Large-Scale Organization 3.0h
Exploration of selected advanced problems in organization theory. Prerequisites, 34:164.

34:268 Seminar: Occupational Structure and Social Mobility 3.0h
Role of the institutions of work in modern urban-industrial society. Sociological theory and methodological methodology as related to occupational structure. Recent empirical studies. Prerequisites, graduate standing and consent of instructor.

34:269 Seminar: Structural-Functional Analysis of the Family 3.0h
Structural-functional approach to the family institution, relating the family to other major institutions. Key
Community and Population

34:170 Population and Society 3 a.h.
Factors and processes determining population size, composition, and distribution; relations of population to social organization and human welfare; recent trends in population, problems, policies, and programs. Prerequisite: 34:1. 34:171 The Urban Scene 3 a.h.
Sociological interpretation of origins and spread of urban settlement in the world; analysis of major urban social institutions. Historical development of cities and other urban forms; their place in modern societies, both Western and non-Western. Prerequisite: 34:1 or consent of instructor. 34:172 The Urban Community 3 a.h.
Processes of urbanization and conditions of urban life. Nature of urban social relationships, organization of city life, urban ecological patterns and demographic conditions, and regional influences of metropolitan centers. Prerequisite: 34:1. 34:174 World Population Problems 3 a.h.
World population trends and pressures: their causes and consequences by countries and world areas. War, international relations, and population phenomena; standards of living and technological change, cultural contrasts in migration patterns and family planning. Prerequisite, 34:1. 34:175 Techniques of Population Analysis 3 a.h.
Obtaining information from population data; research problems and their rationale; the meaning, application, and evaluation of world and national demographic data. Prerequisite, 34:174. 34:179 Problems of Community 3 or 2 a.h.
Organizations, informal groups, voluntary associations, and their relation to total pattern of community life. Prerequisite, 34:1. 34:270 Seminar: Human Ecology 3 a.h.
Point of view of human ecology and selected empirical aspects. Emphasis on the study of social organization. Prerequisite, 34:1 or standing. 34:271 Seminar: Population 3 a.h.
Theory and research in social demography, population, and social structure; status, mortality, and migration in modern types of society; review of research literature on family planning. 34:273 Seminar: Community Research 3 a.h.
Development of a frame of reference and design for a community study, relevant to project plans of the Iowa Urban Community Research Center. Prerequisite, consent of instructor. 34:274 Seminar: Community Survey 3 a.h.
Execution of a community study project, in coordination with one of the Iowa Urban Community Research Center. Prerequisite, consent of instructor. 34:275 Seminar: Community Studies 2 a.h.
Critical review and discussion of the design and findings of selected community studies. 34:278 Seminar: Community and Institutions 2 a.h.
Theories and research concerning interrelations of community, economic, political, and social systems, and their relevance to further research in the community. Prerequisite, 34:272 or consent of instructor. 34:277 Seminar: Community Theory 3 a.h.
Intricate examination of selected theories and writings relevant to an understanding of territorial communities. Includes a study of the writings of Durkheim, Park, Redfield, Warner, and others. Prerequisites, graduate standing and consent of instructor. 34:279 Seminar: Urbanization 3 a.h.
Problems growing out of the increases in urban population and the relative decline in rural population. Emphasis on the Great Lakes and the Middle West. Prerequisite, graduate standing and consent of instructor. 34:130 Sociology of Aging 3 a.h.
Aging: problems of role definition, communication breakdown, sexual behavior. Discussion of loss of status to the status of the elderly. Prerequisite, 34:1. 34:132 The Social Psychology of Alcohol Use and Community Problems 2 or 3 a.h.
Social and cultural factors in the definition and use of beverages alcohol. A social psychological analysis. Public definition and rejection of the alcoholic. Prerequisite, 34:100. 34:140 Criminology 3 a.h.
Description under Criminology and Penology. 34:145 Juvenile Delinquency 3 a.h.
Description under Criminology and Penology. 34:151 Social Problems of Underdeveloped Areas 3 a.h.
Description under Social Institutions and Social Change. 34:155 Race and Ethnic Relations 3 a.h.
Multidisciplinary study of intergroup relations with special emphasis given to historical, sociological, and social psychological aspects in the study of American minority groups. Prerequisite, 34:1. 34:178 African Social Structure and Development 3 or 2 a.h.
African and special change 3 a.h.
Development problems in relation to stratification systems, economic and social structure, and urbanization in tropical Africa. Prerequisite, 34:1. 34:281 Seminar: Social Problems and Social Disorganization 3 a.h.
Nature, origins, and types of social problem characteristics of contemporary society. Collective responses made by society to eliminate or alleviate these problems. Prerequisite, graduate standing and consent of instructor. 34:284 Seminar: Deviant Behavior 2 a.h.
Description under Social Institutions and Social Change. 34:383 Independent Study credit. 34:384 Research credit. 34:385 Thesis credit.
Foreign Language Requirement

Candidate for the Bachelor of Arts degree, who wish to meet the foreign language requirement in Spanish or Portuguese, may do so by completing four years of high school in one language, performing satisfactorily in an achievement examination standardized to measure proficiency equivalent to that usually attained in four semesters of college study in one language, completing a minimum of four semesters of college level study in Spanish or Portuguese, or completing a four-year high school program of four semesters of study at the college level. If the four semesters are taken at The University of Iowa, the series of courses will total 24 semester hours. In the case of the last two options, the student must complete the second semester of the second-year course (35:12).

Candidates for the Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science, who wish to meet the foreign language requirement in Spanish or Portuguese may do so by completing a combination of high school and college study in one language which would be the equivalent of 8 semester hours of study at the college level, completing a minimum of 8 semester hours of approved college-level study in a foreign language, or giving satisfactory performance in an achievement test measuring proficiency equivalent to that usually attained after one year of college study of a foreign language.

Undergraduate Requirements for Majors

The following courses constitute the minimum major requirements:

<table>
<thead>
<tr>
<th>Language</th>
<th>Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>35:27, 35:28</td>
</tr>
<tr>
<td></td>
<td>35:100</td>
</tr>
<tr>
<td></td>
<td>35:125</td>
</tr>
</tbody>
</table>

Pre-Requisites

Two-year semester hours beyond the second-year level. All students preparing for the secondary teacher's certification should select courses in pronunciation and civilization.

Requirements for Spanish Teaching Minor

The following courses are required: 35:27, 35:28, 35:105, 35:125, 35:100, 4 e.h. All students preparing for the secondary teacher's certification should select courses in pronunciation and civilization.

Honors in Spanish

Requirements: An overall grade-point average of 3.0 and a minimum in Spanish of 3.5; 8 semester hours beyond the major requirements from any of the following Honor courses:

<table>
<thead>
<tr>
<th>Language</th>
<th>Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>35:123, 35:214, 35:226</td>
</tr>
<tr>
<td></td>
<td>35:123, 35:226</td>
</tr>
<tr>
<td>An Honor essay in Spanish</td>
<td></td>
</tr>
<tr>
<td>An oral discourse in Spanish</td>
<td></td>
</tr>
</tbody>
</table>

Graduate Study

Appointments. Teaching, research, and laboratory assistance are available to qualified graduate students. A certain number of NDEA Title IV fellowships in Spanish, and University scholarships and fellowships, including four-year teaching-research fellowships, are also available. Graduate assistantships are required. Inquiries should be addressed to the departmental office.

SPANISH AND PORTUGUESE

Requirements. Candidates for advanced degrees must have completed the equivalent of the undergraduate major in the language of their choice. Deficiencies in previous training may be removed by taking the appropriate courses.

Master of Arts

Candidates for the master's degree are required to complete a minimum of 32 semester hours with thesis or 36 semester hours without thesis. The program may include courses in related fields. Candidates must pass a written and oral examination.

The program for the M.A. in Spanish must include 35:200 Graduate Composition and Conversation; 35:200 Graduate Composition and Conversation; 35:200 Studies in Spanish Style. In addition, the following areas must be covered by pass graded courses in succession: the Middle Ages; the Golden Age (including Cervantes and one other aspect); the modern era in Spain; Spanish America.

Doctor of Philosophy

All prospective candidates for the Ph.D. degree in Spanish must apply in writing to the Department of Spanish and Portuguese for approval to be admitted to the Ph.D. program.

The Ph.D. degree is awarded upon completion of at least three years of graduate work of which one must be spent at this University, the passing of a comprehensive examination, and the oral defense of a dissertation. The dissertation is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. Candidates must demonstrate their ability to undertake independent investigation by completing two research projects. Two doctoral programs are available:

1. Intensive specialization in Spanish and Spanish-American literature. Before comprehensive examinations, candidates must acquire a good acquaintance with Romance language and literature other than the major (a Portuguese-American program is especially recommended), have completed the equivalent of a year of college Latin, and have demonstrated a reading knowledge of another approved foreign language.

2. Specialization in Spanish language and literature with emphasis on philology. This major is to be supplemented by courses in another Romance language, with stress on philology. Before comprehensive examinations, candidates must take a course in general phonetics, have completed the equivalent of three semesters of college level, and must demonstrate reading knowledge of another approved foreign language.

Qualifying and Comprehensive Examinations

Before being allowed to present himself for the comprehensive examination for the Ph.D., the candidate's general knowledge of all periods will be tested at the M.A. level. All candidates with M.A. degrees from other institutions will demonstrate their general knowledge through a qualifying examination and related reading examinations. The candidate must be prepared to do research through seminar papers which will be evaluated by a departmental committee. After the committee of three has determined that the candidate has presented the results of his scholarly work carefully, logically, and in sufficient depth, he will be encouraged to continue preparing for the comprehensive examinations. The comprehensive examinations will be offered during the first four weeks of the fall semester. To receive the examinations candidates must are pass examined in all graduate work that makes the examination must apply for approval in writing to the department by the last day of the fall semester examination and no later than May 1 for the fall semester examination.
Spanish and Portuguese

Language Laboratory

The Language Laboratory provides facilities for lan-
guage study, including short-wave radio; tape recorders; record players; an-
ectrophone-lighting room; two civil rooms, with sixty-eight
dual channel tape recorders providing a simultaneous
master duplicate and student record; an electron micro-
scope; a soundproof work room; 35 mm and 8 mm projec-
tion equipment and facilities; and a library of tape and
disc recordings. The department offers to its majors a
specific course in language laboratory procedures.

STAFF

Professor: Julio Durán-Cordero, Edmund de Chasca,
Cesar Parra, Joseph N. M. Wood, Ricardo Martinez
Professor Emeritus: Ruth Davis

Associate Professor: Mary L. Daley, Walter A.
Dobriner, R. Thomas Douglass, Coleman Mefers, Joseph
Mellor

Assistant Professor: George De Mello, Enrique Perez
Santo-Goncalo, Eugene Skinner

Instructor: Rodin Cherubin, Antonio Martinez, Maria
Cesaro Poblete, Maria Sanzino

Laboratory Director: Winston J. Reese

COURSE DESCRIPTIONS

Spanish

Primarily for Undergraduates

Students who have had any experience with Spanish
through academic study, foreign residence, or otherwise,
are required to take a placement test at the time of their
first registration in any Spanish course. If students
with two years of high school Spanish place in 25:1.
4 semester

A student may not, except with the approval of the
chairman, take for credit or quality points an elementary
course if he has already completed a higher-level course
for which the elementary course or its equivalent is a
prerequisite.

35:1 Introductory Spanish

35:2 Elementary Spanish

Prerequisite: 35:1 or equivalent

35:11 Intermediate Spanish

Prerequisite: 35:2 or equivalent

35:12 Introduction to Hispanic Literatures

Prerequisite: 35:11 or equivalent

35:25 Spanish Pronunciation

May be taken in connection with 35:12, 35:27, 35:28,
May should take in connection with 35:28. Cannot
be taken to complete minimum foreign language require-
ment.

35:37 Third-Year Composition

and Conversation

Prerequisite: 35:12 or equivalent

35:38 Third-Year Composition

and Conversation

Prerequisite: 35:27 or equivalent

35:51 Ph.D. Spanish

For candidates for the doctorate in other departments
who need to acquire reading ability for purposes of
research.

35:53 Special Work

1 to 3 a.

For Undergraduates and Graduates

35:101 Renaissance and Golden Age

Literature

Prerequisite: 35:12 or equivalent

35:103 Modern Spanish Literature

3 a.

35:105 Fourth-Year Composition and

Conversation

Prerequisite: 35:28 or equivalent

35:106 Fourth-Year Composition and

Conversation

Prerequisite: 35:105 or equivalent.

35:107 Spanish-American Essays of the

20th Century

2 a.

35:109 Contemporary Issues: The Concept

of Revolution in 20th Century

Spanish-American Writings

2 a.

Given in English. Readings in English.

35:110 Survey of Spanish Literature

4 a.

Intensive semester seminar providing a panoramic view
of Spanish literature. Open to seniors and honors stu-
dents, as well as graduate students in need of a refresher
in the literature.

35:111 Survey of Spanish-American

Literature

4 a.

Intensive semester seminar providing a panoramic view
of Spanish-American literature. Open to seniors and
honors students, as well as graduate students in need of
a refresher course in literature.

35:114 Spanish Civilization

3 a.

35:115 Spanish-American Civilization

3 a.

35:117 Poetry and Drama of the

Golden Age

3 a.

35:118 19th and 20th Century Spanish

Literature

3 a.

35:119 Syntax, Lexicology, and

Composition

3 a.

35:120 Syntax, Lexicology, and

Composition

3 a.

35:121 Honors: Literature

3 a.

35:122 Honors: Literature

3 a.

35:123 Honors: Language

3 a.

35:124 Honors: Language

3 a.

35:128 Introduction to Don Quijote

3 a.

Given in English, as undergraduates Spanish majors,
and is undergraduates and graduates in other disciplines,
with permission of the instructor.

35:129 Romance Linguistics

3 a.

35:130 Methods in High School Modern

Foreign Languages

3 a.

Prerequisite: 35:105 or equivalent. Ordinarily elected as
Education 78:139.

35:131 Language Laboratory Procedures

1 a.

35:157 Spanish Pronunciation and

Diction

Prerequisite: 35:28 or equivalent

35:158 Spanish Pronunciation and

Diction

Prerequisite: 35:157 or equivalent.

35:207 European Fiction

3 a.

35:207 European Fiction

3 a.

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<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>35.201</td>
<td>Graduate Composition and Conversation</td>
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</tr>
<tr>
<td>35.209</td>
<td>Graduate Composition and Conversation</td>
<td>4 cr.</td>
</tr>
<tr>
<td>35.210</td>
<td>Studies in Style</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.211</td>
<td>Research Methods and Bibliography</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.212</td>
<td>Literary Theory and Explanation of Texts</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.250</td>
<td>19th-Century Spanish Novel and Essay</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.251</td>
<td>19th-Century Spanish Poetry and Drama</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.252</td>
<td>20th-Century Spanish Poetry and Drama</td>
<td>3 cr.</td>
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<tr>
<td>35.254</td>
<td>Don Quijote</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.257</td>
<td>Fiction of the Golden Age</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.259</td>
<td>Lyric Poetry of the Golden Age</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.260</td>
<td>Contemporary Spanish-America Novel</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.261</td>
<td>Spanish-American Drama</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.262</td>
<td>Spanish-American Essay and Tanders</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.273</td>
<td>Seminar in College Teaching</td>
<td>no cr.</td>
</tr>
<tr>
<td>35.287</td>
<td>Spanish-American Literature of the 19th Century</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.288</td>
<td>Spanish-American Poetry of the 20th Century</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.290</td>
<td>The Spanish-American Story</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.301</td>
<td>Old Spanish</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.322</td>
<td>Old Spanish</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.253</td>
<td>Historical Spanish Grammar</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.255</td>
<td>Epic and Ballad</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.257</td>
<td>Modernism</td>
<td>2 cr.</td>
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<td>35.262</td>
<td>The Picaruesque Novel</td>
<td>3 cr.</td>
</tr>
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<td>35.270</td>
<td>Medieval Spanish Writings</td>
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<tr>
<td>35.277</td>
<td>Thesis</td>
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</tr>
<tr>
<td>35.279</td>
<td>Special Work</td>
<td>cr.arr.</td>
</tr>
<tr>
<td>35.289</td>
<td>Recent European Poetry</td>
<td>3 cr.</td>
</tr>
</tbody>
</table>

**SPEECH AND DRAMATIC ART**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.359</td>
<td>Seminar: El Libro de Buen Amor</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.360</td>
<td>Seminar: Lope de Vega and the Golden Age</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.361</td>
<td>Seminar: Contemporary Spanish Thinking</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.363</td>
<td>Seminar: Expressionism in the Spanish-American Theater</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.383</td>
<td>Seminar: 19th-Century Spanish Poetry</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.394</td>
<td>Seminar: Góngora</td>
<td>2 cr.</td>
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Portuguese

<table>
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<th>Title</th>
<th>Credits</th>
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<tr>
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<td>35.103</td>
<td>Elementary Portuguese</td>
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<tr>
<td>35.110</td>
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<td>35.120</td>
<td>Intermediate Portuguese</td>
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<tr>
<td>35.130</td>
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</table>

Open to graduate students and language majors.

<table>
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<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.101</td>
<td>Introduction to Brazilian Literature</td>
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</tr>
<tr>
<td>35.102</td>
<td>Introduction to Portuguese Literature</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.103</td>
<td>Modern Brazilian Fiction</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.104</td>
<td>Modern Portuguese Fiction</td>
<td>2 cr.</td>
</tr>
<tr>
<td>35.115</td>
<td>Brazilian Civilization</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.116</td>
<td>Given in English</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.125</td>
<td>Portuguese Civilization</td>
<td>3 cr.</td>
</tr>
<tr>
<td>35.129</td>
<td>Special Work</td>
<td>cr.arr.</td>
</tr>
</tbody>
</table>

**SPEECH AND DRAMATIC ART**

Chairman of Department, Samuel L. Becker

Office, 224 Jennings Hall

The Department of Speech and Dramatic Art presents an opportunity to combine the broad program of the College of Liberal Arts with a study of human communication. We are concerned with communication as a means of personal expression and development. We are concerned with communication as the major means by which man adjusts himself to his society and to himself. We are concerned with communication as the essential process for the operation of any society, especially the highly technological society. We are concerned with artistic communication as well as functional communication. Our concern with communication is manifested in two major ways: our attempts and the attempts of our students to better understand communication processes, and our attempts to help our students to better understand communication processes, and our attempts to help our
students and others improve their ability to communicate effectively, whether as actors or directors, community leaders, spokespersons, participants in a group, film-makers, broadcasters, designers, playwrights, teachers, speakers, or peers.

The department has six major divisions, where employment and activity are centered. Students must enroll in the following pages under the headings: Interdisciplinary Courses, Service Courses, Dramatic Literature, Dramatic Art, Radio and Television, and Broadcasting and Films. Students will consult with departmental advisors in the preparation of programs of study; and the concurrence of the advisor or the chairman of the department with the student's plan is encouraged initially and for all changes of program.

The requirements for undergraduate majors in each of the divisions are cited in the sections for each division. The department also offers M.A. and Ph.D. degrees with a variety of possible emphasis in each division. In addition, M.F.A. degrees are offered in dramatic art. Programs are developed for each individual graduate student with advisor and his graduate committee. Departmental requirements for the M.A. degrees in dramatic arts are:

1. A minimum of 30 semester hours, including Introduction to Research or its equivalent.
2. A research thesis or, for the non-thesis degree, a graduate seminar in which significant original research is done.
3. Successful completion of a six-hour written examination, the scope of which is determined by the candidate's departmental examiner and his graduate committee.
4. Successful completion of a comprehensive examination in one area of specialization with his advisor and his graduate committee.
5. A cumulative average of 3.0 in courses in his major field of study.

Staff


Assistant Professors: James J. Becker, George Cusack, Patricia Grose, Willy Pepe-Gillespie, Margaret B. Hall, Robert Hemp.

Course Descriptions

Interdisciplinary Courses

36:51 Principles of Communication Arts 2.s.h.

Required of all undergraduate majors. Concepts in the behavioral sciences, logistics, and communication are used to provide an interdisciplinary perspective of interpersonal communication, broadcasting, film, and theatre arts.

36:53 Voice Training for Speaking and Reading 3.s.h.

Required of all undergraduate majors. Phonetics, voice exercises, and analysis are correlated with applications to film, broadcasting, public address, and dramatic situations.

36:57 Oral Interpretation of Literature 3.s.h.

Introduction to the principles and practice of reading literary prose and poetry to audiences. Analysis, interpretation, evaluation. Recommended especially for students in elementary education and English.

36:79 Analytical and Criticism of Communication Arts 3.s.h.

Required of all majors. Should be taken during the junior year. Study and application of analytical and critical principles in the understanding and appreciation of dramatic works, speeches, films, and radio and television programs.

36:89 Honors in Speech and Dramatic Arts 3.s.h. or cr.arr.

Open to seniors and graduate students by permission.

36:151 Oral Interpretation of Literature II 3.s.h.

Critical analysis and oral presentation of the more complex works of fiction, poetry, drama.

36:198 Senior Seminar 1 to 3.s.h.

36:249 Special Studies cr.arr.

36:309 Introduction to Research 2 or 3.s.h.

Required of all new graduate students in speech and dramatic arts except those enrolled for the degree of Master of Fine Arts. Problems of selecting and developing research problems, study and application of research methods and techniques of research. Lectures, discussions, readings, papers, and reports; guidance in research.

36:358 Master's Thesis cr.arr.

36:683 Ph.D. Dissertation cr.arr.

Speech Education

Professor in Charge, Hugh F. Seabury

Office, 228 Jessup Hall

Teaching speech, dramatics, and forensics offers unusual rewards which compare favorably with those in other fields. Salaries, working conditions, and living standards are unusually excellent. The demand for teachers of speech, dramatics, and forensics in high schools and colleges is greater than the supply.

The immediate and long-range outlook is bright for well-prepared teachers. Obviously, the student should plan early in order to complete requirements for a degree and for his professional certificate. Students are advised to consult with Dr. Seabury in planning their programs in preparation for teaching.

B.A. with emphasis in speech education. Students may proceed to the B.A. with emphasis in speech education by electing a minimum of 30 semester hours in the department and a minimum of 10 semester hours in education plus 3 hours seminars in American history or American government, as recommended in Plans A, B, or C. Basis for each of the three plans are courses required of all departmental majors.

36:5 Principles of Communication Arts 3.s.h.

36:8 Video Training for Speaking and Reading 3.s.h.

36:27 Analysis and Criticism of Communication Arts

Plan A. Speech and Dramatic Arts 3.s.h.

36:128 Theory and Practice of Argumentation 3.s.h.

36:204 Group Discussion 3.s.h.

36:208 Introduction to Speech and Hearing Problems 3.s.h.

36:215 Stage Movement 3.s.h.

36:220 Acting 3.s.h.

36:230 Directing 3.s.h.

36:101 Survey of Films or introduction to Broadcasting 3.s.h.

Plan B. Speech Emphasis

36:128 Theory and Practice of Argumentation 3.s.h.

36:204 Group Discussion 3.s.h.
SPEECH AND DRAMATIC ART

26:25 Parliamentary Procedure 3 s.h.
26:33 Introduction to Speech and Hearing 3 s.h.
26:107 Educational Forensics 3 s.h.
26:235 Rhetoric Movement 3 s.h.
26:89 Acting I 3 s.h.
26:24 Survey of Film 3 s.h.
or
26:190 Introduction to Broadcasting 2 s.h.
Film C. Dramatic Art Emphasis
26:76 Acting Movement 3 s.h.
26:96 Acting II 3 s.h.
26:86, 46 Introduction to Theatrical Production 3 s.h.
26:102 Film Survey
or
26:190 Introduction to Broadcasting 3 s.h.
26:127 Educational Forensics 3 s.h.
*Students register for one-third of the hours for each course in acting, directing, or design under a separate dramatic art laboratory number.
Additional Recommendations Related to Plans A, B, and C.

Note: 1. Students are advised to complete a minimum of 30 semester hours as a minor in English (with some work in dramatic literature), social studies, or other tangential fields to strengthen their majors.
2. Accumulate a record of achievement in University forensics, television, and theatre activities.
3. Consult with your departmental adviser in planning your program of study and have him or her concurrent with your initial plan and with all later changes in the plan.

Requirements in Education

Statutory: American history or American government, 2 semester hours.
Procedures and Disorders, 3 s.h.
Junior Year
26:108 Introduction: Secondary School Teaching (first semester), 3 s.h.
26:281 Educational Psychology and Measurement (second semester), 3 s.h.
Senior Year
26:120 Methods: High School Speech, 3 s.h.
26:782 Methods in minor or a 3 semester hour course in education in lieu of a second methods course, 3 s.h.
26:180 Observing and Laboratory Practice in Teaching Speech in High School, 4 s.h.
26:180 Observing and Laboratory Practice in Teaching Speech in High School, 4 s.h.

Notes and Requirements

1. Application for admission to the program of teacher preparation must be made in the College of Education.
2. The professional semester in the College of Education consists of 8 semester hours of methods and 8 semester hours of student observation and laboratory practice in teaching.
3. Formal admission and senior standing are prerequisites to registration for the professional semester, based on an application filed in April preceding the year during which the student desires to do student teaching.
4. The methods course meets daily for the first seven weeks of the semester.
5. Student teaching consists of all-day class assignment daily during the last eight weeks of the semester.
6. In order to register for Observation and Laboratory Practice, the student must have satisfactorily completed Educational TP 75 and TS 100 or their equivalents, consulted Dr. Sevko and the Coordinator of Student Teaching, filed an application for assignment by April 1 preceding the academic year during which the student teaching is desired, maintained a grade-point average of not less than 2.5 and 3.0 (junior and senior) on all courses attempted in his major department and his second field of concentration if one was selected, and maintained a grade-point average of not less than 2.5 (2.0 if a graduate) in all college work taken in the major department.
7. Candidates for the master's degree find certifica
tion necessary to qualify for teaching in public junior and community colleges.

COUER DESCRIPTIONS

26:47 Methods: High School Speech 3 s.h.
Teaching speech, drama, and forensics. Consideration of various patterns in teaching, curricular programs, objectives, instructional methods and materials, effect of written criticism and evaluation, factors in testing and tests and references, periodicals and professional organizations, and a demonstration of class and interschool activities, with special attention given to the participation of speech in the schools. Projects, reports, observa
tions, readings, and discussion. Same as Education 75:180 required for majors who plan to apply for a professional certificate to teach.

75:180 Laboratory: Teaching Speech 3 s.h.
Demonstration, observation, and supervised laboratory practice in high school. Must be included as Education 75:181 (4 semester hours) and 75:192 (4 semester hours) by majors who plan to apply for a professional certificate to teach.

26:107 Educational Forensics 3 s.h.
Planning, organizing, and evaluating the curricular and the extracurricular forensics programs in the school. Designed as a course for independent study. Class meeting on four Saturdays. Dates to be arranged.

36:110 Speech for Educators 3 s.h.
For administrators, teachers, and other adults who wish to study and develop their speech abilities to serve the professional and social situations in which they desire to be of service to their schools and community. Requires no preparation, performance, criticism, and evaluation, and no written or oral work. Consultations with the speech and conference leadership. Individualized assignments in readings and performance. Same as Education 75:180.

26:171 The Teaching of Speech 3 s.h.
Principles, practices, and problems in teaching speech and directing extra-curricular and interschool activities in dramatics, forensics, and speech in today's secondary schools. Emphasis on planning, organizing, evaluating, and supervising the speech program including extra-curricular and interschool activities. To satisfy the speech interests, meet the needs, and develop the abilities of individual students in speech experiences to an increasingly higher level of their individual capacities. Examination, observation, reports, and discussions on methods related to teaching and supervision. Same as Education 75:185.

26:178 Workshop in Teaching Dramatics, Forensics, and Speech 3 s.h.
Methods, materials, audiovisual aids, progression, and evaluation in teaching and supervising students in courses in extra-curricular and interschool activities. Provides opportunities for observations, demonstration, and practice in teaching voice and speech development, dramatic art, direction, debate, radio and television, and individual speech, drama, and forensic events. Same as Education 75:281.

26:140 Educational Play Production 1 to 3 s.h.
Principles and practice of play production in the schools. Designed to all 6-20 of production. Free choice of the play through evaluating the performance.

26:150 Teaching Personality Rhetoric 2 s.h.
Lecture-discussion course which explores the literature and problems involved in teaching composition, public speaking, and writing in secondary school.

36:301 Foundations of Speech 2 to 4 s.h.
Origins, early precepts, psychological bases, and theories
and practices of teaching speech. Attention to relevant counsel, teaching, and writing by early contributors to speech education, beginning with Pabst-top and ending with the English educators. Special attention to speech education in the works of Aristotle, Quintilian, the Attic orators, St. Augustine, Ramus, and English teachers and writers.

36.302 Modern Speech Education 2 to 4 a.h.
Studies in modern speech education, beginning with the works of Hamann and English theoreticians and writers, and ending with current pedagogies in teaching, research, and service in speech education in America. Attention to institutional methods and materials as revealed by exploring the literature and problems related to planning, organizing, and evaluating the speech program in today's secondary schools.

Rhetoric and Public Address
Professor in Charge, Donald C. Bryant
Office, 236 Jenam Hall

R.A. with emphasis in public address. Required are a minimum of 26 semester hours and a maximum of 36 semester hours in the department. This major is recommended for students preparing for careers in public speaking or teaching. It is intended to serve as an effective base for a sound liberal education encompassing breadth of study, experience, and modest specialization. The requirements incorporate a reasonable balance between doing and knowing - between courses and extracurricular activities emphasizing in-depth and guided improvement in oral performance, and courses devoted to theoretical, critical, and historical study of principles and practice of public address and the interrelations of public address and theatre, film, radio, television, and other arts of communication. Further, the student concentrating in public address is expected to take one or more substantive courses in branches of the department other than public address; and he is expected to present a final paper based on research emphasizing the application of relevant material from other departments of the College of Liberal Arts.

I. Required of all departmental majors
36.13 Principles of Communication Arts
36.79 Analysis and Criticism of Communication
36.63 Voice Training for Speaking and Reading
36.40 Public Speaking
36.25 Rhetoric
36.75 Parliamentary Procedure
IV. One of the following:
36.125 Theory and Practice of Persuasion
36.120 Theory and Practice of Argumentation
36.130 Interview and Conference Techniques
V. One of the following:
36.35 Speeches of the Western World
36.17 Theories of Rhetoric
36.16 Rhetoric of Adversity
36.18 Greek and Roman Public Address
36.133 Contemporary Public Address
36.132 Practical Speech
VI. A substantive course (historical, critical, theoretical) in one of the following:
36.138 History of Speech
36.77 History of the Rhetorical Tradition
VII. At least 3 semester hours beyond the liberal arts general education required in one of the following: study of literature, history, psychology, philosophy, foreign language, and social science. Should include a course in expository or argumentative writing.

COURSE DESCRIPTIONS
36.25 Principles of Speech Communication 2 a.h.
This course provides the fundamental bases of oral communication: study of the processes and problems of effective participation in practical speaking and listening; attention to and guided practice in statement and development of ideas, use of evidence, methods of motivation, and principles and methods of presentation. Balances the University requirement in speech for students not offering courses 181 and 2, 182, or the equivalent. This requirement may be satisfied also by tests administered at the beginning of each semester by the Rhetoric Program, and for experienced students by passing Speech 36.30. Not open for credit to students who have had or are taking Rhetoric 181 and 2, 182, 263, 264, or equivalent.

36.20 Public Speaking 2 a.h.
An intermediate course in speechmaking presenting prevailing principles of speech delivery. Open for credit to students who have had or are taking Rhetoric 181 and 2, 182, 263, or equivalent.

36.30 Rhetoric of Argument
2 a.h.
Projects in social decision and action, involving theory and practical application of problem-solving techniques, interpersonal sensitivity, group cohesiveness, leadership, and persuasion.

36.75 Parliamentary Procedure
2 a.h.
Rules of order for the conduct of business in meetings of committees, clubs, and organizations. Opportunity for practice both in reading and debating motions from the floor and in presiding over parliamentary sessions.

36.85 Speeches of the Western World
2 a.h.
Notable speeches of classical Greece and Rome, modern Europe, Great Britain, and the United States, studied as dynamic events in historical contexts and as important works of literary art.

36.86 Theories of Rhetoric
3 a.h.
Study of major theories of oral and written prose discourse. Places in the present understanding of their relevance to the understanding and guidance of contemporary practice. May be taken as readings, lectures, discussion, and exploratory papers.

36.87 Rhetoric and Agitation
Control 3 a.h.
Projects, lectures, discussions, developing theories for analyzing agitation involving social change and response to that agitation. In small groups students participate in case studies of agitation and its control and prepare short papers.

36.106 Greek and Roman Public Address
3 a.h.
Analysis and discussion of the major speakers and their speeches from the Fifth Century B.C. to A.D. 179, study of the relevant social, philosophical, and political practices and their application to the speechmaking of each era. Readings, reports, and discussion on the speaking of the Sophists, selected Attic Orators, Cicero, and the early Christian Fathers.

36.185 Theory and Practice of Persuasion
3 a.h.
Exhaustive study of the principles of persuasion with applications to their theory, experience in handling complex problems of persuasion in frequent speech situations.

36.189 Theory and Practice of Argumentation
3 a.h.
Instruction and practice in analyses, investigation, broadening of vocabulary, organization, and delivery; debates on selected topics recommended for persuasive lawyers, business people, debaters, and teachers of oratory.

36.190 Interview and Conference Techniques 3 a.h.
Techniques and principles of communication in small groups with and without the aid of modern and traditional instruments of persuasion. Consideration of theory and guided practice. Review of discussion techniques and the principles of
36:121 Contemporary Public Address 3 a.h.
Critical examination of public address since World War II. Attention to speaking in legislative situations, the courts, the church, and the public platform. While the focus is on American speakers, consideration is given also to major speakers of other countries.

36:132 Selected American Speakers 3 a.h.
Historical and critical study of representative American speakers in Congress, the courts, the church, and the public platform from colonial times to the present.

36:133 Selected British Speakers 3 a.h.
Historical and critical study of representative speakers in the British Isles—Parliament, the law, and the church, and on the public platform—from the times of Elizabeth I to those of George V.

36:135 Rhetorical Criticism 3 a.h.
The concepts and principles of rhetorical theory applied in the analytical-critical examination of speeches and speakers, controversial writings, and the rhetorical dimensions of literary discourse. Readings, discussions, papers in practical criticism.

36:307 American Public Address I 3 or 4 a.h.
Historical and critical study of American public speaking—In Congress and other legislative situations, pulpit, law court, and public platform—from the colonial period to the Civil War.

36:308 American Public Address II 3 or 4 a.h.
Continuation of 36:307, from the Civil War to the end of World War II.

36:309 Classical and Renaissance Rhetoric 3 or 4 a.h.
Rhetorical theory in the Greek and Roman world and the principal subsequent theories and philosophies and discourse through the Renaissance to the 17th century. Same as English 8307.

36:310 Modern Rhetoric 3 or 4 a.h.
Rhetorical theory from the 17th century through the 19th. Analytical study of theories and philosophies of discourse. Same as English 8308.

36:313 British and Continental Public Address 1 3 a.h.
Historical study of public speaking—in pulpit, parliament, law court, and popular assembly—in the British Isles and Western Europe from the Middle Ages to the French Revolution.

36:314 British and Continental Public Address 2 3 a.h.
A continuation of 36:313, from 1700 to the present time.

36:316 Contemporary Rhetoric 3 a.h.
Theories and philosophies of discourse from 1850 to the present time. Same as English 8306.

36:330 Foundations of Public Address cr.arr.
Expository examination of selected rhetoricians, poets, and philosophers in the history of rhetoric, or rhetorical concepts. Participants selected for a given year will be indicated in the Schedule of Courses. Same as English 8471.

36:644 Seminar: Studies in Public Address 2 to 4 a.h.
Expository examination of selected speakers, controversial writers, or modes or genres of rhetorical discourse. Participants selected for a given year will be indicated in the Schedule of Courses.

36:645 Seminar: Aristotle and Demosthenes 2 to 4 a.h.
Intensive study of Aristotelian treatises related to the Rhetorics leading a critical system for analyzing the major speeches of Demosthenes.

36:646 Seminar: Edmund Burke 2 to 4 a.h.
Burke as speaker, writer, and critic. Same as English 8427.

36:647 Seminar: Style 2 to 4 a.h.
Studies in the logic and rhetoric of argument, with special attention to the work of recent writers in analysis studies and the philosophy of science.

36:648 Seminar: Argument 2 to 4 a.h.
Studies in the logic and rhetoric of argument, with special attention to the work of recent writers in analysis studies and the philosophy of science.

36:590 Seminar: American Colonial Public Address 2 to 4 a.h.
Special studies in political speakers and speaking, preaching and preaching, of the 17th and 18th centuries in America.

Communication Research
Professor: Mr. John W. Bowers
Office: 337 Jessup Hall
This is a graduate program only, leading either to the M.A. or the Ph.D. degrees. Programs designed for individual students provide the background for experimental research on interpersonal communication, group communication, mass media, or theatre. Students are expected to take work in related social sciences in addition to the general requirements of the Department of Speech and Dramatic Art and appropriate courses selected 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 the course 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 the department. Specific research opportunities exist in addition to those required for a thesis or dissertation project are available in the Department's Communication Research Laboratory. Several original studies in preparation for dissertation and later research are required of doctoral candidates.

36:105 Introduction to Language and Communication 3 a.h.
Same as Linguistics 102, 103. Relates the theory of language to the process of interpersonal communication. Infor- mal research projects appropriate to an introductory course.

36:124 Group Communication 3 a.h.
Small-group research and theory. Original research re- quired.

36:167 Acquisition of Communication Behaviors 3 a.h.

36:323 Quantitative Methods in Speech Research 3 a.h.
Principles and methods of designing and conducting ex- perimental research in speech and dramatic art.

36:324 Communication Research 3 a.h.
Review and analysis of quantitative research on interpersonal communication.

36:325 Prospective in Linguistics 3 a.h.
Same as Linguistics 102, 103.

36:527 Seminar: Experimental Research in Theatre cr.arr.
Methodological and substantive analyses of experimental work in dramatic art. Primary research encouraged.
SPEECH AND DRAMATIC ART

36:532 Seminar: Techniques and Problems 2-3 h.
Focuses on a problem area in small-group research; the problem area changes from term to term. Original research required.

36:532 Seminar: Communication Research 2 or 3 h.
The focus of this seminar changes from term to term. Among other topics to which the seminar devotes attention are language variables and methodological issues. Original research required.

Dramatic Art
(A Unit in the Division of Fine Arts)
Professor in Charge, David Thayer
Office, University Theatre

A.U. units are defined as follows:
1. Required of all department majors.
2. Only When
3. Elective

Dramatic Art

26:50 Principles of Communication Arts
26:55 Voice Training for Speaking and Reading
26:70 Analysis and Criticism of Communication Arts

II. Required of all majors with an emphasis in Dramatic Art;
26:11 Stage Movement
26:16-18 Introduction to Theatrical Design
26:22 Acting I
26:26 Principles of Directing
26:119 Dramatic Art Laboratory

III. Two of the following courses (including at least one from Group A):
A. 26:113 Shakespeare
26:119 Greek Drama in Translation
26:123 Modern Theatre
26:127 Modern Drama: Lenin to Shaw
26:153 American Theatre History

IV. One of the following:
26:108 Survey of Broadcasting
26:145 Survey of Film
26:185 Broadcasting Criticism
26:21 Modern Theatre
26:194 Visualisation and Film Theory

V. One of the following:
26:97 Rhetoric of Agitation and Control
26:92 Speeches of the Western World
26:105 Introduction to Language and Communication
26:131 Contemporary Public Address
26:122 Selected American Speakers
26:134 Group Communication

Beyond the above, a maximum of 23 semester hours may be elected, in the department. Majors with a dramatic art emphasis must enroll in 31:31-32 Drama in Western Culture to satisfy the historical-cultural core requirement.

M.A. in dramatic art. A general program for high school and junior college teachers and for those wishing an intermediate degree before proceeding to the doctorate. The program of 50 or more semester hours is selected by the student and the advisor within the following guidelines:

Introduction to Research (26:300) 3 h.
Courses in theatrical production 3 h.
Courses in theatre history 3 h.
Courses in dramatic literature 3 h.
A thesis or seminar seminar in history, theory, or criticism of drama or theatre is required.

M.P.A. in dramatic art. Students who demonstrate exceptional ability in playwrighting, directing, design, acting, or technical theatre are eligible for admission to the program of study and production leading to the M.P.A. Admission is dependent on recommendations and appropriate demonstrations of ability. Six semesters in residence and 60 semester hours are required, and students must apply for admission each year. Substantial creative work of high quality is expected of all candidates.

Ph.D. in dramatic art. The program for the Ph.D. is made to suit individual backgrounds and requirements. The principal purpose of the program of study and research leading to the Ph.D. degree is to give the candidate a mastery of the field of learning, including a working command of the significant literature and research methods and of the professional skills appropriate to it.

Production Sequences

36:173 Playwriting I
36:253 Playwriting Studio (may be repeated)
36:255 Playwriting II
36:256 Projects in Playwriting

Directing
36:251 Directing I
36:252 Directing II
36:253 Directing III
36:254 Directing IV
36:257, 158 Theatre Techniques in Television
36:259 Projects in Directing

Design and Technical Direction
36:211, 258 Introduction to Theatrical Design
36:205 Production Design
36:165, 166 Visual Research for Theatre
36:218 Design Studio (may be repeated)
36:217 Technical Direction Studio (may be repeated)
36:251 Lighting Equipment
36:223 Sound Systems in the Theatre
36:223 Stage and Production Management
36:224 Advanced Scene Construction
36:226 Scene Painting
36:258 Properties and Special Effects
36:255 Stage Costume: Fabric
36:223 Stage Costume: Design
36:255 Stage Costume: Hats and Headwear
36:235 Stage Makeup
36:255 Masks and Costumes
36:255 Stage Properties
36:255 Projects in Stage Costuming
36:255 Projects in Stage Lighting
36:254 Projects in Stage Technicals
36:254 Projects in Technicals Theatre
36:254 Projects in Technical Theatre

Acting
36:211 Stage Movement
36:253 Voice Training
36:255 Acting I
36:255 Acting II
36:255 Acting III
36:255 Acting IV
36:255 Acting Laboratory
36:205 Movement Laboratory
36:255 Projects in Acting

CURSE DESCRIPTIONS

For Undergraduates

36:11 Stage Movement 2 h.

36:51 Drama in Western Culture 4 h.

36:53 Drama in Western Culture 4 h.

36:65 Introduction to Theatrical Design 2 h. a

Analysis of scripts for theatre designers and technicians. Mechatronics, Elizabethan theatre, Design of scenery, costume, lighting, and makeup. Assigned laboratory work in these areas.
36:56 Introduction to Theatrical Design 2 a.h.
Continuation of 36:55. Prerequisite: 36:55.
36:59 Acting I 2 a.h.
Reading, improvisation, and scene study developing the actor's psychological technique. Exercises to enhance concentration of attention, class reunion, imagination, and sensory responsiveness. Prerequisites: 36:11 and 36:33.
36:60 Acting II 2 a.h.
Readings and exercises leading to a fundamental technical skill in dramatizing the dramatic values of a play text to the stage. Consideration of the director's media, arrangements of the stage picture, and production procedures. Prerequisite: 36-59.

For Undergraduates and Graduates
36:108 Greek Drama in Translation 3 a.h.
Same as Classics 14:198.
36:112 Shakespeare Same as English 8:112.
36:113 Modern American Drama Same as English 8:138.
36:114 Restoration Drama Same as English 8:138.
36:115 Roman Drama in Translation Same as Latin 36:116.
36:119 Dramatic Art Laboratory 3 a.h.
Same as Art 36:119 and Music 36:114.
36:124 English Drama of the 19th Century 3 a.h.
Same as English 8:114.
36:127 Modern Drama: Ibsen to Shaw 3 a.h.
36:128 Drama Since Pirandello Same as English 8:127.
36:151 Theatre Techniques in Television 3 a.h.
Scene essentials of directing, acting, and staging plays for high school television. Prerequisite: 36:111 or permission of instructor.
36:158 Theatre Techniques in Television 3 a.h.
Coordination of 36:127.
36:163 Production Design 2 a.h.*
Projects in scenic, costume, lighting, and property design. Prerequisites: 36:31 and 36:34.
36:183 Visual Research for Theatre 3 a.h.
Major styles in the decorative arts relative to the production of plays; fashions in manners, costumes, furnishings, interior decoration, handcrafts, and theatrical conventions.
36:184 Visual Research for Theatre 3 a.h.
Continuation of 36:183.
36:185 Acting II 3 a.h.
Readings and scene study focusing upon the synthesis of technical, characterization, and communication. Prerequisite: 36:59.
36:171 Directing II 2 a.h.*
Study of the art of play direction with emphasis on the director as an interpretive artist. Prerequisite: 36:59.
36:173 Playwriting I 2 a.h.*
Analysis and practice of the playwright's technique in today's theatre, including premise imagination and development, dramatic patternism, dramatic language, gestures, and character arrangements. Prerequisite: 36:112.
36:183 American Theatre History 3 a.h.
Principal plays, playwrights, and developments in the American theatre from its beginning to the present.
36:184 Summer Repertory Theatre 3 a.h.
May be repeated to a maximum of 6 semester hours.
36:176 Strategies in The Drama 3 a.h.
Analysis of strategies for analyzing and producing plays. Emphasis on current trends in drama.
36:187 Play Analysis and Performance 3 a.h.
Primarily for Graduates.

The following seminars and courses may be repeated with permission of instructor.
36:201 Acting III 2 a.h.
Emphasis on problems of style and genre in the modern repertoire.
36:202 Acting IV 2 a.h.
Emphasis on problems of style and genre in the modern repertoire.
36:203 Directing III 2 a.h.
Emphasis upon problems of style and genre in plays from the modern repertoire.
36:204 Directing IV 2 a.h.
Emphasis upon the problems of style and genre in plays from the modern repertoire.
36:205 Voice Laboratory 1 a.h.
Voice development for the stage. Open only to M.F.A. candidates.
36:207 Movement Laboratory 1 a.h.
Individual attention to movement technique and experience. Open only to M.F.A. candidates.
36:211 M.F.A. Production 1 to 6 a.h.
Appropriate assignments in all aspects of production of plays in the Fine Arts Series.
36:211 M.F.A. Workshop I 1 to 6 a.h.
Laboratory of the second year M.F.A. ensemble. Open to second-year M.F.A. students.
36:212 M.F.A. Workshop II 1 to 6 a.h.
Laboratory of the third-year M.F.A. ensemble. Open only to third-year M.F.A. students.
36:213 Playwriting Studio 3 a.h.
Open only to M.F.A. students.
36:215 Design Studio 3 a.h.
Individual assignments to develop ability in various areas of design. Open only to M.F.A. students.
36:217 Technical Direction Studio 3 a.h.
Individual assignments of problems of theatrical production. Open only to M.F.A. students.
36:221 Lighting Equipment 2 a.h.
Theoretical, optical, and mechanical means for the control of light on stage.
36:222 Sound Systems in the Theatre 2 a.h.
Layout and control of stereo-audible systems for the theatre.
36:223 Stage and Production Management 2 a.h.
Design and organization of production personnel.

One-hour concurrent registration required for all courses marked with an asterisk (*). 125 hours of approved graduate activity for each hour of credit. May be taken independent of marked courses.

SPEECH AND DRAMATIC ART

185
### Speech and Dramatic Art

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<td>36:160</td>
<td>Survey of Film 3 s.h.</td>
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<td>36:181</td>
<td>Introduction to Broadcasting 3 s.h.</td>
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<td>36:184</td>
<td>History of Broadcasting 3 s.h.</td>
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<td>36:185</td>
<td>Visual and Dramatic Art 3 s.h.</td>
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<td>36:187</td>
<td>Elements of Television 3 s.h.</td>
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<td>Television and Radio as Media for Instruction 3 s.h.</td>
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<td>36:211</td>
<td>Seminar: Film Analysis and Criticism 3 s.h.</td>
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**SPEECH AND DRAMATIC ART**

- **36:158** Cinematography Techniques 3 s.h.
- **36:160** Survey of Film 3 s.h.
- **36:181** Introduction to Broadcasting 3 s.h.
- **36:184** History of Broadcasting 3 s.h.
- **36:185** Visual and Dramatic Art 3 s.h.
- **36:187** Elements of Television 3 s.h.
- **36:189** Television and Radio as Media for Instruction 3 s.h.
- **36:190** Radio Production 3 s.h.
- **36:192** Radio Workshop 3 s.h.
- **36:193** Motion Picture History 3 s.h.
- **36:200** Seminar: Film History 3 s.h.
- **36:205** Seminar in Broadcast 3 s.h.
- **36:210** Seminar: American Film 3 s.h.
- **36:211** Seminar: Film Analysis and Criticism 3 s.h.

**Course Descriptions**

- **36:158** Cinematography Techniques 3 s.h.
  - Development of film techniques affecting the artistic and technical aspects of the medium, emphasis on the production of short films.
- **36:160** Survey of Film 3 s.h.
  - Survey of film from its inception to the present day, focusing on the evolution of film as an art form.
- **36:181** Introduction to Broadcasting 3 s.h.
  - Fundamentals of radio and television broadcasting, including production techniques and equipment.
- **36:184** History of Broadcasting 3 s.h.
  - History of radio and television, including the development of major broadcast networks and their impact on society.
- **36:185** Visual and Dramatic Art 3 s.h.
  - Overview of visual and dramatic arts, including film, television, and theater.
- **36:187** Elements of Television 3 s.h.
  - Basic principles of television production, including scriptwriting, directing, and editing.
- **36:189** Television and Radio as Media for Instruction 3 s.h.
  - Use of television and radio in educational contexts.
- **36:190** Radio Production 3 s.h.
  - Techniques and practices of radio production, including scriptwriting, directing, and sound recording.
- **36:192** Radio Workshop 3 s.h.
  - Practical experience in radio production through hands-on projects.
- **36:193** Motion Picture History 3 s.h.
  - Historical development of the motion picture industry, focusing on key figures and innovations.

**Additional Information**

- **36:200** Seminar: Film History 3 s.h.
  - Advanced study of film history, including critical theory and historical context.
- **36:205** Seminar in Broadcast 3 s.h.
  - Advanced study of broadcast media, focusing on contemporary issues.
- **36:210** Seminar: American Film 3 s.h.
  - In-depth study of American film, focusing on key filmmakers and themes.
- **36:211** Seminar: Film Analysis and Criticism 3 s.h.
  - Analysis of film texts, focusing on critical theory and film technique.

**About the Department**

- The Speech and Dramatic Art department offers a comprehensive program in film, television, and radio, designed to prepare students for careers in these fields or for further study in graduate programs.
- Students have access to state-of-the-art facilities, including film and television studios, sound stages, and editing suites.
- Opportunities for internships and industry placements are available.

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**For more information, visit the Speech and Dramatic Art department's website or contact the department directly.**
A minimum of 9 semester hours completed by one course from Group I and one course from Group II, as listed below, and one additional course selected from the fields of psychology, anthropology, or sociology.

Group I

S101 Child Development 3 s.h.
S114 Introduction to Child Psychology 3 s.h.

Group II

S213 Psychology of Adjustment 3 s.h.
S231 Personality Development 3 s.h.
S310 Abnormal Psychology 3 s.h.

Other requirements

Students majoring in speech and hearing science must also complete or have had the equivalent of each of the following: college algebra, college trigonometry, college physics, college chemistry, and a college course in the biological sciences.

Honors Program

The senior year program leading to the B.S. degree with Honors in Speech Pathology and Audiology is open to students who at the beginning of the senior year have completed at least 10 semester hours of coursework that can be counted toward a major in this department, earned a minimum 3.0 grade-point average or all major courses, and earned a minimum general grade-point average of 3.0. For graduation with Honors, the student is required to have completed the requirements for a major in this department; completed two semesters of study in a research area during the senior year Honors program; maintained a minimum overall grade-point average of 3.0, a minimum grade-point average of 3.0 for all courses in the major, and a minimum grade-point average of 3.0 in the required 8 semester hours of departmental Honors courses for seniors. Honors seminar and Honors thesis; and be recommended for graduation with Honors by the Honors thesis advisor and the departmental Honors advisor.

Students who are eligible for the senior year Honors program and who are not included in this list of students should confer with the departmental Honors advisor prior to the beginning of the senior year.

At any time during undergraduate study, students who have earned a minimum grade-point average of 3.0 and who have not entered the U of I as Honors students may apply for Honors classification in the College of Liberal Arts and in this department by recommendation of the departmental Honors advisor.

Advanced Degrees in Speech Pathology and Audiology

More specific details on the requirements for advanced degrees can be obtained from the Office of the Department of Speech Pathology and Audiology. The following paragraphs give summaries of the several degree programs.

A graduate student is accepted as a candidate for an advanced degree by recommendation of the departmental faculty based upon the graduate record, academic record and scores on the Aptitude Test of the Graduate Record Examination. In some cases a student may be admitted for graduate study but acceptance as a degree candidate may be reserved until the student has demonstrated his ability to perform satisfactorily in graduate work during at least three semesters of residence at the U of I.

The M.A. program in speech pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The various programs for the professional M.A. program are necessarily specified to ensure that the student will meet upon graduation the requirements of current professional practice. The general M.A. program allows greater flexibility in the selection of courses to be taken by the student, and permits the student to study in many of the graduate courses in speech and hearing science, development of oral and written communication skills, and human behavior which is essentially equivalent to an undergraduate major in the field of psychology.

The Ph.D. program provides for comprehensive training for the scholar and researcher in speech and hearing science.

Undergraduate Curricula

Since the master's degree or its equivalent is the minimum level of preparation for persons seeking professional careers in this field, the undergraduate curricula leading to the B.S. or B.A. degree in speech and hearing science have as a primary purpose the preparation of students for graduate work. These undergraduate programs may be taken, of course, by persons who wish a degree in the College of Liberal Arts but who do not desire a career in this field.

Bachelor's degrees in speech and hearing science. Students may qualify for the B.S. degree or the B.A. degree with a major in speech and hearing science by completing the requirements set forth by the College of Liberal Arts, the undergraduate department, and the College of Liberal Arts, as given below:

Required departmental courses

S213 Introduction to Speech and Hearing Science 3 s.h.
S214 Hearing Conservation 3 s.h.
S222 Anatomy of the Speech and Hearing Mechanisms 3 s.h.
S232 Fundamentals of Speech Science 3 s.h.
S215 Introduction to Hearing Science 3 s.h.
S216 Children's Language Development 3 s.h.
S310 Audiology 3 s.h.
S2113 Principles of Audiology 3 s.h.
S2113 Principles of Audiology 3 s.h.
S214 Statistical Analysis I 3 s.h.
S10150 General Linguistics 3 s.h.
processes and their disorders and also for more intensive specialization in particular clinical problems in which the student may have special interest.

The full academic load for all regular graduate students is 22 semester hours of course registration per semester and 32 semester hours in summer session. In addition to the regular requirements for the M.A. degree, the student may include in his program up to six semester hours in another field, and this permission is granted only upon the recommendation of the Graduate Committee of the four other departments (A, B, C, or E), and upon the approval of the Dean of the College. The student should choose one of these four curricula in relation to his career objectives and interests.

A total of 81 semester hours of graduate work is the minimum required for a master's degree in this department. It has been found that students usually require at least three semesters and one summer term to become fully acquainted with the principles of clinical psychology.

Requirements for the professional M.A. degree

A. All majors

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credits</th>
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</thead>
<tbody>
<tr>
<td>2101</td>
<td>Human Processes of Speech and Language</td>
<td>3.0</td>
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<tr>
<td>2300</td>
<td>Clinical Procedures in Speech and Language</td>
<td>3.0</td>
</tr>
<tr>
<td>2501</td>
<td>Articulation Disorders</td>
<td>3.0</td>
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<tr>
<td>2502</td>
<td>Aphasic Disorders</td>
<td>3.0</td>
</tr>
<tr>
<td>5206</td>
<td>Seminar: Introduction to Research in Clinical Psychology</td>
<td>3.0</td>
</tr>
<tr>
<td>2214</td>
<td>Clinical Procedures for Language Disorders</td>
<td>3.0</td>
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<tr>
<td>2544</td>
<td>Auditory Rehabilitation</td>
<td>3.0</td>
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B. Speech pathology, general clinical emphasis

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credits</th>
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</thead>
<tbody>
<tr>
<td>2101</td>
<td>Human Processes of Speech and Language</td>
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<tr>
<td>2300</td>
<td>Clinical Procedures in Speech and Language</td>
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<tr>
<td>2501</td>
<td>Articulation Disorders</td>
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<tr>
<td>2502</td>
<td>Aphasic Disorders</td>
<td>3.0</td>
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<tr>
<td>5206</td>
<td>Seminar: Introduction to Research in Clinical Psychology</td>
<td>3.0</td>
</tr>
<tr>
<td>2214</td>
<td>Clinical Procedures for Language Disorders</td>
<td>3.0</td>
</tr>
<tr>
<td>2544</td>
<td>Auditory Rehabilitation</td>
<td>3.0</td>
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</tbody>
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C. Speech pathology, general clinical emphasis on clinical work in elementary and secondary schools

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credits</th>
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</thead>
<tbody>
<tr>
<td>2101</td>
<td>Human Processes of Speech and Language</td>
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<tr>
<td>2544</td>
<td>Auditory Rehabilitation</td>
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</tbody>
</table>

*Equivalent undergraduate course will be accepted as meeting this requirement.*
SPEECH PATHOLOGY AND AUDIOLOGY

gineering, mathematics, statistics, pathology, neurology, anatomy, and psychology.

The Ph.D. comprehensive examinations are ordinarily taken after approximately two years of graduate study. The examinations are written and oral and include a general review of the student's qualifications and performance in graduate training. Candidates whose earlier training has not included a mastery thesis are not eligible to take the comprehensive examinations until they have demonstrated aptitude for research by completing a suitable research project and presenting a paper summarizing its results. This project is to be of a magnitude which is appropriate for a master's thesis. The Ph.D. candidate must also successfully complete a dissertation which is based upon original research in his area of specialization.

Recommended courses

A. All areas of specialization

The courses, or their equivalents, required for the M.A. degree and the following additional courses:

3.520 General Experimental Phonetics 4.5
3.500, 5.51, or 5.52 Research not less than 20 s.h.
Physiological Psychology or
Neuropsychology not less than 5 s.h.
Statistics beyond introductory course not less than 5 s.h.

Appropriate courses in Computer Science

B. Speech pathology major

The courses listed under A. and
21.183 Abnormal Psychology 3 s.h.
Advanced seminars in areas of special interest 4 s.h.
Practicum

C. Audiology major

The courses listed under A. and
2.320 Advanced Laboratory Instrumentation 3 s.h.
2.354 Psychosciences 3 s.h.
2.355 Psychosciences Laboratory 3 s.h.
2.356 Physiology of Hearing 4 s.h.
3.527 The Pathological Anatomy System 3 s.h.
21.183 Abnormal Psychology 5 s.h.
Advanced seminars in areas of special interest 4 s.h.
Practicum (clínico)

D. Speech or hearing science major

Ph.D. major in speech pathology and audiology in these areas will vary considerably depending on the individual student's interest. The Ph.D. program will usually include in addition to those courses listed under A., major areas of specialization.

2.320 Advanced Laboratory Instrumentation 3 s.h.
2.350 Abnormal Psychology 3 s.h.
2.355 Psychosciences Laboratory 3 s.h.
2.356 Physiology of Hearing 4 s.h.
3.527 The Pathological Anatomy System 3 s.h.
21.183 Abnormal Psychology 5 s.h.
Advanced seminars in areas of special interest 4 s.h.
Practicum (clínico)

Students following this program are not required to register for research credit during each semester of residence.

Training Facilities

The student of speech pathology and audiology at The University of Iowa is provided with a broad range of opportunities to acquire experience in both clinical and research areas.

Clinical facilities. The clinical training program derives great benefit from the fact that Iowa City is the health center of the state and that these health services are extensive. In any area that they are fully utilized by the clinical training of students in speech pathology and audiology.

The University of Iowa Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluations, and rehabilitation programs for speech, hearing, and language disorders. Included in a six-week summer resident program for children. These clinical programs are planned for the training of students through supervised clinical experience in the areas of speech, hearing, and language disorders. This training is enhanced by the use of the new and modern facilities of the Wendell Johnson Speech and Hearing Center, which includes audiological testing units, diagnostic and therapy units, a closed-circuit television system, and modern equipment for diagnostics and therapy.

In addition to the clinical training in the University Speech and Hearing Clinic, such training may also be obtained in the following supervised clinical practice with elementary school children in the schools is included by cooperative arrangements with the local schools and the special education programs of Johnson County and adjacent counties; supervised clinical practice in speech, and hearing service provided by the Department of Otolaryngology and Maxillofacial Surgery, which operates special schools and units and this service, and the Vocational Rehabilitation Program of the University Hospitals, as well as by the Iowa State Services for crippled children, the University Hospitals, and the Veterans Administration Hospital located in Iowa City; and internships and internationals programs with the Iowa School for the Deaf, the Iowa Blind and hearing from State, hospitals, programs for the mentally retarded, and other State institutions.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research facilities. Research facilities in the Wendell Johnson Speech and Hearing Center include a number of fully equipped laboratories for the study of the basic processes of speech, hearing, and language and disorders of these processes. Included are laboratories and equipment for acoustic, physiologic, and perceptual studies of speech and for audiology, psychophysiologic and neuro-

neurophysiologic studies of hearing. Well-equipped mechan-
ical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation of various departments of the University Hospitals and the College of Dentistry makes it possible to utilize additional laboratory facilities for the investigation of a wide variety of research problems. Research opportunities are materially broadened by the active par-
tipation and cooperation, especially with respect to techni-

ical problems, of specialists from various fields including psychology, child development, education, engineering, and medicine.

STAFF

Associate Professor: Charles V. Anderson, David J. Bozarth, Jerry E. Van Den Haag.
Assistant Professor: Carl R. Berta, Richard Haslaad, Monica R. Higgs, Joel L. Marquardt.
Clinical Associate: Penelope J. Kiechleman, Brete Law-

Lawyer. Supervisor Social Service: Barbara B. Moon.

Graduate Assistant. Research Assistant Prof. J. R. Reger; As-

Assistant Professor: James L. Smith; Clinical Assistant Pro-

fessor: Herbert N. Jorand and Ann A. Van Demark.

COURSE DESCRIPTIONS

3.1 Preprofessional Seminar in Speech Pathology and Audiology 0 to 1.0 s.h.

A general introduction to the nature and scope of the field of speech pathology and audiology for students who anticipate majoring in this field.

3.15 Individual Instruction in Speech and Hearing Clinic 0 to 1.0 s.h.

Open to any student in need of speech and hearing clinic service, except those enrolled in Clinic Program who automatically receive services without further registration. Application by clinical staff. All semesters.

3.15 Introduction to Speech and Hearing 3.0 s.h.

A speech language hearing course for students majoring in the field of scientific study. Description of the major types of speech, hearing, and language disorders. Two lectures and two
3.535 Signal Analysis 2 s.h.
Development of a set of mathematical tools for analysis of electrical and acoustical signals in linear, time-invariant systems. Mathematical treatment coordinated with an introduction to dynamical analogies. Assigned problems relate to readings in speech and hearing sciences. Prerequisites, 2.530 or consent of instructor.

3.531 Practicum: Neuropsychology of Speech and Language cr. arr.
Supervised clinical practice at Speech and Hearing Clinic, University Hospitals, and University Hospital School of Medical Sciences. Assignments will be made to clinic in speech and hearing sciences. Prerequisites, consent of instructor. All semesters.

3.533 Practicum: Cleft Palate cr. arr.
Supervised clinical experience with individuals with cleft palate in Speech and Hearing Clinic and University Hospital, School of Medical Sciences, consent of instructor. All semesters.

3.534 Practicum: Voice Disorders cr. arr.
Supervised clinical experience in diagnosis and remedial procedures for all types of voice disorders. Prerequisites, consent of instructor. All semesters.

3.536 Practicum: Speech and Language Habilitation for the Mentally Retarded cr. arr.
Supervised clinical experience with individuals who are mentally retarded. Prerequisites, consent of instructor. First and second semesters.

3.530 Practicum: Aural Rehabilitation cr. arr.
Supervised clinical practice with hearing handicapped children and adults. Prerequisites, 2.535 and 2.533. All semesters.

3.529 Practicum: Diagnostic Procedures cr. arr.
Supervised clinical practice in the evaluation of hearing problems at Speech and Hearing Clinic, University Hospitals, Veterans Administration Hospital, University Hospital School, the State Services for Crippled Children. Prerequisites, 2.535. All semesters.

3.528 Seminar: Voice and Articulation Disorders 2 s.h.
Systematic study and critical review of research on selected topics. May be repeated for credit. Prerequisites, consent of instructor.

3.523 Seminar: Stuttering 2 s.h.
Intensive, individualized study of theoretical issues and clinical literature. Prerequisites, 2.538 or consent of instructor. May be repeated for credit.

3.522 Seminar: Speech and Language Skills of the Mentally Retarded 2 s.h.
Prerequisites, consent of instructor. May be repeated for credit.

3.521 Seminar: Cleft Palate 2 s.h.
Intensive, individualized study of theoretical issues and research literature. Prerequisites, 2.530 or consent of instructor. May be repeated for credit.

3.520 Seminar: Communication Problems of the Hard of Hearing 2 s.h.
Intensive, individualized study of theoretical issues and research literature. Prerequisites, 2.530 or consent of instructor. May be repeated for credit.

3.519 Seminar: Neuropsychology of Speech and Language 2 s.h.
Individualized study of special topics concerned with problems of speech and language associated with neurological and/or anatomical disorders. Prerequisites, consent of instructor.
320 Seminar: Research Design in Speech and Hearing 2 s.h.
Problems of design of experiment in speech and hearing. Practice in application of principles of experimental design in planning analysis of speech and hearing data. Prerequisite, Education 2794. Second semester.

333 Seminar: Symbolic Processes 2 s.h.
Intensive, individualized study of theoretical systems and research literature concerning the processes of symbolization and communication and their disciplines. Same as Psychology 3144, Speech 263. Prerequisite, 2930 or 2935 or 2935 of. May be repeated for credit.

353 Seminar: Experimental Phonetics 2 s.h.
SAGE 284, 2914. Prerequisites, 2935 and 2935. May be repeated for credit.

363 Seminar: Psycholinguistics 2 s.h.
Recent topics in psycholinguistic research and theory. May be repeated for credit. Same as Linguistics 284, 2914. Prerequisite, consent of instructor.

353 Seminar: Children's Language
Development 2 s.h.
Advanced studies in grammatical analysis of children's language development. Individual projects may be di rected toward either normal or abnormal development. Selective topics in phonology, syntax, and semantics. Prerequisite, 2914 or consent of instructor. First and second semesters. May be repeated for credit.

355 Seminar: Psychosociolinguistics 2 s.h.
Prerequisite. 2934 or consent of instructor. May be repeated for credit.

356 Seminar: Experimental Audiology 2 s.h.
Intensive, individualized study of advanced topics and current research in experimental audiology. May be repeated for credit. Prerequisite, 2934.

357 Seminar: Clinical Audiology 2 s.h.
Intensive, individualized study of current topics in clinical audiology. May be repeated for credit. Prerequisite, 2934.

358 Seminar: Auditory Physiology 2 s.h.
Prerequisite, 2935 or consent of instructor. May be repeated for credit. Semester offering.

250 Research: Speech Pathology cr. arr.
Prerequisite, staff consent.

351 Research: Audiology cr. arr.
Prerequisite, staff consent.

352 Internship in Speech Pathology cr. arr.
Resident clinical practice in speech pathology and/or audiology at an approved institution. Prerequisite, staff consent.

STATISTICS
(See Mathematical Sciences, Division of)

URBAN AND REGIONAL PLANNING
Chairman of Program, James Harris
Office. 348 Jesse Hall

Urban and regional planning is a graduate professional program concerned with the improvement and orderly development of man's environment with particular emphasis on the urbanized areas. Preparation for work in the field requires study in observing, analyzing, and interpreting the social, economic, political, and technological forces that affect environment.

There is today an unprecedented demand for the services of persons with graduate degrees in planning. The profession is unusually rewarding in its opportunities for collaborative participation with professionals in related fields contributing to planning.

Admission Requirements
Candidates for admission are required to have a bachelor's degree from an accredited college or university from a wide variety of fields of undergraduate concentration are eligible for admission. Those fields considered most relevant are sociology, economics, political science, geography and architecture. Such students may be required to have completed basic course work (undergraduate or graduate) in statistics, economics, local government, public administration, and sociology. Deficiencies in these areas must be corrected during the first academic year of graduate enrollment. Such courses, regardless of whether or not eligible for graduate credit, will not be applicable to degree requirements. A program of study is prepared for each student on an individual basis, related to his previous education and experience. The curriculum is designed to hold the required core coursework to a minimum in order to offer opportunity of options to the student through which he can develop a concentration, primarily during the second year of the sequence. Courses offered in other departments, the specialized work offered by the planning faculty, and individual study programs provide the resources for such concentrations.

Degrees Offered
The degrees of Master of Arts or Science in Urban and Regional Planning are conferred upon successful completion of appropriate program requirements. Both degrees are professional degrees which prepare and qualify students to enter the planning professions.

Curriculum
The curriculum in planning is designed to differentiate between urban and regional foci, to allow for concentrations in various methodological disciplines, e.g., analytical techniques, policy formulation, implementation and evaluation, design and concentrations in functional services of planning, such as transportation, economic and financial development, open space/recreation, social policy and social services, health, and housing. The required professional planning courses correlate with the same discipline and concentrations and are offered through course offerings from the planning faculty, in other departments, and in graduate programs in the professional schools.

Joint programs. A joint program with the College of Law is offered, in which the degree of Juris Doctor and a Master of Arts in Urban and Regional Planning are granted after approximately four years of study. This represents an overlap of credits sufficient to reduce the time required from four years to three. See College catalog for details hereafter. Other joint degree programs are possible in consultation with representatives of such programs as are offered under the degree of the academic year.

These requirements. A thesis for 6 semester hours is included; this may be expanded to warrant additional credit, if such is proposed and approved. Varsity is encouraged in the form of the thesis, to include design and/or physical planning projects, multimedia presentation and other approaches. An alternative to the thesis is offered: a MA Seminar paper or project for 3 credit hours with 6 additional hours of coursework.

Internship opportunities. For the summer between the two academic years, each student is invited to secure employment in an operational planning agency or private firm selected through counseling with the faculty. In seeking this employment, emphasis is placed upon finding opportunities for the students in large metropolitan areas or in sections undertaking experimental programs. An

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Programs. Two major options are available, leading to a master's degree with emphasis in either urban planning or regional planning. Each option is 30 semester hours in length. The student is expected to select a professional concentration of 12 semester hours from the following: Urban Economics, Regional Planning, Environmental Planning, or Public Policy. Each option also includes a research paper and a comprehensive examination.

Spring Semester
132:204 Planning Legislation 3 s.h.
132:207 Thesis (course credit may be increased) 6 s.h.

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<table>
<thead>
<tr>
<th>Course Title</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Urban Economics</td>
<td></td>
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<tr>
<td>Reel Estate and Urban</td>
<td></td>
<td>3 s.h.</td>
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<tr>
<td>Social Work</td>
<td></td>
<td>3 s.h.</td>
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<tr>
<td>Welfare Program and Policy</td>
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<tr>
<td>Regional Planning Focus</td>
<td></td>
<td>3 s.h.</td>
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<tr>
<td>Geography</td>
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<tr>
<td>Area Analysis</td>
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<td>Industrial Location</td>
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<td>3 s.h.</td>
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<tr>
<td>United States and Canada</td>
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<td>3 s.h.</td>
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<tr>
<td>Political Science</td>
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<td>3 s.h.</td>
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<tr>
<td>State Administration</td>
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<td>For Eastern Political Systems</td>
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<td>4 s.h.</td>
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<tr>
<td>Latin American Political Systems</td>
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<td>Sociology</td>
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<td>Social Problems of Underdeveloped Areas</td>
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<td>Anthropology</td>
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<td>Urban Anthropology</td>
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<td>Law</td>
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<td>Resource Planning</td>
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<tr>
<td>Economics</td>
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<tr>
<td>Economic Development of Underdeveloped Areas</td>
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<tr>
<td>Regional Economics</td>
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<td>Economic Development of Underdeveloped Regions</td>
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</tr>
<tr>
<td>Economic Development of North American Economy</td>
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<td>3 s.h.</td>
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Joint Program in Urban Planning and Law
Poverty, accelerated urban development, the complexity of modern society, and racial discord pose major problems for the United States and the world. Professionals skilled in analysis of these problems and in advocacy are urgently needed in society to respond constructively to these challenges. Urban planning helps to educate individuals for active and reasoned involvement in the resolution of these regional social, economic, and political problems. The program is composed of required course work in law and planning, and electives which permit some flexibility of purpose and design.

Core Requirements
- Persons of broad interests and experience, capable of interdisciplinary study and seeking to prepare themselves for public service and advocacy for neglected groups and interests of society are encouraged to apply.
- A plan of study must be approved before the two degrees, Juris Doctor and Master of Arts in Urban and Regional Planning, are granted.

First Year
<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>Spring</td>
<td>Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>(or 4th yr.)</td>
<td></td>
<td>2-6 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>37 s.h.</td>
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Second Year
<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fall</td>
<td>Planning Analysis and Techniques I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Quantitative Methods for Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Spring</td>
<td>Urban Housing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Law</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Summer</td>
<td>Law</td>
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</tr>
<tr>
<td>(or 4th yr.)</td>
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<tr>
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Third Year
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<tr>
<td>Fall</td>
<td>Environmental Planning and Design I</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Theory of Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Law</td>
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</tr>
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Urban and Regional Planning

<table>
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<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>Spring</td>
<td>Planning Workshop</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Legislation (in Fall)</td>
<td>3 s.h.</td>
</tr>
<tr>
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<td>Seminar for 1970-1971</td>
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<tr>
<td>Summer</td>
<td>Internship in Planning</td>
<td>16 s.h.</td>
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Fourth Year
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<tbody>
<tr>
<td>Fall</td>
<td>Planning Workshop</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Law (to summer)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Spring</td>
<td>Urban Planning Options</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Urban Planning Internship</td>
<td>0-3 s.h.</td>
</tr>
<tr>
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<td>Total</td>
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</tr>
<tr>
<td>Total</td>
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<td>50 s.h.</td>
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</table>

Staff
Associate Professors: Kenneth J. Doaker, James Harris, David C. Bannen.
Assistant Professors: Barbara K. Bafra, Gordon Jacob.
Participating faculty from other disciplines: Professors: Russell M. Rose (Political Science), Allan D. Verter (Law), Nanci L. Gonzales (Anthropology), Weller Zuniga (Economics), Frank F. Horton (Geography), Helen Hillery, J. Michael B. Baran (Sociology), Associate Professors: Arnold B. Barnard, Thomas F. Pepe, Janice M. Stabile (Economics), Robert H. Sebesta (Business Administration), David R. Grant, Richard M. McNulty, Donald Brown (Geography), Assistant Professors: Julia M. Moore, (Geography).

Course Descriptions
102:101 Introduction to Planning
3 s.h.
Analysis of current urban environmental problems. Historical perspective on the development of planning theory and practice. Lecture and seminar discussions. This course is offered for students outside the planning program.

102:201 Environmental Planning and Design I
4 s.h.
Design and study of planning components: urban planning, community facilities, etc. depending on individual student emphasis.

102:204 Metropolitan Planning
3 s.h.
An option to permit students to undertake planning studies in large metropolitan areas, in groups with faculty participation, dealing with some of the acute problems of large cities. Residence will be established at a host university. Other coursework will be scheduled at institutions with reasonable accessibility.

AN Option to permit students to undertake planning studies in large metropolitan areas, in groups with faculty participation, dealing with some of the acute problems of large cities. Residence will be established at a host university. Other coursework will be scheduled at institutions with reasonable accessibility.

102:201 Environmental Planning and Design I
4 s.h.
Design of Planning Law | 3 s.h. | 15 s.h. |
Zoology

102:205 Planning Workshop 4 s.h.
In-depth study of selected urban and regional problems. Individual and/or team analysis with emphasis on a combined design and quantitative approach to planning. Lec.
and studio.

102:206 Planning Analysis and Techniques 3 s.h.
Planning applications of techniques for analysis of popula
tion, the built environment, and transport. Techniques include mo
toring strategies, systems analysis, urban transportation plan
ning, and urban information systems.

102:207 Theory of Planning 3 s.h.
Evolution of planning theory and practice. Analysis of plan
preparation, evaluation, and implementation methodology.

102:208 Urban Housing 3 s.h.
Lectures and seminars regarding the quality of residential
environment, the effect of variations in standards in in
terior space, density, building form, and open space upon
the residents. Historical view of housing and its produc
tion and management; housing supply and market; financial
legislation; design in housing related to urban renewal; a
brief examination of the community facilities functionally
related to housing.

102:209 Planning Legislation 3 s.h.
Governmental and legal aspects of planning and land de
velopment in the United States covering the principal
tools for implementing planning policy including planning
by public agencies, zoning, subdivision control, land ac
quisition, and development incentives.

102:210 Quantitative Methods for Planning 3 s.h.
Mathematical and statistical techniques useful in planning
analysis. Introduction to computer and computer pro
gramming.

102:220 Planning Analysis and Techniques 3 s.h.
Application of analytical techniques to selected urban or
regional problems.

102:221 Seminar: Urbanization 3 s.h.
Problems and consequences of the urbanization process.
An economic, social, and political study of metropolitan
development and city planning. Emphasis on urban de
cay, black migration, poverty housing, slums, slum
regeneration, urban renewal, community planning, and
regional growth.

102:222 Student Research Seminar 2 s.h.
Analysis of research methodology and study design. Research
review and criticism of thesis or equivalent project.

102:223 Regional Planning Seminar 2 s.h.
Approaches to regional development policy; economic analysis
of regional development and its terminology; and policies
considered relevant to less developed countries; comparative studies.

102:224 Principles of Urban Design 3 s.h.
Theory 2 to 3 s.h.
Physical development of urban form. Determination of basic
patterns in the growth of cities, parts and districts thereof.
Urban design as a factor of societal development.

102:225 Readings 3 s.h.
Individual program of readings under guidelines estab
lished by the department.

102:226 Seminar: Urban Transportation 3 s.h.
Analysis of selected urban transportation issues and prob
lems.

102:227 Seminar: Urban Information 3 s.h.
Analysis of selected topics dealing with collection, storag
retrieval, reporting, and utilization of urban data for land
use and transportation planning.

102:228 Evolution of Cities 2 s.h.
The city as the foundation of human civilization. Morpho
logical analysis of cities. Case studies examining struc
ture of urban form and growth as determined by social,
economic, and cultural factors. Research assignments.

102:230 Special Problems in Planning 3 to 4 s.h.
Advanced problems in urban analysis, regional analysis,
urban design, and general plan development. Research on
special problems of special interest to student, with approval
of the department. Written report and oral pre
sentation required.

102:231 Seminar: Social Planning 3 s.h.
Special topics in social policy planning.

102:240 Process and Problems of Development: Africa 3 s.h.
Strategies for development, background of East and West
African nation, visiting lectures with African experience
and specialization, focusing upon current problems, eco
nomic, cultural, and political aspects. Same as Anthro

102:241 Process and Problems of Development: Latin America I 3 s.h.
Background studies in history, geography, political struc
tures, population, health, and welfare, followed by pre
sentation of currently operating programs and planning ef
forts, economic integration, development plans for spe
cific regions. Visiting lectures with Latin American ex
perience, faculty from various departments. Same as Anthro

102:242 Process and Problems of Development: Latin America II 3 s.h.

102:279 Independent Study in Planning 3 s.h.
Research project in lieu of thesis.

102:280 Thesis: Urban and Regional Planning 6 s.h.
Read and analysis of a special planning problem as
sisted by the student with approval of the department, and
in which the student is provided an opportunity for him to apply
knowledge obtained in his area of specialization.

Zoology

Chairman of Department, Jerry J. Kolios
Office, 309 Zoological Building
The basic courses offered by the Department of Zoology are designed for freshmen, sophomores, and juniors majoring in science, medicine, dentistry, or related professions. The specialization undergraduates and graduate students are planned for persons interested in modern scientific fields of descrit
ive and quantitative experimental biology.

Graduates of the department meet professional require
ments in the health sciences and also may continue into graduate programs leading to teaching, writing, and re
search in the various professional areas.

The B.A. Degree in Zoology

Course in zoology required of all undergraduate majors:
37:113 Principles of Animal Biology
37:113 Principles of Modern Embryology
37:100 Cell Physiology
37:101 Animal Physiology I
37:106 Animal Physiology II
37:125 Fundamental Genetics
37:124 Comparative Physiology
37:124 Evolutionary Biology

Requirements for the B.A. degree are currently under review. It is anticipated that the list of zoology courses presented above will be reduced (by 1972-73), and that regional courses will substitute for the deleted courses. The intent is to permit increased emphasis in coursework.
of certain departmental subdisciplines, such as genetics, molecular biology, and biochemistry.

With the department for current student requirements, courses in physical sciences and mathematics required of all students.

22M:36 Elementary Functions
22M:45 Principles of Chemistry I and II
22M:55 Physical Chemistry Laboratory
22M:56 Intermediate Chemistry Laboratory
22M:65 College Physics I
22M:66 College Physics II

General Physics

For general degree requirements see College of Liberal Arts. Additional courses in mathematics, chemistry, geology, and botany are recommended.

Honors in Zoology

Honors candidates in zoology fulfill the college-wide requirements by completing successfully at least 2 semester hours of coursework drawn from 22M:14, 22M:17, and 22M:56, followed by a comprehensive examination. The departmental program offers membership in a small, active group of undergraduates with a common interest, and association with one of the department's research groups. Experiments, running discussions of current research, the study of specialized topics, and attendance at research lectures are pursuits of practicing scientists to which the students are introduced.

Advanced Degree in Zoology

M.S. and Ph.D. degrees with thesis are offered, as is an M.S. degree without thesis. In addition, an M.S. degree in biology is offered. In cooperation with the Department of Mathematics and Statistics, the entering graduate student is expected to have completed the general education requirements for the degree and pass the qualifying examination. The departmental program is designed to prepare the graduate student for advanced research and teaching.

The Master's Degree in Zoology

For the M.S. degree, the thesis requires 30 semester hours of graduate credit and a thesis based on original research is required. Ordinarily 6 to 8 semester hours are assigned to thesis research and writing. Besides the thesis work, 15 to 25 semester hours of graduate credit in zoology are required, of which no more than 8 semester hours may be counted from 22M:15, 22M:17, 22M:18, 22M:19, 22M:20, and 22M:56. Research may be conducted in zoology, in any subdiscipline, and with emphasis on the area related to the thesis. This is followed by an oral examination covering the general field in which the student is interested.

For the M.S. degree without thesis, 30 semester hours of graduate credit and a library research report are required. The report is a comprehensive review of current research in a topic not previously treated. A library report is required for the thesis. A minimum of 18 semester hours is required, and at least 12 of these must be Zoology.

The remaining semester hours may be earned in graduate courses in zoology, cognitive sciences, mathematics, or philosophy. The oral semester hours submitted for the thesis, to the degree that it may be included from 22M:15, 22M:17, 22M:18, 22M:19, 22M:20, and 22M:56. On completion of the hours in research and acceptance of the research report by the student's faculty sponsor, the student must pass a written examination covering his graduate program in zoology, including the area of his report.

The M.S. Degree in Biology

Every semester hours of graduate credit are required of all students. Ordinarily 6 to 8 semester hours are assigned to thesis research and writing. 6 to 12 semester hours in graduate courses in zoology, 4 to 6 semester hours in zoology, and the remaining semester hours are free electives. Facilities available for the thesis, the candidate must pass a written examination covering his graduate program in zoology, including the area of his report. This is followed by an oral examination usually based on the work reported in the thesis. For further options for the M.S. degree in zoology, see the catalog.

The Ph.D. Degree in Zoology

For each Ph.D. candidate a departmental committee is formed, of which the candidate's faculty sponsor is chairman. The committee is charged with establishing those formal courses or proficiency requirements which the candidate must meet. The background of the candidate, and his current and prospective research interests, are taken into consideration. The committee also establishes that portion of the formal coursework or particular courses (such as ability to read certain modern foreign languages) which will be demanded of the student before he is admitted to the comprehensive examination. In this examination the candidate is expected to demonstrate knowledge of the fundamentals of zoology, and mastery of one or two specialized fields. Usually the student has demonstrated some ability in research through the M.S. degree, or through equivalent research work. In his research, which culminates in a doctoral dissertation, the candidate will show originality and the ability to work independently. The competence of the thesis by the dissertation will be demanded of the student. The research over the thesis itself and the specific field which it represents.

Research Facilities

Active research programs are current in each of the areas in which graduate courses are offered. Special equipment in a wide variety of disciplines is available, such as television and photoelectric analyzers; electron microscopes and electron diffraction equipment; spectrophotometers and thin-layer chromatography apparatus; electron microscopy and scanning electron microscopy; and a variety of microspectrophotometers. The research areas are also equipped with advanced research facilities for physical and chemical analysis: an X-ray diffractometer, a spectrophotometer, an electron microscope, a gas chromatograph, and vacuum spectrophotometric instruments for far, near, and ultraviolet regions. These and other research techniques are available for research. Facilities exist for the housing and maintenance of terrestrial and marine organisms and the vertebrate animal colonies. In 1985 the department received a new wing which permits the addition of the available research space. An additional, larger unit will be occupied in 1987. An extensive departmental library is situated in the Zoology Building.

Graduate Student Awards and Aids

Qualified graduate students are invited to apply for awards and aids. These include NSF-sponsored internships, fellowships, and stipends. All students holding awards or fellowships, NSF-sponsored internships to Develop biological, and (for students in 1987, NIMH- 197
ZOOLOGY

Sponsored concentrations in Neurobiology. Exceptional first-year graduate students are urged to apply to the National Science Foundation forPredoctoral Fellowships. Students with an established and appropriate research interest may apply to the National Institutes of Health for Predoctoral Fellowships as well. Other fellowship and travelship programs may be instituted in the coming year. Teaching assistantships, research assistantships, and teaching-research fellowships are available each year for up to 40 students. Scholarship funds, usually for part-time-student scholar ship, are generally assigned for the academic year to the various classes of assistants. Most such assistants and fellows are eligible for full tuition support during summer sessions. The department also provides assistance to its graduates who arrange to spend a summer session at a marine laboratory or another appropriate summer station. Assistantships for the following academic year are available to graduate students who are eligible for National Science Foundation research fellowships, as well as for appointments beginning in the second semester. Requests for appointment should include clear statements of research interest if such interest has been defined.

Iowa Lakeside Laboratory
Courses in field biology and aquatic biology extend the on-campus work in ecology. (See Division of Extension and University Services for further information.)

Staff


Course Descriptions

Primary for Undergraduates

37.3 Principles of Anatomy 5.0
Major concepts of biology, primarily in animal life. Principles of living organization, metabolism, reproduction, development, and evolution. Prerequisite: 17.2. Recommended to all other courses in the department except 37.10.

37.4 Lectures in Animal Biology 2.0
Lectures covering the principles of animal biology. Limited to transfer students. Prerequisite: 3-4 semester hours of introductory zoology or biology.

For Undergraduates and Graduates

37.101 Principles of Human Genetics 3.0
Heredity in human families and populations, the genetic basis of normal and abnormal traits, chromosome behavior, and determination. Lectures and discussions. Prerequisite, an introductory course in biology.

37.102 Principles of Modern Embryology 4.0
Current understanding of the development of the body as related to the biblical and classical experimental embryology and modern understanding of the chemical and molecular biology. Laboratory emphasis on vertebrate developmental anatomy. Prerequisites, 37.3, Chemistry 4.0 or 4.5; 37.110 is recommended.

37.103 Comparative Anatomy of Vertebrates 4.0
Structures, function, and evolution of vertebrates. Lectures, demonstrations, and laboratory. Prerequisite, 37.101 or equivalent.

37.105 Cell Physiology 4.0
General chemistry of living systems; energetics and intermediary metabolism; cell structure related to function; nature and properties of membranes. Prerequisite, 37.101, Chemistry 4.0 or 4.5; Physics 3.0, or consent of instructor.

37.107 Animal Kingdom I 4.0
Anatomy, physiology, evolution, and behavior of the Protozoa, Radiata, Plathelminthes and Chordata. Prerequisite, 37.101 or equivalent.

37.108 Animal Kingdom II 4.0
Anatomy, physiology, evolution, and behavior of the Deuterostomes. Emphasis will be on the vertebrates. Prerequisite, 37.101 or equivalent.

37.109 Fundamental Genetics 3.0
Structure, behavior, and function of the hereditary material. Laboratory emphasis on living plants and animals; optional for nonmajors. Lecture and laboratory, 3 sessions each. Prerequisite, Zoology 3.11 or 3.3 or equivalent.

37.110 Fundamental Genetics 3.0 or 4.0
Nature and function of the genetic mechanism. Three lectures and one laboratory. Laboratory applications of genetic analysis; optional for nonmajors. Same as Zoology 3.11, or 3.3, or equivalent. Chemistry 4.12, 3.12 recommended.

37.111 Microscopic Technique 4.0
Prerequisite, 37.101 or equivalent.

37.112 Microscopic Anatomy 4.0
Lectures and laboratory on microscopic structure of tissues and organs of various animals. Prerequisite, 37.101 or equivalent.

37.118 Parasitology 4.0
Lectures, laboratory work, and practical work in the identification of parasites of man and animals. Prerequisite, 37.101 or equivalent.

37.120 Protozoology 4.0
Study, preservation, organization, physiology, genetics, metabolism, development, and evolution. Emphasis on general principles and concepts. Lecture and laboratory. Prerequisite, 37.101 or equivalent.

37.124 Comparative Physiology 4.0
Practical study of physiology, emphasizing functional mechanisms among invertebrates and vertebrates. Prerequisites, 37.101 and Chemistry 4.0 or 4.5; or graduate standing and consent of instructor.

37.131 Population Biology 4.0
Ecology at population and community levels, population structure, and the nature of evolutionary mechanisms. Lectures, discussions. Prerequisite, 37.115 or equivalent.

37.132 Ecology 2.0 or 4.0
The populations and dynamics of ecosystems. Description of community structure and analysis of interactions between components. Populations will be studied within a framework of competition and cooperation. Also experimental and quantitative field and laboratory study of terrestrial ecosystems. Prerequisites, Chemistry 4.132, 4.122, or equivalent, and Physics 3.1, 3.2, or equivalent; recommended, 3.1, Zoology 3.1, and a course in statistics.

37.141 Comparative Neurophysiology 5.0
Prerequisite, 17.10; study of nerve and muscle processes and effecter mechanisms, exemplified by both vertebrates and invertebrates. Lectures, seminars, reports, laboratory. Prerequisite, 37.124 or consent of instructor.

37.143 Comparative Animal Behavior 4.0
Lectures, discussions, readings on aspects of animal behavior, including rhythms, migration, orientation, com-
37:144 Comparative Animal Behavior Laboratory cr.arr.
Prerequisites or corequisites: 37:143.
37:149 Animal Behavior 3 s.h.
Principles and concepts in the study of animal behavior. Evolutionary implications of behavioral differences will be emphasized. Prerequisites: 37:3 and consent of instructor.
37:150 Introductory Endocrinology 2 s.h.
Survey of physiology and morphology of the glands of internal secretion, with emphasis on vertebrate systems. Prerequisites: 37:3; organic chemistry recommended.
37:152 Endocrinology Laboratory 2 s.h.
Prerequisites or corequisites: 37:150 and consent of instructor.
37:154 Invertebrate Endocrinology 2 s.h.
Prerequisite, consent of instructor.
37:160 Advanced Genetics 4 s.h.
Lectures and laboratory. Extended discussions of major genetic phenomena and their molecular bases. Includes chromosome mechanics and crossing over; mutation, and principles of mutation and gene action. Prerequisites: 37:110 or equivalent and consent of instructor.
37:168 Population Genetics 3 s.h.
Lectures, discussions, readings, and reports on the distribution of alleles in populations, the genetic basis of natural variation, and genetic aspects of evolution. Prerequisite, 37:110 or equivalent.
37:169 Behavioral Genetics 3 s.h.
Behavioral and genetic techniques employed in study of inheritance of behavior characteristics. Human and animal studies, with emphasis on quantitative studies of animal behavior. Prerequisite, consent of instructor.
37:165 Quantitative Genetics 3 s.h.
Principles of quantitative genetics are presented in detail. Emphasis is placed on parameter estimation and artificial selection. Prerequisites: 37:161 or 37:110 or equivalent and consent of instructor.
37:169 Quantitative Methods in Biology 3 s.h.
Application of statistical methods to biological data. Data description and presentation, simple hypothesis testing, models of evolution, biologically motivated models, and applications in genetics. Prerequisite, consent of instructor.
37:171 Molecular Genetics 3 or 4 s.h.
Biophysics of DNA, RNA, and protein in bacteria and higher organisms, with an emphasis on the dependence of genetic phenomena on the genetic code. The regulation of gene expression, especially of RNA transcription. Laboratory experiments with bacterial and eucaryotic systems. Prerequisites: 37:110 or 37:125 or biochemistry, or permission of instructor.
37:172 Topics in Molecular Genetics 2 s.h.
A bacteriophage, or group of phages, will be studied in detail in relation to general mechanisms of control of RNA, DNA, and protein synthesis. Lectures, discussions, oral reports. Prerequisites, 37:171 or consent of instructor.
37:173 Prosemminar: Insect Reproduction and Development 2 to 5 s.h.
Literature reports and discussion on: gametogenesis, accessory gland secretion, phylogeny, and hormonal control mechanisms. Research problem optional. Prerequisites, consent of instructor.
37:180 Sensory Neurophysiology 3 s.h.
Prerequisites, consent of instructor.
37:181 Integrative Neurophysiology 2 s.h.
Prerequisite, consent of instructor.

37:194 Macromolecular and Cellular Aspects of Development 4 s.h.
Current problems in developmental biology, emphasizing mechanisms of information transfer and their controls. Activities of microorganisms, cells, and cell-interacting systems will be explored as the bases for development and differentiation in multicellular organisms. Prerequisite, 37:150; biochemistry recommended.
For honors candidates.
37:197 Readings in Zoology 1 to 3 s.h.
For honors candidates.
37:198 Honors Seminar 1 s.h.
Discussions and readings centered on either a single topic or on the regular lecture series of 37:191. May be repeated.
37:199 Introduction to Research cr.arr.
For senior majors in zoology. Prerequisite, consent of instructor.

Primarily for Graduates
37:201 Research: Orientation 1, 2 s.h.
Research experience in selected faculty laboratories as an introduction to specific areas of research. Prerequisites, graduate standing and consent of instructor.
37:204 Molecular and Experimental Embryology Laboratory 1 or 2 s.h.
Prerequisites or corequisites, 37:194 and consent of both instructors.
37:205 Molecular Biology Seminar 1 s.h.
Readings, reports, and discussions on topics of current interest, with implications for the fields of genetics and development. May be repeated. Prerequisite, consent of instructor.
37:211 Cytology 2 s.h.
Lectures and reports on finer structure of cells. Prerequisite, 37:112 or equivalent.
37:212 Cytology 2 s.h.
Continuation of 37:211.
37:214 Drosophila Genetics Seminar 1 s.h.
Informed discussion of selected topics from the literature. Prerequisite, consent of instructor.
37:215 Seminar: Genetics cr.arr.
Lectures, discussions, and seminars on selected topics in genetics. Course may be repeated for credit. Prerequisite, 37:110 or consent of instructor.
37:217 Seminar: Zoology 0 or 1 s.h.
Weekly lecture on current research. Invited speakers.
37:225 Seminar: Endocrinology 2 s.h.
Selected topics of current research interest in basic physiology of the glands of internal secretion; readings, reports, and discussions. Prerequisites, 37:160 or consent of instructor.
37:236 Hormones and Behavior 2 s.h.
Discussions, readings, and reports dealing with topics concerning control and regulation of behavior. Prerequisite, consent of instructor.
37:237 Seminar: Physiology 2 s.h.
Reports on, and discussions of, the most important and recent literature of comparative and general physiology. A four- semester sequence within the areas: function and properties of neuromuscular, cardiovascular, respiratory, enzyme action, growth, and development; mammalian transport, osmoregulation, temperature, radiant energy; photomotor movement, physiologic movement; etc.
ZOOLOGY

Irreversibility, integration, and correlation. May be repeated for credit. Prerequisite, consent of instructor.

37:329 Neuroembryology 2 s.h.
Lectures, discussions, readings, and reports on development of intercellular system and sense organs, development of behavior, nerve growth, and regeneration. Prerequisites, 37:302 and prediscussion standing or consent of instructor.

37:330 Helminthology cr.arr.

37:331 Helminthology cr.arr.

37:332 Seminar: Systems Ecology 2 s.h.
Lectures and discussion on methods of systems analysis and their application to the study of the dynamics of ecosystems. Emphasis on methods of component analysis to describe and use of energetics in analytic relationships involved in predator-prey systems. Prerequisites, 37:182 or equivalent and consent of instructor.

37:337 Problems of Developmental Cytology 3 s.h.
Development of cell organelles; differentiation and its platitude to cell division; determination of cell phenotype. Examples primarily from protistan cells and vertebrate cells in culture. Lectures, seminars, discussion. Prerequisites, consent of instructor.

37:341 Seminar: Neurophysiology 2 s.h.
Reviews of recent literature of selected topics. May be repeated.

37:360 Developmental Genetics 2 s.h.
Lectures, readings, discussions on gene action in development. Prerequisites, 37:116 or equivalent.

37:363 Seminar: Behavioral Genetics 1 s.h.
Prerequisites, 37:182.

37:391 Electron Microscopic Techniques I 5 s.h.
Lectures and laboratory on methods of tissue fixation, embedding, ultrathin sectioning, and staining. Theory, use, and maintenance of the electron microscope; associated photographic techniques. Prerequisites, 37:113, 37:211, or equivalent, and consent of instructor; 37:111 recommended.

37:392 Electron Microscopic Techniques II 4 s.h.
Continuation of 37:391, but emphasis experimental aspects of electron microscopy, including negative staining, shadow casting, cryotechnique and ultrastructural applications. Prerequisites, 37:291, biochemistry, and consent of instructor.

37:399 Problems in College Biology Instruction 1 s.h.
Discussion of theoretical and practical problems; restricted to graduate students.

37:394 Independent Study in Zoology cr.arr.

200
Instruction in business administration and economics began at the University of Iowa prior to 1900. The School of Commerce, which was organized in 1914, was granted college status in 1921. In 1929 the name was changed to the College of Business Administration.

The College has held membership in the American Association of Collegiate Schools of Business since 1924 and its undergraduate and graduate programs are fully accredited by the association.

The programs of the College are administered through four departments: Accounting, Business Administration, Economics, and Business Education. Continuing education programs are administered through the Center for Labor and Management.

In addition to the degree programs for business and economics majors, the College offers many courses which are beneficial to students in other disciplines. The two introductory economics courses satisfy the social science core requirement in the College of Liberal Arts. Students in the Bachelor of Arts program may select economics as their major area and either economics or business administration as their minor area. Students in liberal arts and professional programs, at both the undergraduate and graduate levels, are encouraged to take appropriate economics and business administration courses as complements to their programs.

DEGREE PROGRAMS

The degree of Bachelor of Business Administration (B.B.A.) is granted by the College of Business Administration through its four departments.

The College is firmly committed to the belief that business students can receive the greatest educational benefit through an experience which provides a broad education about business. Curriculum offered by the College permit students to select various study plans that focus upon the development of attitudes, habits of mind, types of knowledge, and understanding that will be instrumental to graduates confronted with particular problems of business in a world-wide society. Specific studies include the examination of various institutions, structures, functions, organizations, operations, and environments which influence business and economic activities. Limited specialization is permitted at the undergraduate level, and each student is encouraged to concentrate in those areas of greatest interest and appeal.

At the graduate level, there are available programs of study leading to the interdepartmental Master of Business Administration degree, to the Master of Arts degree in accounting, business administration, and economics, and to the Doctor of Philosophy degrees in business administration and in economics. (See below for details.)

FACULTIES

The College of Business Administration is located in Phillips Hall, an air-conditioned building designed especially for the programs of the college and completed in 1955. In addition to classrooms of varying capacity, the building contains several seminar rooms, conference rooms, an auditorium, student lounge, and the business and economics library. Extensive research materials for business and economics are maintained in the Main Library, and the facilities of the University Computer Center are available to the students in the College.

Center for Labor and Management. The Center for Labor and Management undertakes research and conducts programs, conferences, and institutes for management, labor, and government personnel. The programs vary in duration and are designed to develop the human, technical, and conceptual skills of the participants.

The Center conducts research in the fields of personnel administration, industrial relations, executive development, labor education, and employee behavior and organization. Research findings are published in business and professional journals in the Center's Monograph, Conference, and Reprint Series.

UNDERGRADUATE ADMISSION

Students who anticipate transferring to the B.B.A. degree program are enrolled as pre-business majors in the College of Liberal Arts during their freshman year. Students who have attempted 60 or more semester hours of courses normally will not be permitted to register as pre-business students and may do so only with prior approval of the Dean of the College of Business Administration.

Applications for admission to the College of Business Administration should be submitted to
the Director of Admissions not later than the following dates:  
Fall semester—June 1  
Spring Semester—November 15

For admission to the College of Business Administra-
tion an applicant must have completed the following requirements:

1. The Baccalaureate Program of The University of
Iowa. Students who have satisfied all except the speech portion of the program may be granted conditional admission.

2. One of the three following common require-
ments: historical-cultural or literature or
natural science.

3. Attained satisfactory scores on the Uni-
versity’s required admission examinations.

4. Maintained a grade-point average of not
less than 2.25 (on a 4-point system) on all
courses undertaken, on all courses under-
taken at The University of Iowa, and on all
courses undertaken in business and eco-
nomics.

A maximum of 68 semester hours (or the
equivalent) will be accepted by transfer credit
for the first two years of enrollment in a junior
college.

Transfer credit for business and economics
courses taken during the freshman and sopho-
more years may be counted toward the B.B.A.
degree only if such courses are normally offered
as lower-division courses at The University of
Iowa.

Applications from students who have minor
deficiencies in meeting grade-point requirements
specified above will be reviewed by the Admis-
sions Committee of the College, and upon favor-
able recommendations of the committee such
students may be granted conditional or proba-
tory admission.

Fullfillment of the minimum requirements listed
above, however, does not assure admission to the
College of Business Administration. From those
applicants who meet the minimum requirements,
the Admissions Committee will select the appli-
cants who, in their judgment, appear to be best
qualified.

SCHOLARSHIP REQUIREMENTS

A student is placed on academic probation when
any of the following grade-point averages falls
below 2.0:

- All courses undertaken;
- All courses undertaken at The University of
Iowa;
- All courses undertaken in the College of Busi-
ness Administration.

A student is removed from probation when all
of the above grade-point averages equal or sur-
pass 2.0.

A student is normally granted only one semes-
ter to return to good academic standing.

A student on academic probation who cancels
his registration after the last day for dropping
courses is automatically dismissed.

A student may be dismissed at any time for un-
satisfactory scholarship. While some proba-
tionary period usually precedes a dismissal, even
a student in good academic standing who com-
pletes a semester or term with an extremely un-
satisfactory grade-point average for that term
may be dismissed immediately.

A student dropped from the College for poor
scholarship may petition the Dean of the College
for permission to reregister, but normally after
the expiration of one calendar year following the
end of the term in which the dismissal took place.

Pass-Fail Grading

Students in the College of Business Adminis-
tration may take courses on a pass-fail basis,
subject to the following conditions: consent of
adviser and instructor; maximum of 25 semester
hours; registration on a pass-fail basis during the
first three weeks of a semester or first two weeks
of a summer session. Courses which cannot be
taken pass-fail: common course requirements
with a 6A, 6B, or 6E prefix, and specific business
courses in a major area or cognate courses design-
ated by the faculty as ineligible.

Maximum Schedule

Course schedules in excess of 15 semester hours
during a semester or 8 hours in a summer session
require the prior approval of the Assistant Dean.

Graduation Honors

High scholastic achievement is recognized
through graduation with distinction. Students
graduate with distinction based on the following
standards:

With Highest Distinction
Highest 2 per cent
With High Distinction
Next highest 3 per cent
With Distinction
Next highest 5 per cent

GRADUATION REQUIREMENTS

The candidate for the B.B.A. degree must earn
a minimum of 120 semester hours of credit, in-
cluding a minimum of 48 semester hours of credit
in courses not listed as business administration
and not at the University of Iowa. At least 8 semester hours in the area of the student’s major must be
earned at The University of Iowa with a minimum
grade point of 2.0. The last 30 semester hours
or else 45 of the last 60 semester hours offered for the degree must be earned in residence after admission to the College of Business Administration.

Courses Required
Each candidate for the B.B.A. degree must satisfy the following minimum common requirements:

- Rhetoric-Communications 6 a.h.
- Historical-Cultural 6 a.h.
- Literature 6 a.h.
- Natural Sciences 3 a.h.
- Sociology or Psychology (2 courses in either area) 6 a.h.
- Mathematics-Statistics-Computer 3 a.h.
- Accounting 6 a.h.
- Economics 6 a.h.
- Finance 3 a.h.
- Legal Environment 3 a.h.
- Management 3 a.h.
- Marketing 3 a.h.

Additionally a student must satisfy either of the following two requirements:

- Two areas of concentration consisting of a minimum of three courses (9 semester hours) each, two of which must be offered by the College of Business Administration. The two areas must be approved by the student's advisor.
- A major in one of the departments of the College, listed in subsequent departmental sections.

The mathematics-statistics-computer requirement, if not satisfied by the time of admission to the college, must be undertaken in the first enrollment and continued until successfully completed.

The accounting and economics requirements, if not satisfied at the time of admission to the college, must be undertaken in the first enrollment and continued until successfully completed.

Courses in finance, legal environment, management, and marketing normally should be undertaken prior to the end of the junior year.

GRADUATE ADMISSIONS

In addition to a baccalaureate degree from an accredited college or university and a satisfactory grade-point average, an applicant to the advanced degree programs in business administration must attain satisfactory scores on the Admission Test for Graduate Study in Business, and an applicant to the economics programs must attain a satisfactory score on the Graduate Record Examination.

An applicant to any advanced degree programs must be admitted to the Graduate College. (See the Graduate College section of the Catalog.)

Details concerning the examinations may be obtained directly from Educational Testing Service, 500 Membership, Princeton, New Jersey 08540.

COLLEGE OF BUSINESS ADMINISTRATION from the University Evaluation and Examination Services, 360 Jefferson Building, Iowa City, Iowa 52240. Conditional admission is possible if, for good reason, the graduate examinations cannot be taken prior to time of application.

Interdepartmental Programs

Master of Business Administration. The Master of Business Administration (M.B.A.) program at The University of Iowa is a professional, non-thesis degree program designed to serve students from all disciplines.

The program of study for the M.B.A. is determined to a large extent by the academic preparation of the individual student. Students who have graduated from a member school of the American Association of Collegiate Schools of Business will not be required to take the foundation program with the exception of the courses in the Quantitative Methods in Economics and Business, and Statistics for Business Decisions. For all other students, the graduate committee will evaluate their academic preparation and structure a program of study to include no more than the 54 semester hours listed below.

The foundation program consists of the following courses:

- Financial Accounting 3 a.h.
- Price and Employment Theory 3 a.h.
- Human Resource Management 3 a.h.
- Quantitative Methods in Economics and Business 3 a.h.

*This course is waived for students who have had differential and integral calculus during the five-year period previous to entrance into the M.B.A. Program.

Statistics for Business Decisions 3 a.h.
Financial Management 3 a.h.
Marketing Management 3 a.h.
Organization and Management Theory 3 a.h.
Computer Programming 0 a.h.

The M.B.A. core includes the following courses:

- National Income Analysis 3 a.h.
- Managerial Accounting 3 a.h.
- Organization and Individual Behavior 3 a.h.
- Operations Research in Business 3 a.h.
- Managerial Economics 3 a.h.
- Business and Society 3 a.h.
- M.B.A. Seminar in Business Policy 3 a.h.
- Area of Concentration 6 a.h.
- Elective 3 a.h.
- Computer Programming 0 a.h.

Doctor of Philosophy in Business Administration. The Ph.D. student must demonstrate proficiency in four basic areas—economic theory, statistics and quantitative methods, behavioral science, and social environment—and in two elective and two specialized fields, and must submit an acceptable dissertation. In addition, the student must fulfill the residency requirements of the Graduate College.
Ehleve fields may be such broad areas as accounting, finance, information theory, organizational behavior, marketing, sociology, and others. The specialized fields may be selected from among the basic and elected areas previously taken.

Departmental Programs

Information on departmental graduate programs is given below.

ADMINISTRATIVE STAFF

Dean: N. L. Barnes
Assist. Dean: E. A. Phillips
Assistant Dean: Charles R. Klannen
Assistant Dean: Ernest V. Kohler
Director, Graduate Studies in Business: Anthony V. Stinarz
Director, Graduate Studies in Economics: Larry G. Segal
Librarian: Glen Plaisted
Assistant Librarian: Peter J. Hartford

Center for Labor and Management

STAFF

Director: Associate Professor Jode R. Wilt
Program Director: Professor Don R. Sherrod
Assistant Professor: Edgar R. Cieszkowski
Diane R. Thompson
Thomas P. Gilroy

ACCOUNTING

Chairman of Department, John H. Smith
Office, 518 Phillips Hall

In addition to courses required of all candidates for the degree of Bachelor of Business Administration, the undergraduate major in accounting is required to take a basic core of accounting courses totaling 15 semester hours as follows:

6A:15 Income Tax Accounting
6A:16 Accounting for Management Analysis and Control
6A:121 Financial Accounting: Assets and Liabilities
6A:122 Financial Accounting: Current Liabilities
6A:144 Auditing Concepts and Procedures

In addition to this basic core, the student must elect one course from the following:

6A:221 Cost Analysis and Budgeting
6A:241 Advanced Tax Accounting
6A:242 Intermediate Corporate Accounting

A maximum of 17 semester hours of credit in accounting courses may be counted toward the Bachelor of Business Administration degree.

Graduate Degree Requirements

The Master of Arts degree is awarded upon successful completion of a minimum of 30 semester hours of graduate study. A total of 15 semester hours must be earned in accounting courses including:

6A:220 Accounting Theory
6A:221 Research Methods in Accounting

The balance of the 15 semester hour requirement may be satisfied from:

6A:222 Accounting Information Systems
6A:223 Audit Theory: Philosophy and Current Issues
6A:225 Governmental and Regulatory Accounting
6A:229 Contemporary Issues in Accounting
6A:341 Advanced Tax Accounting

The remaining 15 semester hours will be in courses other than accounting, and they will be in courses tailored to the student's background, interests, and career objectives. The candidate has the option of writing a thesis for which he or she may elect a nonthesis option. In either case, the candidate must present an acceptable oral defense in his program of study. This decision will be made by the student's academic adviser near the end of the student's program.

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6A:123 Financial Accounting: Special

Topics 3 s.h.
Continuation of 6A:121. A study of special problems in corporate external reporting, including combinations, consolidations, financial statements, and reorganitions. Comprehensive alternative methods are compared and analysed. Prerequisite: 6A:121.

6A:125 Cost Analysis and Budgeting 3 s.h.
Advances in managerial decision models and their implications for accounting information systems. Draws heavily upon behavioral, economic, and statistical techniques. Topics include: statistical cost analysis, probabilistic standards, behavioral impact of budget and control procedures, parametric control of decision models. Prerequisite: 6A:129; Business Administration 68:129 recommended.

6A:141 Advanced Tax Accounting 3 s.h.
Partnership, corporation, gift, estate, and trust tax problems. Tax planning and research. Prerequisite: 6A:15.

6A:143 Advanced and Contemporary Accounting 3 s.h.
Topics of current or continuing interest to professional accountants relative to preparation of external reports. Reporting for international operations, fiduciary accounts, accounting for nonprofit organizations, selected advanced topics in consolidations, and temporary issues. Prerequisite: 6A:123.

6A:144 Auditing 3 s.h.
Review of internal controls in accounting systems and consideration of the audit objectives, standards, and procedures necessary to test the integrity of an accounting system and financial reports. Prerequisite: 6A:128 or equivalent.

6A:148 Professional Accounting Problems 3 s.h.
Preparation for professional accounting practice through consideration of responsibilities, ethics and qualifications; an intensive review of topics covered in the preceding courses, and theory sections in preparation for professional examination. Prerequisites: 6A:125, 6A:128; and 6A:132 or equivalent.

6A:214 Accounting for Management 3 s.h.
Internal financial information systems. Accounting information is appraised and analyzed for its potential in management decision systems and models. Relevant economic concepts and mathematical models are employed as a basis for the assembly and display of accounting data. Prerequisite, 6A:114 or equivalent.

Primarily for Graduates

6A:215 Financial Information for External Users 3 s.h.
Concepts and methods of corporate external reporting. The theoretical basis of current reporting practices in analyzed in the context of investor decision models and proposed models for financial statement and financial accounting for multipurpose complexes, and corporate reorganizations (combinations, separations, and consolidations) are considered. Prerequisite, 6A:114 or equivalent.

6A:220 Accounting Theory 3 s.h.
Evolution and growth of accounting as a body of knowledge. Theory and research of such groups as the American Institute of Certified Public Accountants and the American Accounting Association are critically evaluated in relation to financial statements and accounting principles. Current and likely future developments in accounting theory are reviewed. Prerequisite, 6A:215 or equivalent.

6A:221 Research Methods in Accounting 3 s.h.
Methods of research and their relationship to accounting problems. Consideration is given to problem formulation, research design, and research methodology. Each student is expected to complete a research project. Prerequisites, 6A:125 or equivalent.

6A:222 Accounting Information Systems 3 s.h.
Management information systems - management and control systems. Emphasis is on communication and the information content of accounting and related systems that impact on the decision-making process. Prerequisites, 6A:214 or equivalent; Computer Sciences 60:130 and Business Administration 68:129 recommended.

6A:223 Audit Theory and Current Issues 3 s.h.
Historical and modern developments in auditing theory and practice. Consideration of the use of auditing as a control function through internal auditing, external audits, and external audits of published financial statements. A review of current literature and its relationship to current business developments. Prerequisites, 6A:215 or equivalent.

6A:225 Governmental and Regulatory Accounting 3 s.h.
Concepts and techniques of accounting related to the implementation of public policy through activities of government and government regulation of selected industries. Prerequisites, 6A:214 and 6A:215 or equivalent.

6A:230 Contemporary Issues in Accounting 3 s.h.
Major concepts and problems in particular areas of accounting as reflected in current literature. Emphasis is on contemporary issues and their implications for accounting. Prerequisites, 6A:128 or equivalent.

6A:231 Research in Tax Accounting 3 s.h.
Current tax practices and preparation for continuing research in taxation. Emphasis on conceptual and problem areas. Prerequisite, 6A:141 or equivalent.

6A:270 Research: Accounting cr.arr.
Prerequisites, graduate standing.

6A:280 Seminar in Accounting Thought 3 s.h.
The evolution of accounting theory through a survey of the major contributors in the field. Materials are evaluated in terms of their relevance to current and future development of the profession. Prerequisite, doctoral program student. Prerequisites, 6A:225 or equivalent.

6A:288 Seminar in Accounting Research cr.arr.
A student-selected forum for the discussion of current research topics in accounting and related disciplines. Papers authorized by faculty, students, and invited guests provide the basic materials for each meeting. Ph.D. dissertation proposals in accounting are presented at this seminar. Prerequisites, 6A:225 or equivalent.

6A:289 Seminar in Selected Accounting Topics cr.arr.
Seminars in which the professor and students have an opportunity to pursue a particular research interest in accounting. The topics vary from semester to semester as circumstances dictate. Prerequisites, 6A:220 or equivalent.

6A:290 Thesis: Accounting cr.arr.
Prerequisite, consent of advisor.

BUSINESS ADMINISTRATION

Chairman of Department, Robert R. Miller
Office, 226 Phillips Hall
The student in the Department of Business Administration can select between the following options in fulfilling the degree requirements.

1) In addition to courses specified in the College general statement above, students select two three-credit course sequences (usually 9 credit hours) in areas of concentration approved by the dean. Two of the courses in each area must be offered by the College of Business Administration.
marketing with emphasis on recent advances. Focus on logical flow and quantitative models that attempt to solve marketing management problems. Criticism is depth of a number of models and participation in a model development project.

6B:241 Marketing Measurement 3 s.h.
Focus on management's need for measuring and information from internal and external sources. Analysis of secondary sources of information and methods for generating primary measurements, control, from human respondents. Development of scales of measurement and psychometric procedures. Nonparametric statistical procedures for analyzing measurements. Prerequisite, consent of instructor.

6B:242 Operations Research in Business—
M.B.A. 3 s.h.
Linear programming, dynamic programming, game theory, queuing, and other optimization models applied to business decisions. Prerequisite, Economics 62:151; prerequisite, 62:182.

6B:243 Statistics for Decision-Making I—
Ph.D. 3 s.h.
Probability, random variables, mathematical expectation, generating functions, and probability distributions. Statistical estimation and hypothesis testing. Bayes' theorem, prior and posterior probability distributions. Regression analysis of data under uncertainty. Includes study for Ph.D. basic area requirement. Prerequisite, 62:182.

6B:244 Statistics for Decision-Making II—
Ph.D. 3 s.h.

6B:245 Statistics for Model Building 3 s.h.
Forecasting and regression. Regression analysis, discriminant analysis, factor analysis, and other special topics. Oriented toward application to management with sufficient theory covered for assured proper use. Prerequisite, consent of instructor.

6B:246 Statistical Methods for Research 3 s.h.
Sampling theory, including random, stratified, systematic, cluster, and other sampling designs. Design of experiments; interpretation of data and analysis of variance. Emphasis on planning experiments and drawing conclusions from the results. Prerequisite, consent of instructor.

6B:247 Statistical Decision Theory 3 s.h.
Basic theory of decision-making under uncertainty. Biases of decision-makers, utility, value of perfect information, Bayesians approach to decision-making and its relationship to classical statistics. Posterior, optimal fixed rules, and other forms of analysis of statistical decision problems. Prerequisite, consent of instructor.

6B:248 Seminar in Quantitative Analysis 2 s.h.
Special topics in quantitative methods of current interest to faculty and students. Prerequisite, consent of instructor.

6B:249 Simulation Techniques 3 s.h.

6B:250 Production Management 3 s.h.
Analytical and integrated approach to the planning, operational control and analysis of information. Scheduling, linear programing, and mathematical models are extensively used. Prerequisite, consent of instructor.

6B:253 Employment Relations and Public Policy 3 s.h.
Public policy issues related to collective bargaining and labor-management relations.
obtain a major in economics for the Bachelor of Business Administration degree by completing the following courses and electives.

GE00 Introduction to Mathematical Economics for Undergraduates 3 s.h.

15-Level Courses
17 semester hours in 100-level economics courses including:
EC01 Micro-Economics and EC02 Macro-Economics.
Alternatively, candidates for the B.B.A. degree may meet the requirements for the degree by taking, in addition to the common requirements, 2 s.h. of Business Administration, two areas of concentration consisting of at least 3 hours in each area, and two of which must be offered by the College of Business Administration. A candidate 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 student's advisor.

Graduate Programs in Economics

The Department of Economics offers graduate instruction leading to both the M.A. and Ph.D. degrees. The graduate program is designed to provide an environment, along with personal research and purpse individual interests. The curriculum is intended to provide students with a rigorous basic theory and quantitative core in line with the current level of the economics profession and the training offered at other top universities.

The M.A. and Ph.D. programs are set up with a sequence of core courses so that students can complete the necessary requirements with a minimum of scheduling problems. The alternative plans under which a student may elect to complete his degree are flexible. However, the choice is not entirely at the discretion of the student. A student's program must be approved by the director of the graduate program in economics. Students should be familiar with the requirements for their degree and be responsible for preparing their plan of study and having it approved.

Admission Requirements and Procedures

The general admission requirement is a bachelor's degree from a college or university in good standing. The minimum grade-point average for admission is 2.3 for the M.A. program, and 2.7 for the Ph.D. program. The College of Business Administration gives admission to students who meet the standard University of Iowa Graduate School requirements.

Application forms for admission and financial assistance are obtained by writing to the Department of Economics, The University of Iowa, Iowa City 52242.

Degree Programs

Master of Arts

Master of Arts may be earned by students enrolled in either the M.A. or the Ph.D. program. Students must complete from the core courses below, the additional course from each of the two basic theoretical and quantitative tools of the professional economist.

Basic Theory and Quantitative Core

EC01 Micro-Economics I 3 s.h.
EC02 Macroeconomics 3 s.h.
EC03 Intermediate Macroeconomics 3 s.h.
EC04 Stochastic Processes 3 s.h.
EC05 Statistical Analysis 3 s.h.
EC06 Econometrics I 3 s.h.
EC07 Econometrics II 3 s.h.
EC08 General Equilibrium Theory 3 s.h.
EC09 Game Theory 3 s.h.
EC10 Industrial Organization 3 s.h.
EC11 Business Law 3 s.h.
EC12 Taxation 3 s.h.
COLLEGE OF BUSINESS ADMINISTRATION

quantitative areas of mathematics, statistics, and computer science is described in the Catalog.

regularly scheduled departmental seminar series is an integral and vital part of the graduate program in economics. The main purpose of these seminars is to promote the research activities and interests of the faculty and graduate students. These seminars are led by distinguished visiting professors and by members of the U of I faculty who present results of their own study and research.

STAFF


On leave, Fall semester, 1970-71.

COURSE DESCRIPTIONS

Primary for Undergraduates

Note: 401 and 602 may be taken in either order or they may be taken simultaneously. They satisfy the social science core requirement.

3.3 Principles of Economics 4 s.h.
Organization and workings of the modern economic system. The role of markets, prices, and competition in the promotion of economic welfare. Regulation of business and labor, the provision of public goods (such as education, security, poverty, and the distribution of wealth, economic factors in the total environment. Alternative economic systems. Prerequisites: Satisfaction of the University requirements in the Rhetoric Program.

3.5 Principles of Economics 4 s.h.
National income and output, employment, and prices; monetary and fiscal policy; international relations; economic systems. Prerequisite: Satisfaction of the University requirements in the Rhetoric Program and college algebra.

3.9 Introduction to Mathematical Economics for Undergraduates 3 s.h.
Use of mathematics in economics. Application of elementary calculus and matrix algebra to production, consumer choice, market equilibrium, and the national income and employment. Prerequisites: College algebra, 401, and 602, or senior standing.

Economic Analysis and Policy

EE-105 Micro-Economics 3 s.h.
Concepts and methods of economic theory. Relationship between economic theory and policy. Theories of micro-economics. Factor allocation, Relative size and importance of micro-economics to other areas of economic theory. Prerequisites: 401, 601, and senior standing.

EE-105 Macroeconomics 3 s.h.
Measurement, theory, and control of aggregate economic activity. Prerequisites: 401 and 602 or senior standing.

Graduate Courses and Seminars

The Department of Economics offers several graduate courses dealing with topics in economic theory and empirical fields. In addition, a wide selection of courses in other social sciences, law, business administration, and the
6E:106 Price and Employment Theory 3 h.
Role of markets and price determination under various conditions. National income analysis, employment, growth, and economic policy. Alternative economic system. Not open to students with previous economics courses. Priority for M.B.A. students. Prerequisites, senior or gradu- ate standing.

6E:111 Labor Economics 3 h.
Industrialization's impact on labor markets with analysis of resulting economic problems: wages, hours, working conditions, and consumer-interested manpower training and allocation. Assessment of labor market institutions and their role in the economy. Prerequisites, 6E:1 and 6E:3 or senior standing.

6E:113 Health Economics 3 h.
Structure of America's medical-care industry and applications of economic analysis to its problems of production, pricing, and distribution. Evaluation of medical care as one of the factors contributing to health. Prerequisites, 6E:1 and consent of the instructor.

6E:115 Economics of Human Resources 3 h.
Readings in recent application of economics to the human being considered as an economic resource. Particular emphasis placed upon competition of labor in relation to norms and incentives. Prerequisites, consent of instructor.

6E:117 Money and Banking 3 h.
Institutions, theory, practice, and policy. Prerequisites, 6E:1 and 6E:3 or senior standing.

6E:119 Economics of the Government Sector 3 h.
Economic functions of government in modern economies, economic decision-making in government, budgetary processes, effects of government expenditure and taxation upon allocation of resources, distribution of income, and economic growth and stability. Prerequisites, 6E:1 and 6E:2 or consent of instructor.

6E:125 International Economics 3 h.
foreign economic relations, international economic relations, foreign exchange, balance of payments, foreign investments, tariff policy, and world interdependence. Prerequisites, 6E:1 and 6E:2 or senior standing.

6E:129 Economic Development: Advanced Developed Areas 3 h.
Classical, neoclassical, and modern contributions to theory of economic growth in the advanced developed countries. Major problems for speeding up development. Prerequisites, 6E:1 and 6E:2 or senior standing.

6E:133 Economic Growth Industrially Advanced Areas 3 h.
Causes and consequences of economic growth in the more developed countries, such as the United States. Elementary growth theory. Critical topics: population, labor force, technology, health and education, the role of govern- ment and other institutions. Elements of planning. Growth vs. progress. Prerequisites, consent of the instructor.
6E:135 Introduction to Regional and Urban Economics 3 h.
Theory of location and regional development. Factors involved in the location of production, city location and hierarchies, land-use patterns, and the measurement and change in regional economic activity. Public policy issues in regional and urban development. Prerequisites, 6E:1 and 6E:2 or senior standing.

6E:137 Problems in Urban Economics 3 h.
Application of economic analysis to problems faced by urban and regional areas. Includes site selection, urban sprawl, urban development, and development. Prerequisites, 6E:1 and 6E:3 or senior standing.

6E:141 Industrial Organization 3 h.
Structure of major American industries and the effectiveness of public policy, development of restrictive laws and theories of market behavior. Prerequisites, 6E:1 or senior standing.

Economic History, Systems, and Ideologies

6E:150 Interdisciplinary and Organizational History 3 h.
Individual accomplishments in the context of large-scale organization, researched and analyzed with reference to responsibility for economic change. Dimensions considered: entrepreneurial activity in both corporate and noncorpo- rate sectors of the economy. Prerequisites, 6E:1 and 6E:3 or senior standing.

6E:151 American Economic History 3 h.
Analysis of American economic past in the context of theo- retical model. Tentative in the process of economic growth and development. Special emphasis placed on demographic factors, the role of governments, capital mar- kets, and structural change. Prerequisites, 6E:1 and 6E:2 or senior standing.

6E:151 History of Economic Thought 3 h.
Economic concepts and doctrines against background of evolving urban-industrial society. Classical, neoclassical, Keynesian, and modern economic thought. Prerequisites, 6E:1 and 6E:2 or senior standing.

6E:153 Economic Systems 3 h.
Functions performed by all economic systems; origins and applications of some contemporary economic models; economic systems in the modern industrial state. Prerequisites, 6E:1 and 6E:2 or senior standing.

6E:155 Comparative Labor Movements 3 h.
Labor movements of major industrial nations including England, Germany, Australia, Scandinavia, Russia, and the United States. Institutional aspects and economic aspects of unions and collective bargaining. Prerequisites, 6E:1 or senior standing.

Economic Method, Logic, and Ethics

6E:161 Topics in Quantitative Methods 3 h.
Quantitative methods applicable to business and econ- omy: matrix and linear algebra; economics of produc- tion, marketing, finance, and management. Prerequisites, 6E:1 and 6E:3.

Probability; hypothesis testing; estimation; simple linear regression and correlation; nonparametric statistics. Prerequisites, 6E:3.

6E:186 Introduction to Mathematical Economics I 3 h.
The nature of mathematical economics and economic models. Application of elementary calculus and matrix algebra to production, consumer choice, market equilibri- um, and the national income and employment. Prerequisites: for graduate students. Prerequisites, college algebra and consent of instructor. Undergraduate cannot receive credit for both 6E:186 and 6E:187.

6E:187 Introduction to Mathematical Economics II 3 h.
Further applications of calculus and matrix algebra to economic problems. Applications of mathematics to economic do- mains include production, exchange, decision making, and difference equations; linear programming and game theory. Application of topology to economics.

Economics for Advanced Undergraduates

Courses 6E:188 and 6E:189 are intended to be an invitation to students in the Honors Program.

6E:188 Senior Seminar in Economics cr.arr.
Prerequisites, consent of instructor.
COLLEGE OF BUSINESS ADMINISTRATION

6E:218 Urban Economics 3 s.h.
Examination of selected economic problems facing a city. Prerequisite, consent of instructor.

6E:221 Introduction to Econometrics 3 s.h.
Analysis of variance; classical decision theory; multiple linear regression; experimental design. Prerequisite, 6E:185.

6E:222 Statistical Methodology and Forecasting 3 s.h.
Consideration of forecasting data available; uses and limitations of such data in statistical forecasting. Prerequisite, 6E:128 or consent of instructor.

6E:223 Statistical Methods of Sampling 3 s.h.
Methods of sampling useful in business and economic research. Determination of sample size for a given degree of reliability. Prerequisite, 6E:221 or consent of instructor.

6E:224 Mathematical Economics 3 s.h.
Optimization methods for solutions in economics. Mathematical programming, calculus, and calculus of variations. Mathematical analysis of micro- and macro-economic theories. Prerequisite, consent of instructor.

6E:225 Econometrics 3 s.h.
Construction of micro- and macro-economic models single and simultaneous equation techniques and related topics. Prerequisite, consent of instructor.

6E:226 Seminar in Quantitative Analysis 3 s.h.
Prerequisite, consent of instructor.

6E:228 Econometric Models 3 s.h.
The process of economic development in underdeveloped countries; emphasis on theories of development. Prerequisite, consent of instructor.

6E:231 Economic Development I 3 s.h.
The process of economic development in underdeveloped countries; emphasis on policy alternatives in development. Prerequisite, 6E:230 or consent of instructor.

6E:232 Econometrics of Underdeveloped Countries 3 s.h.
Economic structure of the countries constituting the region: economic, political, social, and cultural forces influencing development. Prerequisite, consent of instructor.

6E:233 Economics of Underdeveloped Regions: Latin America 3 s.h.
Economic development in Latin America; emphasis on major current issues and problems. Prerequisites, 6E:230 and 6E:221 or consent of instructor.

6E:234 Seminar in Economic Development 3 s.h.
Prerequisite, consent of instructor.

6E:240 International Economics 3 s.h.
Theory of foreign trade; tariff theory and policy; customs union theory and policy. Prerequisite, consent of instructor.

6E:241 International Economics I 3 s.h.
Theory of foreign exchange; balance of payments adjustment; the assignment problem; exchange controls; international investment. Prerequisite, consent of instructor.

6E:249 Seminar in International Economics 3 s.h.
Prerequisite, consent of instructor.

6E:251 Labor Economics and Relations 3 s.h.
Economic theory of the labor market via wage theory. Institutional entities of the labor market via models of union and management behavior. Economic impact of collective bargaining and employment conditions on the total economy.

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6E:352 Comparative Labor Movements 3 s.h.
Origin, growth, and economic role of labor movements in selected countries of the Old World (including the United States, Russia, and others). Prerequisite: consent of instructor.

6E:357 Seminar in Economics of Human Resources 3 s.h.
Prerequisite, consent of instructor.

6E:359 Seminar in Labor Economics 3 s.h.
Prerequisite, consent of instructor.

6E:360 Industrial Development of Western Europe 3 s.h.
European economic growth since the Industrial Revolution; emphasis on population trends and labor force growth, the evolution of capital markets, patterns of capital accumulation, and resultant rates of economic growth. Analyzes of technological progress and growth of open economies relative both historical and theoretical considerations. Prerequisite, consent of instructor.

6E:361 Economic Development of the North American Economy 3 s.h.
Analysis of long-term growth patterns of the American economy with special emphasis on economic development. Prerequisite: consent of instructor.

6E:262 Twentieth-Century United States Economic Growth 3 s.h.
An in-depth study of the causes and consequences of economic growth in the United States during the 20th century. Prerequisite: consent of instructor.

6E:363 Seminar in Economic History 3 s.h.
Prerequisite, consent of instructor; may be repeated after credit.

6E:366 Comparative Economic Systems 3 s.h.
Functioning of all economic systems. Origins and attributes of major contemporary economic systems. Capitalism, socialism, communism, fascism, and developing economies of the "backward" countries. Prerequisite, consent of instructor.

6E:367 Business and Government 3 s.h.
Analysis of the interaction of business and government. Current issues in business and government. Prerequisite, consent of instructor.

6E:368 Industrial Organization 3 s.h.
Patterns of industrial development. Understanding the forces that explain and have an impact on modern business organizations. Prerequisite, consent of instructor.

6E:369 Seminar in Economic Policy 3 s.h.
Prerequisite, consent of instructor.

6E:370 Monetary Theory 3 s.h.
Systematic study of modern monetary economics. Prerequisite: consent of instructor.

6E:371 Monetary and Fiscal Policy 3 s.h.
Prerequisite: consent of instructor.

6E:372 Advanced Monetary Economics 3 s.h.
Current problems and policies; critique of doctrines; unresolved conceptual and theoretical considerations. Consent of instructor.

6E:373 International Monetary Economics 3 s.h.
Theory, institutions, and policies with respect to international financial institutions; balance of payments analysis; capital movements and investments; international disequilibrium; international transactions of the United States' monetary policies. Prerequisite: 6E:367 and consent of instructor.

6E:276 Seminar in Monetary and Fiscal Policy 3 s.h.
Prerequisite: consent of instructor.

6E:280 Economics of the Government Sector: Taxation 3 s.h.
The role and effects of taxation in the modern economy; effects of major taxes upon the allocation of resources, distribution of income, and economic growth and stability; debt finance as an alternative to tax finance. Prerequisite, consent of instructor.

6E:281 Economics of the Government Sector: Expenditures 3 s.h.
Analytic framework for understanding government spending; economic functions of government; alternative means of carrying out government functions; determination of expenditure levels; budgetary processes; centralized vs. decentralized decision-making; intergovernmental fiscal relations. Prerequisite, consent of instructor.

6E:289 Seminar: Economics of the Government Sector 3 s.h.
Prerequisite, consent of instructor.

6E:290 Theory in Economics 3 s.h.
Prerequisite, consent of instructor.

6E:295 Seminar in Health Economics 3 s.h.
Prerequisite, consent of instructor.

6E:300 Seminar in Urbanization 3 s.h.
Same as Urban and Regional Planning 102:321.

BUSINESS EDUCATION

Chairman of Department: Norman F. Kallaus
Office, 631 Phillips Hall

Students majoring in business education must complete the general requirements for the Bachelor of Business Administration degree in addition to those requirements for the Bachelor of Professional Teaching Certificate.

Program in business education is on the baccalaureate, master's, and doctoral levels are offered jointly by the College of Education and the College of Business Administration. The graduate programs are administered by the College of Education. Inquiries related to the graduate programs in business education should be addressed to the Office of the Dean, College of Education, 214 Jefferson Building.

The College of Education for courses required for the Bachelor of Professional Teaching Certificate. The following courses are required of all business education majors:

6E:252 Business and Government 3 s.h.
6E:257 Office Calculating Machines 3 s.h.
6E:258 Administration 3 s.h.
6E:260 Data Processing in Business 3 s.h.
6E:261 Principles of Business Education 3 s.h.

For teaching certification, students must take terminal course at the U of I.
COLLEGE OF BUSINESS ADMINISTRATION

or equivalent, 65-25 or equivalent, and junior standing.
Second semester only.

65-35 Office Calculating Machines
3 s.h.
Use of ten-key adding machines, printing and rotary calculators for solving business problems.

65-36 Office Services
3 s.h.
Pricing and techniques necessary for efficient transaction of written information. Production typewriting en- gines, color design of forms, and mass mailing or- ganizations. Experience on quiz, speed, skill, and transcription equipment.

65-39 Administrative Behavior
3 s.h.

For Undergraduates and Graduates

65-125 Administrative Communication
3 s.h.
Survey of the total communication process in business. Message theory, semantics, and human behavior in business communications. Verbal and non- verbal communication problems in business. Communication media, skills, and systems. Preparation, presentation of written and oral reports and presentations.

65-126 Written Communication in Business
3 s.h.

65-127 Administrative Systems
3 s.h.

65-128 Organizational Behavior
3 s.h.

65-129 Principles of Office Procedures
3 s.h.
or other electives as approved

65-130 Office Service (noncredit) Option
3 s.h.

65-131 Marketing and Advertising
3 s.h.

65-132 Financial and Insurance
3 s.h.

65-134 Accounting
3 s.h.

65-135 Management
3 s.h.

65-136 Business Administration Options
3 s.h.

65-142 Management (required)
3 s.h.

65-143 Marketing (required)
3 s.h.

65-144 Accounting (required)
3 s.h.

65-145 Administrative Behavior (required)
3 s.h.

65-146 Principles of Office Problems (required)
3 s.h.

65-147 Administrative Behavior (required)
3 s.h.

65-148 Administrative Behavior (required)
3 s.h.

65-149 Administrative Behavior (required)
3 s.h.

65-150 Administrative Behavior (required)
3 s.h.

65-151 Administrative Behavior (required)
3 s.h.

65-152 Administrative Behavior (required)
3 s.h.

65-153 Administrative Behavior (required)
3 s.h.

65-154 Administrative Behavior (required)
3 s.h.

65-155 Administrative Behavior (required)
3 s.h.

65-156 Administrative Behavior (required)
3 s.h.

65-157 Administrative Behavior (required)
3 s.h.

65-158 Administrative Behavior (required)
3 s.h.

65-159 Administrative Behavior (required)
3 s.h.

65-160 Administrative Behavior (required)
3 s.h.

65-161 Administrative Behavior (required)
3 s.h.

65-162 Administrative Behavior (required)
3 s.h.

65-163 Administrative Behavior (required)
3 s.h.

65-164 Administrative Behavior (required)
3 s.h.

65-165 Administrative Behavior (required)
3 s.h.

65-166 Administrative Behavior (required)
3 s.h.

65-167 Administrative Behavior (required)
3 s.h.

65-168 Administrative Behavior (required)
3 s.h.

65-169 Administrative Behavior (required)
3 s.h.

65-170 Administrative Behavior (required)
3 s.h.

65-171 Administrative Behavior (required)
3 s.h.

65-172 Administrative Behavior (required)
3 s.h.
COLLEGE OF BUSINESS ADMINISTRATION

Required for teacher coordinators of office education programs. Summer session only.

65:196 Individual Instruction Techniques 2 s.h.
Problems of correlating classroom instruction with on-the-job training in office and distributive education requirements. Required for teacher coordinators of office education programs. Summer session only.

65:197 Philosophy of Vocational Education 2 s.h.
Study of vocational education programs with special emphasis on curriculum development, work experience, job analysis, and the changing vocational needs of business and society. Required for teacher coordinators of office education programs. Summer session only.

65:199 Business Education Workshop 0 to 1 s.h.
Offered alternate summers.

Primarily for Graduates

65:203 Seminar: Basic Business and Economic Education 2 to 3 s.h.
Techniques and materials of instruction, behavioral objectives, and the implications of research for teaching in the area of basic business and economic education.

65:204 Seminar: Teaching Bookkeeping 2 to 3 s.h.
Accounting principles and critical analysis. Comparison of the various approaches, techniques, and materials available. Research findings applied to the various accounting phases. Analysis of automated, mechanical, and manual processes.

65:305 Seminar: Secretarial Education 2 to 3 s.h.
Research findings and experimental evidence applied to the areas of secretarial education including office procedures and communication. Psychology applicable to the skill-building process.

65:207 Seminar: Teaching Information Processing 2 to 3 s.h.

65:216 Supervision of Business Education 2 s.h.
Principles, problems, and practices of business education at the supervisory level. Designed for business education administrators and those who wish to prepare for, or improve, supervisory roles in business education.

65:220 Post-Secondary Business Education 3 s.h.
Philosophy; organization and administration; principles and problems; curriculum development and teaching procedures in postsecondary business education programs including four-year colleges.

65:225 Seminar in Administrative Communication 3 s.h.
Communication theory applied to the organization and administrative process. Communication in the automated system. Applications to selected areas of business. Prerequisite, 65:105 or equivalent.

65:235 Foundations in Business Education 3 s.h.
Philosophy and objectives of the business education program and its role in secondary and higher education.

65:346 Seminar in Business Education 2 or 3 s.h.
For advanced graduate students only. Current issues in business education and business teacher training. Prerequisite, consent of instructor.

65:246 Administrative Management Seminar 2 s.h.
Philosophy of administrative management and basic systems concepts. Current and projected developments in administrative services. Applications to selected areas of business, industry, and government. Prerequisites, 65:240 and equivalent for graduate standing.

65:265 Directed Readings cr.arr.
Individually guided readings in business education, data processing, communication, or office management. Prerequisites, graduate standing and consent of instructor. May be repeated to a maximum of 8 semester hours.

65:270 Research: Business Education cr.arr.

65:275 Research Seminar: Business Education 2 s.h.
Analysis of research methods and design. Formal research within the total framework of selected topics, including business teacher education, office management, secretarial education, and data processing.

65:280 Seminar: Business Education Policy 2 to 3 s.h.
Required of, and limited to, doctoral students in business education. An advanced analysis and synthesis of business education policies involving the total framework of business education, with emphasis on teacher education.

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; 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.

BASIC PROGRAM IN DENTISTRY

The basic educational program in dentistry at Iowa, leading to the degree Doctor of Dental Surgery (D.D.S.), comprises three years of preprofessional study and four years of study in the College of Dentistry. The dental curriculum consists of five basic units:

**Basic sciences:** gross, general radiographic, and developmental anatomy; neuroanatomy; biochemistry; general microanatomy; physiology; general pathobiology; oral pathobiology; pharmacology; microbiology; clinical pathobiology; and oral biology.

**Restorative dental sciences:** gross, microscopic and radiographic dental anatomy; dental materials; endodontics; operative dentistry; fixed partial prosthesis; and removable prosthesis.

**Oral medicine:** physiology of mastication, introduction to diagnosis and therapy, preventive dentistry, oral diagnosis, dental radiology, anesthesiology and pain control, oral surgery, periodontology, internal medicine, therapeutics, and bioclinical conference.

**Community dentistry:** ethics, history of dentistry, biometry and the scientific method, research design and planning, epidemiology, nutrition, preventive dentistry and community health, principles of human behavior, dental economics, dental jurisprudence, and practice management.

**Pediatric dentistry:** pedodontics and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to actual clinical work during the freshman year. The sophomore program includes comprehensive training in effective coordination of auxiliary personnel. Classroom instruction in this area is followed by practical experience which is offered in conjunction with the dental hygiene program.

As juniors, dental students rotate through a series of clinical "clerkships" which provide them with a meaningful exposure to each of the eight clinical disciplines.

Senior dental students are involved in delivery of comprehensive dental care in an environment which simulates closely the conditions existing in private dental practice. Seniors also get exposure to various extramural health programs at state and university hospitals and the State Department of Health.

The dental curriculum provides a summer preceptorship program in which senior dental and dental hygiene students assist in selected dental offices throughout Iowa. The program exposes students to facets of dentistry usually not observable in an academic setting, such as practical business management procedures, appointment-book control, the dynamics of presenting treatment plans to private patients, and the relationship of the dentist to the community.

**SPECIAL PROGRAMS**

**Enrichment program.** A dental student may satisfy his departmental requirements by examination in lieu of course participation. The time thus gained may be used for participation in the College's enrichment program. A student who qualifies for the program must maintain a satisfactory level of achievement to remain in the program. Enrichment program may consist of electives taken for credit; advanced clinical training; research; or any combination of these activities. It may also provide a means to fulfill some Graduate College requirements, if the student's objective is a combined Dentistry-Graduate College degree.

**Teacher training.** In close cooperation with the Graduate College and the Colleges of Education and Liberal Arts, the College of Dentistry offers one of the few programs preparing dentists to become professional educators. The program combines graduate-level coursework in dentistry, education, and the liberal arts with supervised teaching experience and research in the College of Dentistry. It leads to a master's degree in education or science. Each student's course of study is tailored to individual abilities and in-
The college work outlined below meets the basic academic requirements for admission to the College of Dentistry. Each applicant must submit to the Office of Admissions the completed application form and official transcripts from all colleges attended.

College credit. The college curriculum should include at least three academic years of accredited work comprising not less than 96 semester hours, and including these required courses:

1. Rhetoric: satisfactory accomplishment in English composition and speech communication with the academic requirements for a bachelor's degree of the college attended.

2. Physics: one year (equivalent to 8 semester hours) of organic chemistry with appropriate laboratory work in all courses, of which one-fourth must be laboratory work.

3. Biology: one year (equivalent to 8 semester hours); this requirement may be satisfied by a one-year course in either general biology or zoology and botany (not botany alone), but in all cases one-half of the credit must be for laboratory work.

5. Electives: additional courses to make a minimum of 96 semester hours; chosen electives should give the applicant a well-rounded educational background; they should be selected from courses in social sciences, philosophy, psychology, history, foreign languages, higher mathematics, or chemistry.

The Admissions Committee may waive or reduce some of the above requirements when the candidate for admission is considered outstanding in other respects. In exceptional circumstances, candidates with fewer than three years of college work will be considered for admission if the applicant's performance and his potential for the dental profession are deemed to be outstanding. These candidates will be required to take the Graduate Record Examination Aptitude Test as well as the Dental Admission Test. In these instances, assessment of the candidate's performance on the Graduate Record Examination will be included in the evaluation by the Admissions Committee of the applicant's credentials for entrance into the College of Dentistry.

The applicant should maintain a cumulative grade-point average of 2.5. Since the quality of coursework in predental science is basic to success in dentistry, special consideration to such college work is given by the Admissions Committee. The grade-point average is based upon the University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other
marking systems will be evaluated by the Office of the Admissions and the Admissions Committee of the College of Dentistry.

Interviews. Personal interviews may be required of applicants for admission to the College of Dentistry. Applicants will be notified when they should appear for the required interviews with members of the Admissions Committee.

Required Dental Admission Test. All applicants must complete the Dental Admission Test sponsored by the Council on Dental Education of the American Dental Association. All applicants for admission to the College of Dentistry should obtain an application form from the University for the required test. The fee for the examination must be paid when the application is completed. The fees will entitle the applicant to have their scores sent to five dental schools. Applicants are requested to submit applications well before the test deadline. Tests are given three times annually, and The University of Iowa is a testing center.

Applicants for admission to The University of Iowa's College of Dentistry are urged to complete the examination in the previous October to enable the Admissions Committee to begin its selection in December. Applicants who have completed more than one year of predental work are urged to take the examination in the preceding April.

Deposits by accepted applicants. Accepted applicants shall make the required deposit within two weeks after notification of favorable action on their applications. This deposit is not refundable but is credited toward the first fee payment. The applicant who fails to make the deposit within the time specified forfeits his place in the entering class.

Physical Examination. Applicants accepted for admission are required to submit a satisfactory physical examination report to the University Student Health Service within two weeks following notification of acceptance.

Advanced standing. Applications for admission with advanced standing are considered on the basis of their individual merit and availability of space in a given class.

Combined liberal arts-dentistry course. The provision for acceptance, by the College of Liberal Arts, of 30 semester hours of elective credit from 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 the successful completion of the freshman year. 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 preceding enrollment in the College of Dentistry satisfies the college residence requirement.

Fullfillment of the specific requirements listed for admission does not insure admission to the College of Dentistry. From the applicants meeting the minimal requirements, the Admissions Committee will select those who appear to be best qualified for the study and practice of dentistry. The Committee considers applicants' academic average, the scores on the required Dental Admission Test, and several other factors.

Since the available places in the freshman class of the College of Dentistry are limited, preference will be given applicants who are residents of Iowa under the University's regulations on residence. If it is found possible to consider a limited number of applicants who are nonresidents of Iowa, under the University's regulations, preference will be given to applicants having the highest scholastic standing.

SCHOLARSHIP REQUIREMENTS

Grading System

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Each Semester Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Superior</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Above Average</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Below Average</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Fail</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td>0</td>
</tr>
<tr>
<td>P</td>
<td>Pass</td>
<td>0</td>
</tr>
</tbody>
</table>

Absences. Students are required to be in residence on the first day of the school year and are expected to participate in all academic activities which they are scheduled.

Promotions and gradation. Student promotions and graduation are determined by the respective class performance committees appointed by the Dean from among those faculty members who are involved in coursework offered during a given academic year. A minimum cumulative grade-point average of 2.0 is required for promotion and graduation. However, the performance committee may recommend that a student withdraw from the College of Dentistry or repeat an academic year, regardless of his grade-point average, when he is deemed generally unfit to be promoted or enter the dental profession.

Committee on appeals. This ad hoc committee will be appointed by the Dean from the faculty of the College and will be chaired by the Dean or his designated representative. The committee will consider such matters as student scholastic achievement, promotion, absences, and his general fitness to enter the dental profession. The decision reached by the committee will be final.

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Changes in rules and regulations. The right is reserved by the faculty to make changes at any time in any rules and regulations.

GRADUATION REQUIREMENTS

The candidate for graduation shall be of legal age and of good moral character, shall pass a satisfactory examination in the branches taught, and shall prove his general fitness for the practice of dentistry. The minimum academic average required for graduation is a C on all work attempted in the College of Dentistry. The time of study shall include attendance during four academic years, the last two of which will be in this College.

State boards of examination. All states require an examination before a Board of Dental Examiners before license to practice is issued. The Iowa law provides two examinations yearly by the Iowa State Board of Dental Examiners. These are given on dates which coincide with the time of graduation.

Student organizations. All dental students automatically have membership in the Junior American Dental Association. Students who rank in the upper 12 per cent of the senior class are eligible for Omicron Kappa Upsilon, national scholastic honorary dental society. Two national dental professional fraternities, Delta Sigma Delta and Psi Omega, have chapter houses at Iowa, and both have women's auxiliaries. There is also a Dental Student Wives Club.

EXPENSES

Students are provided with an opportunity to rent most of the dental instruments from the College of Dentistry. The rental fees amount to $400 per year, cut of which $100 represents a refundable instrument breakage deposit. A limited number of additional instruments must be actually purchased each year.

FINANCIAL ASSISTANCE

Under the Health Professions Educational Assistance Act, eligible students may borrow up to $2,500 each year of their undergraduate professional studies. Eligible students may also apply for federal scholarships. Preference is given to students who would not otherwise be able to finance their dental profession studies. Loans are issued at low interest rates and are repayable within thirteen years after the recipient completes his course of study.

A number of short-term loans are available from the American Dental Association, the Iowa Dental Foundation, the Kallam Foundation, and other sources, to help students in emergency situations. Short-term loans average $500 at interest rates from 3 1/2 to 4 per cent.

Dental students are also eligible for much of the assistance provided through all-University resources administered by the Office of Student Financial Aids.

For further information on financial assistance available to dental students, see the Scholarships and Loans section of the Catalog, or direct an inquiry to the Office of Student Financial Aids.

ADMISSION TO GRADUATE AND POSTGRADUATE STUDY

Programs of study leading to the Master of Science degree are offered by the following departments of the College of Dentistry: Crown and Bridge Prosthesis, Dental Hygiene, Denture Prosthesis, Operative Dentistry and Endodontics, Oral Diagnosis, Oral Pathology, Oral Surgery, Orthodontics, Pedodontics, and Periodontology.

Prerequisites for admission to any of the graduate programs in the College of Dentistry are the satisfactory fulfillment of all requirements for admission to the Graduate College (see Graduate College), possession of the degree of Doctor of Dental Surgery or its equivalent, and departmental approval.

Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs are one year or more in length, but do not lead to an academic degree. Prerequisites for admission to the postgraduate programs are the same as those indicated above for graduate programs. A certificate is awarded upon satisfactory completion of the postgraduate program.

ADMINISTRATIVE STAFF

Dean: Donald J. Galgan
Assistant Dean: George H. Koonce
Director of Dental Education: Dever E. Killips
Assistant Dean and Coordinator of Research: Jess Haydon, Jr.
Associate Dean and Coordinator of Curriculum: Robert M. Moriarty
Assistant Dean of Clinics: C. Frederic Zeh
Coordinator, Student Affairs: Ralph C. Ageley
Director, Curricular Education: Bever E. Kilpi
Liaison: Margaret R. Czarnecki

PRECLINICAL SCIENCES

COURSE DESCRIPTIONS

Below are listed required science courses offered by departments in college other than dentistry for the undergraduate dental students.

17:119 The Science of Nutrition 2 s.h.

60:161 Gross Anatomy for Dental Students 6 s.h.

60:162 Microscopic Anatomy for Dental Students 6 s.h.

Cell, primary tissues, and organs. Development of the head and oral structures. Freshman year.
CROWN AND BRIDGE PROSTHESIS
Head of Department, Keith E. Thayer
Office, 3B Dental Building

STAFF
Professor: Keith E. Thayer
Professor Emeritus: V. W. Herrick
Associate Professor: John E. Stover
Associate Professor Emeritus: W. E. Kove
Assistant Professors: Kenneth W. Fallet, Arthur N. Koval
Visiting Assistant Professor: Sami I. Abdulhadi
Instructor: Clifford T. Motley, Riobly B. Z. Mohammad

Graduate Program
The Department of Crown and Bridge offers a graduate training program in the area of prosthodontics. This degree is granted through the Graduate College of the University of Kentucky. The program satisfies the formal training requirements for eligibility for the American Board of Prosthodontics examination. The primary purpose of this graduate program is to train and prepare dentists for a career in dental education and/or dental research. It is also adaptable for those individuals wishing to further prepare themselves for private practice in the area of fixed prosthodontics. The graduate student in cooperation with the faculty of the department and/or his advisor constructs an individual curriculum for his program which best fulfills his interests, goals, and desires while meeting all of the graduation requirements of the department and the Graduate College necessary for the granting of the master's degree. This type of individual attention is possible since no more than two graduate students are accepted into the program each year.

Admission Requirements
The minimum requirements for admission into the program correspond to the minimum requirements for admission to the Graduate College of the University. In addition, the student must hold a D.D.S. or D.M.D. degree or its foreign equivalent. No advanced GSE is required.

Master's Degree Requirements
A research project and thesis are required for the master's degree in crown and bridge. The major emphasis of coursework is in fixed prosthodontic theory and treatment along with seminar courses in other specialties of dentistry. A course in research methodology as well as a course in biostatistics or elementary statistical analyses in medicine will be required. Some coursework is the general area of education or in one of the basic science areas will also be required. Oral and/or written exams are given during the regularly scheduled graduate degree exam period each year.

Any student is unable to maintain the minimum 2.5 grade-point average during the first year of his program or those individuals who fail to terminate their program after one year will be considered for issuance of certificate of attendance. Each student will be required to submit a manuscript suitable for publication in a nationally recognized professional journal based upon the student's research and/or thesis topic. He will be required to present additional manuscripts for publication on another topic.

COURSE DESCRIPTIONS
81:1 Physiology of Mastication 1.5 h.
Interdisciplinary introduction to the concept of occlusion and mastication.
81:7 Crown and Bridge Technique 2.5 h.
Lectures covering introduction to crown and bridge dentistry, including definitions, materials, and techniques used in the construction of various types of metal and porcelain crowns and assembling of bridges. 28 clock hours.
81:9 Crown and Bridge Technique Laboratory 4.0 h.
Technical procedures required in construction of dental crowns and bridges. 18 clock hours. Sophomore year.
81:11 Dental Materials 1.5 h.
Review of basic physical and clinical principles that apply to materials used in dentistry. Structure and status of major groups of materials, nature of solution, and physical and mechanical properties.
81:102 Crown and Bridge 5.0 h.
Lectures and seminars covering previously acquired knowledge in biological and basic sciences and technical courses with clinical crown and bridge restorative procedures. Practice in this Dental Laboratory supervised by the residents and demonstrations to small groups. 160 clock hours. Junior year.
81:108 Clinical Crown and Bridge 4.0 h.
Instruction in clinical phase of crown and bridge restorative treatment procedures and theoretical crown and bridge requirements and demonstrates satisfactory practice in clinical crown and bridge procedures. 260 clock hours. Senior year.
81:111 Oral Rehabilitation and Gerodontics 1.5 h.
Lectures dealing with extensive or involved reconstructive oral apparatus and with the effects that the aging of the dental patient has on such treatment.

Primarily for Graduates
81:200 Crown and Bridge Literature Review* cr.arr.
Assigned reading and preparation of abstracts.
81:201 Technic Methods: Crown and Bridge* cr.arr.
Advanced review of all technical procedures. Preparation of analysis of specific technologic procedures.
81:202 Advanced Clinical Crown and Bridge* cr.arr.
Student working under one demonstrator completes assigned cases in sequence of difficulty.
81:203 Research: Crown and Bridge* cr.arr.
81:204 Seminar: Crown and Bridge* cr.arr.
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The following requirement was approved by the House of Delegates of the American Dental Association in Oc
tober 1966.
Each board shall require for certification as a dentist a minimum of two academic years of advanced education in recognized institutions, or two calendar years of advanced study if the program involves hospital internships and residencies. Although desirable, the period of advanced study need not be continuous, nor completed within successive calendar years. An advanced education program equivalent to two academic years in length, successfully completed on a part-time basis over an extended period of time and as a graduated sequence of educational experience, may be considered acceptable in satisfying this requirement. Short continuance and refresher courses and teaching experience in specialty departments in dental schools will not be accepted in meeting any portion of this requirement.

Program Information
It is intended that the advanced training programs in removable prosthodontics at The University of Iowa be feasible to the extent that the goal of the individual student may be realized. The department takes into consideration that one set program is not in the best interest of all students nor of the profession. The requirements are considered feasible to the extent that an endeavor is made to fulfill the needs of each individual student. With this in mind, the department offers two advanced training programs:

1. The Certificate Program (postgraduate level)
2. The Master of Science Degree Program (graduate level)

An outline of each of these two programs follows.

Certificate programs. The certificate program is intended for those individuals whose primary interest is in clinical prosthodontics. The certificate program usually requires 21 months of advanced study for successful completion. The program includes courses in the Colleges of Dentistry, Medicine, and Liberal Arts. Certain courses will be suggested as requirements, and others are elective. The final decision on the choice of courses will result from consultation between the student and his advisor.

The following are current suggested courses for the certificate program:

1. Basic Science Courses
   a. Required
      62:205 Basic Otolaryngologic Science
         2 a.h.
      60:208 Problems (head and neck dissection)
         2 a.h.
      72:105 General Pathology
         1 a.h.
      72:201 Advanced Neuro-Physiology
         3 a.h.
      81:201 Pathologic Processes (basic processes of disease)
         3 a.h.
      62:207 Advanced Dental Therapeutics
         1 a.h.
   b. Electives
      55:151 Oral Biology (includes physiology of mastication)
         2 a.h.
      17:118 Nutrition
         1 a.h.
      17:204 Pharmacology Seminar
         1 a.h.
      17:212 Additional Material
         2 a.h.
      61:201 Research microbiology
         1 a.h.

2. Clinical and Related Courses
   a. Required
      62:401 Literature Review Prosthodontics
         crarr.
      62:404 Seminar Prosthodontics (complete removable partial dentures)
         crarr.
      62:203 Advanced Clinical Prosthodontics
         crarr.
      62:201 Prosthodontics
         crarr.
      69:401 Seminars: Mandibular Rhabdomyolysis
         1 a.h.
      69:439 Clinical Rhabdomyolysis
         2 a.h.
      69:403 Prosthodontic Practice
         1 a.h.
      69:404 Prosthodontics
         1 a.h.
      81:204 Seminars: Crown and Bridge
         1 a.h.
      62:202 Advanced Clinical Crown and Bridge
         crarr.
C O L L E G E  O F  D E N T I S T R Y

General Information

The field of prosthodontics has expanded in recent years to include the following areas: removable prosthodontics (complete and removable partial dentures); fixed prosthodontics (crowns and bridges); and maxillofacial prosthesis.

In the advanced training programs in removable prosthodontics at The University of Iowa, certain courses have been suggested that will provide for a good basic two-year program. Two of the required clinical courses, 46:326 Advanced Clinical Prosthodontics and 46:430 Clinical Maxillofacial Prosthetics, will provide the opportunity to treat prosthodontic patients in a hospital environment. Here the student learns to treat patients as a member of the dental-medical team, a team of dental and medical specialists whose interests lie in the treatment of the entire body, not just the oral cavity and closely related areas.

Maxillofacial prosthesis. The department, in cooperation with the Department of Oral Surgery and Maxillofacial Surgery, also offers a three-year program for specialty training in maxillofacial prosthesis. Individuals interested in the maxillofacial program should request additional information.

Dental education. Individuals interested in a career in dental education are urged to register for or audit as many of the following courses as their time and schedule will permit:

46:311 Prosthodontic Technique Lecture 3:0
46:312 Prosthodontic Laboratory 2:0
46:335 Dental Materials 4:0
46:430 Clinical Maxillofacial Prosthetics 4:0
46:431 Advanced Clinical Prosthodontics 4:0

COURSE DESCRIPTIONS

46:310 Prosthodontic Technique Laboratory 2:0, 4:0 Laboratory procedures in the construction of complete and removable partial dentures. 150 clock hours. Required. 46:430 Prosthodontic Technique Laboratory 2:0, 4:0 Laboratory procedures in the construction of complete and removable partial dentures. 150 clock hours. Required. 46:110 Prosthodontics 2:0 Seminar and clinical experiences month examination, diagnostic procedures, treatment planning, and construction of complete and removable partial dentures. Junior year.

46:112 Clinical Prosthodontics 3:0 Clinical experience in constructing more complicated cases of complete and removable partial dentures. Senior year.

Primarily for Graduates

46:200 Literature Review Prosthodontics* 3:0 A study of current and/or pertinent literature in the field of prosthodontics. Senior year.

46:291 Advanced Clinical Prosthodontics* 3:0 Student working on one demonstrator completes assigned cases in sequence of difficulty.
COLLEGE OF DENTISTRY

84/203 Research Prosthodontics* cr.arr.
84/204 Seminar Prosthodontics* cr.arr.
Conferences and discussion of assigned topics.
84/255 Practice Teaching Prosthodontics* cr.arr.
Clinical and classroom teaching experience as assigned by adviser.
84/205 Thesis Preparation
Prosthodontics* cr.arr.
Prepared in accordance with the regulations of the Graduate College.
May be taken during any semester with permission of the department head.

OPERATIVE DENTISTRY AND ENDODONTICS

Head of Department, Wallace W. Johnson
Office, DI Dental Building

STAFF
Professor Emeritus: Arne M. Bjorndal, Director, Endodontics;
Wallace W. Johnson, Director, Operative Dentistry.
Professor Emeritus: James H. White
Lecturer: Professor: Devere E. Killip, Director, Teacher
Assistant Professor: K'ai Chiu Chan, Mohamed A.
Khoury, Gerald E. Ferry, Lloyd A. Lewis.
Instructor: James L. Fullmer

Graduate Programs

Two programs of study leading to the Master of Science degree are available.

Degree program in endodontics. The program of study in endodontics is designed to provide a level of training that will lead to a career in research, teaching, and/or specialization in the clinical practice of endodontics. Applicants must be graduates of recognized dental schools, and foreign students must demonstrate proficiency in the English language.

Unless the preparatory training of the candidate has included sufficient work in mathematics and chemistry, it will be necessary for him to complete these studies through his own efforts. In addition, clinical studies and quantitative analysis before undertaking a research project. Completion of the course will usually entail two calendar years of full-time effort. The applicant must be financially prepared to undertake, unassisted, his prospective studies. Some financial assistance is available through the National Institutes of Health or the National Science Foundation; however, those fellowships should be received prior to matriculation.

In compliance with the basic regulations of the Graduate College for programs of higher education in dentistry, the following requirements for a degree must be met:

1. The satisfactory completion of a minimum of 48 semester hours of graduate-level courses to be divided as follows:
   a) 12 semester hours in the major field of clinical endodontics and selected courses offered by the School of Dentistry.
   b) 12 semester hours in the minor field of biomedicine, physiology or microbiology.
   c) 10 semester hours in the contributing areas of minor-anatomy, mathematics, statistics, and analytical chemistry.

2. The preparation of an acceptable thesis based on original research. Not more than 18 semester hours of research credit and 6 semester hours of thesis preparation credit may be counted in satisfying the 48-semester-hour minimum for this degree.

3. The work for this degree culminates in a comprehensive examination on research, written and oral, which is of a functional character and does not duplicate semester examinations.

The director of the degree program will act as the student's adviser and chairman of the examining committee. Upon recommendation of the Dean of the Graduate College, the student will be eligible for a degree.

Degree program in operative dentistry. The program of study in operative dentistry is designed to prepare the student for a career in teaching and research. Since operative dentistry is not a specialty area of dentistry, course arrangement of the graduate program can be quite flexible. The student has considerable freedom to pursue courses of advanced study that may be of particular interest to him. Relevant courses of study have been arranged in the biological sciences, material sciences, and education.

An applicant for this program must be a graduate of a recognized school of dentistry, and must be able to comply with the requirements for admission to the Graduate College of the University. An interview with the applicant may be required.

In addition to requirements of the Graduate College for advanced degree programs, the following departmental requirements must be met:

a) Satisfactory completion of 48 semester hours of graduate-level courses. These may be distributed as follows:
   b) 24 semester hours of graduate-level courses in the College of Dentistry. These may include clinical dentistry and graduate teaching
   c) 24 semester hours of graduate-level courses in other areas. These courses should include courses in statistics and education.
   d) 6 semester hours in original research and thesis preparation.

2. The preparation of an acceptable thesis based on original research. The thesis should be published by the National Science Foundation; however, those fellowships should be received prior to matriculation.

3. Formal defense of the thesis and examination of the candidate for an examination to determine if the degree will be granted. The examination will be conducted by the Graduate College of the University of Iowa.

COURSE DESCRIPTIONS

Endodontics

85/1 Endodontic Laboratory 1 h.s.
Endodontic procedures on extracted teeth. Review of dental anatomy and technical methods of operating files, the use of operating microscope, and the importance of biopsy in the diagnosis of endodontic disease. 3 clock hours.

85/109 Endodontics 1 h.s.
Basic principles; indications and contraindications of pulpotomy, pulpectomy, and root canal treatment. 3 clock hours.

85/115 Clinical Endodontic Practice 1 h.s.
Clinical endodontic practice. Clinical symptoms are evaluated. Decision of treatment of each individual case is followed by the student's practical application on simple suitable cases. 4 clock hours. Prereq.: 85/109. Junior year.

85/116 Clinical Endodontic Practice 1 h.s.
Advanced clinical clinical case management of more difficult cases in color and bluntpointed teeth. 6 clock hours. Prereq.: 85/115. Senior year.

Primarily for Graduates

85/250 Endodontic Literature Review* 1 h.s.
Advanced reading and study. 3 clock hours.

85/251 Endodontic Technic Methods* cr.arr.
Advanced review of all technical procedures. Student prepares an analysis of specific technological procedures.
82:114 Advanced Clinical Operative Dentistry 5 cr.arr.
Continuation of 82:113 involving all types of preventive, operative, and restorative dentistry. 90 clock hours. Senior year.

Primarily for Graduates
82:200 Operative Dentistry Literature Review 1 cr.arr.
Assigned reading and preparation of abstracts.
82:301 Operative Dentistry Technical Methods 3 cr.arr.
Advanced review of all technical procedures. Student studies and performs specific technological procedures.
82:202 Clinical Demonstrations in Operative Dentistry 1 cr.arr.
Assigned cases in sequence of difficulty completed under one demonstrator.
82:203 Research in Operative Dentistry 1 cr.arr.
Prerequisites: Education 71:135.
82:204 Seminar in Operative Dentistry 1 cr.arr.
Conference and discussion of current literature.
82:205 Practice Teaching in Operative Dentistry 1 cr.arr.
For students wishing to enter the field of dental education. Assigned teaching obligations by adviser. Prerequisite:
82:206 Thesis Preparation in Operative Dentistry 1 cr.arr.
Prepare for publication a narrative article on the assigned research project, relate with graphic illustrations, charts, and photographs.
82:301 Advanced Dental Therapeutics 1 cr.arr.
Advanced study of the pharmacology and application of drugs used in dentistry. May be taken during any semester with permission of department head.

Teacher Education
82:210 Methods of Instruction in Dentistry 3 cr.arr.
Survey of the literature to integrate the theory of educational methods with the practice of classroom teaching. Present methods explored as they reflect sound educational principles and psychological principles. Innovation in media will be proposed in a systems analysis of dental teaching.
82:211 Tests and Measurements in Dentistry 1 cr.arr.
Inspection of measurement theory as it relates to dental teaching. Such problems as reliability, validity, and difficulty will be applied to the construction of achievement and learning in classroom and clinical dental subjects. Statistical interpretation of test results will be included. Prerequisite: introductory statistics or consent of instructor.
82:222 Educational Psychology for Dental Teachers 3 cr.arr.
Investigation of the literature to formulate a consistent, defensible theory of how students learn dental skills and professional attitudes and habits. Emphasis will be placed on a behavioral approach to managing the learning environment. Prerequisite: 8 hours of psychology or consent of instructor.
COLLEGE OF DENTISTRY

82:223 Curriculum Development for Dental Education* cr.arr.
Analytic approach to the problem of selecting course content in the context of institutional and departmental objectives, then ordering these courses with continuity, sequence, and integration to make a meaningful college curriculum. A philosophy of undergraduate, graduate, and continuing education will be developed from a survey of educational literature.

82:224 Design and Evaluation of Research in Dental Education* cr.arr.
An opportunity to order the scope of the research process into a meaningful sequence that will permit a practical written working format for dental educational research. Prerequisites: Introductory statistics.

82:225 Media in Dental Education* cr.arr.
Problems related to the selection, production, design, and utilization of visual materials for dental education will be explored and related to classroom teaching practice.

82:225 Organization and Administration of a Dental College* cr.arr.
Examination of present-day administrative theory and administrative psychology as related to the organization and function of a dental college. Prerequisites: Introductory course in educational or industrial administration.

82:227 Professional Problems in Dental Education* cr.arr.
Detection and causal effect investigation of the problems of training professional attitudes and habits to dental student, theory of the literature on the psychology of medical students and methods to accomplish change will be the main objectives of this seminar.
*May be taken during any semester with permission of department head.

ORAL BIOLOGY

Acting Head of Department, Richard M. Jacobs
Office, 240 Dental Building

STAFF
Professor: Richard M. Jacobs.
Associate Professor: Narender H. Sohi, Dennis P. Webber.
Assistant Professor: Devendra R. Kothari.

COURSE DESCRIPTIONS

83:101 Oral Biology 2 s.h.
Lecture--laboratory course covering recent advances in oral biology; dynamic concepts of tissue mineralization; prevention of oral disease; use of fluoride and its antagonist in dentistry; physiology of mastication.

83:102 Oral Biology 2 s.h.
Lecture--laboratory course; craniofacial malformations; speech pathology; genetic counseling; physiology of mastication; clinical evaluation.

83:103 Problems in Oral Biology cr.arr.
Problem-solving projects in the broad field of oral biology.

Primarily for Graduates

83:201 Mineral Metabolism and Dental Caries 2 s.h.
Formation and mineralization of dental tissues; chemical composition of teeth; surface active agents; the enamel surface and dental caries.

83:202 Physiology and Structure of Bone 2 s.h.
Blood, physiology, and pathology of bone with a special reference to maxilla and mandible; development, growth, maintenance, and functional adaptation of bone; bone pathology.

83:303 Topics in Oral Biology 2 s.h.
Seminar on recent developments in oral biology.

83:304 Research Techniques in Oral Biology 2 s.h.
Theory and practice of preparation of tissues for light and electron microscopy; study and application of special techniques for histopathology; preparation of hard tissues for microscopy; techniques used in radiology.

83:305 Research in Oral Biology cr.arr.

83:306 Biology of the Periodontium and Pulp 2 s.h.
Normal structures of the periodontium and pulp, their growth and development.

83:307 Practice Teaching cr.arr.
Supervised practical experience in the classroom and laboratory teaching.

ORAL DIAGNOSIS

Admissions
Head of Division, Director of Clinics, C. Frederic Erbe
Office, 242 Dental Building

Dental Radiology
Head of Division, R. D. Fleming
Office, 113D Dental Building

Oral Diagnosis
Acting Head of Division, J. D. Whisnant
Office, 115E Dental Building

STAFF
Assistant Professor: C. Frederic Erbe, R. D. Fleming, Harold L. Hammond.

COURSE DESCRIPTIONS
Admissions
85:107 Ethics and Practice Management I 1 s.h.
Ethical concepts and professional relationships between doctor and patient. 16 clock hours. Junior year.

85:108 Practice Management II 1 s.h.
Organization and management of a dental office with applications of accounting and budgeting. 16 clock hours. Senior year.

85:6 Dental Radiology for Dental Hygiene Students 1 s.h.
Lectures and instruction in intraoral techniques, radiology, hygiene, film processing and mounting. 16 clock hours. First year.

85:8 Clinical Dental Radiology for Dental Hygiene Students 1 s.h.
Supervised clinical experience in taking dental radiographs, processing and mounting films. 30 clock hours. Second year.
COLLEGE OF DENTISTRY

86:202 Dental Radiology cr.arr.
I.s.h.
Principles of introral and extroral techni- 
ces; preparation, interpretation, presentation, processing, mounting, 
and radiographic interpretation of dental X-ray films and 
photographic interpretation of 35 mm clock. Offered both 
semesters. Junior year.

86:110 Clinical Dental Radiology cr.arr.
I.s.h.
Supervised experience in taking and processing intra- 
oral and extroral radiographs and photographic interpretation: 30 clock hours. Offered both 
semesters, junior year.

Primarily for Graduates

86:206 Dental Radiology Literature Review cr.arr.
Assigned readings and preparation of abstracts.

86:207 Seminar: Dental Radiology cr.arr.
Basic concepts of radiation physics, recording media, rad- 
iation hygiene and radiation generating devices. Prin- 
ciples and procedures in technique and interpretation in 
introral and extroral projections. Prerequisite, consent of instructor.

86:208 Research: Dental Radiology cr.arr.

86:209 Practice Teaching: Dental Radiology cr.arr.
Observations and practices in current teaching procedures.

86:210 Thesis Preparation: Dental Radiology cr.arr.
Thesis to be prepared in conformity with the regulations of the Graduate College.

Oral Diagnosis

86:2 History of Dentistry cr.arr.
I.s.h.
From ancient to modern times, professional, scientific, 
and educational progress of dentistry in the United 
States and abroad. 36 clock hours. Senior year.

86:104 Oral Diagnosis and Treatment Planning cr.arr.
Principles used in examining the oral cavity, the use of diagnostic aids, and the translation of diagnostic data to plans of treatment arranged in the correct sequence. 36 clock hours. Junior year.

86:110 Clinical Oral Diagnosis cr.arr.
Practical application of diagnosis and treatment planning projects. 36 clock hours. Senior year.

91:150 Law in a Technological Society cr.arr.
A cultural course designed to provide perspective and un- 
derstanding of the place of law in modern society. The 
course will consider theories of law, the court system, 
procedure, evidence, property, torts, crimes, contracts, 
and constitutional and administrative law with emphasis on the role of the various professions. Junior year, second semester.

Primarily for Graduates

86:200 Diagnostic Literature Review cr.arr.
Assigned reading and preparation of abstracts.

86:201 Seminar: Oral Diagnosis cr.arr.
Principles and procedures in diagnosis of oral diseases and 
deficiencies. Use of laboratory aids in different diagnoses.

86:202 Seminar: Treatment Planning cr.arr.
Outlining treatment plans for complex problems.

86:203 Research: Oral Diagnosis cr.arr.

86:204 Practice Teaching: Oral Diagnosis cr.arr.
Observation of and practice in current teaching proce- 
dures. Prerequisite, Education 77:291 or 77:382.

86:305 Thesis Preparation: Oral Diagnosis cr.arr.
Thesis to be prepared in conformity with the regulations of the Graduate College. May be taken during any semester with permission of department head.

ORAL PATHOLOGY

Head of Department, Alan K. Fisher
Office, BL Dental Building

STAFF

Professor: Alan K. Fisher
Associate Professor: William J. Tave
Assistant Professor: Harold L. Hammond, Clayton L. Shalla

General Information

The main objectives of the Department of Oral Pathology are basic instruction of dental and other health professional students on diseases affecting oral structures, advanced instruction in this subject for graduate-level students from health science and related fields, and preparation of especially qualified students for careers in teaching and research. A program leading to a Certificate of Oral Pathology, a major in Oral Pathology is offered to dental students. The program is designed primarily for students desiring specialized training in oral pathology. A more comprehensive program leading to a Certificate of Oral Pathology is available to the Department of the College of Medicine in which each student of the Department of Oral Pathology holds joint ap- pointments.

Admission Requirements

The size of the departmental staff and facilities limits the number of applicants who can be accepted for the Certificate in Oral Pathology and the Master of Science degree programs. Therefore, it is necessary that each prospective applicant have an opportunity for movement with the departmental executive prior to submission of an application for study. Students who wish to enter the College, and interested in the facilities for admission to either program, are invited to develop an interesting, satisfactory thesis in the Graduate Record Examination Ap- plications in the Advanced Test in either biology or chemistry. Final decision on acceptance of any applicant meeting the minimum requirements for admission will rest with the departmental staff.

Certificate in oral pathology. This program prepares academic studies with extensive laboratory experiences which give an understanding of oral pathology. Students are required to take at least the minimum of two-four months of full-time work for the completion of all required courses with a passing grade, as determined by satisfactory competence in the practi- ce of oral pathology, and a satisfactory grade in a final comprehensive examination. An examination committee composed of members of the graduate faculty drawn from the Department of Pathology and Oral Pathology.

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Although additional courses may be elected if circumstances permit, the required courses in this program are:

85:203 Pathologic Processes 6 a.h.
87:211 Pathology 3 a.h.
87:212 Cytology 3 a.h.
87:213 Histology 3 a.h.
87:215 General Biophysics 3 a.h.
87:216 Clinical Biophysics 3 a.h.
87:217 General Microbiology 3 a.h.
87:218 Diagnostic Microbiology 3 a.h.
87:219 Clinical Pathology 3 a.h.
87:221 Research in Oral Pathology cr.arr.
87:223 Radiology of Oral Pathology 3 a.h.
87:224 Research in Oral Pathology cr.arr.

The required courses are:
87:11 Analytical Chemistry 3 a.h.
87:203 Pathologic Processes 6 a.h.
87:211 Pathology 3 a.h.
87:212 Cytology 3 a.h.
87:213 Histology 3 a.h.
87:110 Fundamental Genetics 4 a.h.
87:206 Basic Oral Pathology 4 a.h.
87:215 General Biophysics 3 a.h.
87:217 Experimental Biophysics 3 a.h.
87:218 General Microbiology 3 a.h.
87:221 Diagnostic Microbiology 3 a.h.
87:223 General Pathology 6 a.h.
87:224 Anatomical Pathology 3 a.h.
87:225 Research in Oral Pathology cr.arr.

The required courses are:
87:11 Analytical Chemistry 3 a.h.
87:203 Pathologic Processes 6 a.h.
87:211 Pathology 3 a.h.
87:212 Cytology 3 a.h.
87:213 Histology 3 a.h.
87:110 Fundamental Genetics 4 a.h.
87:206 Basic Oral Pathology 4 a.h.
87:215 General Biophysics 3 a.h.
87:217 Experimental Biophysics 3 a.h.
87:218 General Microbiology 3 a.h.
87:221 Diagnostic Microbiology 3 a.h.
87:223 General Pathology 6 a.h.
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87:217 Experimental Biophysics 3 a.h.
87:218 General Microbiology 3 a.h.
87:221 Diagnostic Microbiology 3 a.h.
87:223 General Pathology 6 a.h.
87:224 Anatomical Pathology 3 a.h.
87:225 Research in Oral Pathology cr.arr.

87:102 Anesthesia 1 a.h.
87:103 Clinical Pathology 2 a.h.
87:202 Clinical Pathology 2 a.h.
87:203 Clinical Pathology 2 a.h.
87:204 Research in Oral Pathology cr.arr.
87:105 Oral Surgery II 3 a.h.
87:106 Oral Surgery III 1 a.h.
87:107 Oral Surgery IV 1 a.h.
87:108 Oral Surgery V 1 a.h.

85:3 Pathology for Dental Hygienists 3 a.h.
85:12 Oral Pathology 4 a.h.

85:103 Clinical Pathology 2 a.h.
85:104 Clinical Pathology 2 a.h.
85:105 Clinical Pathology 2 a.h.
85:106 Clinical Pathology 2 a.h.

85:202 Clinical Pathology* 3 a.h.
85:203 Clinical Pathology* 3 a.h.
85:204 Research in Oral Pathology* 1 a.h.

*May be taken during any semester with permission of department head.

**COURSE DESCRIPTIONS**

87:102 Anesthesia 1 a.h.
87:103 Clinical Pathology 2 a.h.
87:202 Clinical Pathology 2 a.h.
87:203 Clinical Pathology 2 a.h.
87:204 Research in Oral Pathology cr.arr.
87:105 Oral Surgery II 3 a.h.
87:106 Oral Surgery III 1 a.h.
87:107 Oral Surgery IV 1 a.h.
87:108 Oral Surgery V 1 a.h.

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85:12 Oral Pathology 4 a.h.

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85:104 Clinical Pathology 2 a.h.
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85:106 Clinical Pathology 2 a.h.

85:202 Clinical Pathology* 3 a.h.
85:203 Clinical Pathology* 3 a.h.
85:204 Research in Oral Pathology* 1 a.h.

**COURSE DESCRIPTIONS**

87:102 Anesthesia 1 a.h.
87:103 Clinical Pathology 2 a.h.
87:202 Clinical Pathology 2 a.h.
87:203 Clinical Pathology 2 a.h.
87:204 Research in Oral Pathology cr.arr.
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85:204 Research in Oral Pathology* 1 a.h.

**COURSE DESCRIPTIONS**

87:102 Anesthesia 1 a.h.
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87:202 Clinical Pathology 2 a.h.
87:203 Clinical Pathology 2 a.h.
87:204 Research in Oral Pathology cr.arr.
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87:107 Oral Surgery IV 1 a.h.
87:108 Oral Surgery V 1 a.h.

85:3 Pathology for Dental Hygienists 3 a.h.
85:12 Oral Pathology 4 a.h.

85:103 Clinical Pathology 2 a.h.
85:104 Clinical Pathology 2 a.h.
85:105 Clinical Pathology 2 a.h.
85:106 Clinical Pathology 2 a.h.
ORTHODONTICS
Head of Department, George F. Andreasen
Office, 308 Dental Building

STAFF
Professor: Richard M. Jacobs, W. M. Olin.
Associate Professor: George Andreasen, Charles R.
Kresmink.
Assistant Professor: Norman Sturdevant, Robert Sturdevant.
Assistant Clinical Professor: William DeKoeck, Bruce
Thorburn.

COURSE DESCRIPTIONS
89:101 Orthodontic Technique 1 a.h.
Basic technical procedures used in clinical orthodontics,
explained and performed in the laboratory. 10 clock hours.
Sophomore year.
89:103 Dental and Facial Growth 2 a.h.
Growth changes in the face and jaws and their relationshps
to general body growth. Effects of specific growth
aberrations on the dentition. 25 clock hours. Sophomore
year.
89:104 Principles of Orthodontics 1 or 2 a.h.
Biological and mechanical principles involved in classific-
ations, diagnosis, and etiology of dentofacial anomalies
and a.s. 25 clock hours. Sophomore year.
89:105 Preventive Orthodontics 1 a.h.
Interceptive orthodontics with emphasis on guidelines to
normal occlusion, recognition of malocclusions, design
and manipulation of minimal treatment appliances. 15
clock hours. Senior year.

Primarily for Graduates
89:200 Bone Biology 2 a.h.
Reaction of tissues and bone to various types of ortho-
dontic forces. 20 clock hours.
89:201 Orthodontic Theory and Diagnosis 2 a.h.
Recent concepts and techniques are discussed. Topics
interested in guidelines to normal occlusion, etiological
factors influencing malocclusion, cephalometry, and
diagnostic aids.
89:203 Diagnosis and Treatment Planning 2 a.h.
Prerequisites: 89:201, Philosophy of treatment with spe-
cial reference to multifaceted techniques.
89:203 Advanced Orthodontic Technique 2 a.h.
Laboratory course dealing with multifaceted orthodontic
appliances and techniques.
89:204 Biomechanics 1 or 2 a.h.
Fundamental principles of mechanics. 20 clock hours.
89:205 Orthodontic Treatment 1 or 2 a.h.
Development of the face, including growth of bone and
muscle tissues, from the embryonic period to senility.
89:206 Facial and Dental Growth 2 a.h.
Continuation of 89:205 with emphasis on the clinical appli-
cations of dentofacial growth and development to diagnosis,
treatment, and prognosis.
89:207 Case Analysis 2 a.h.
Seminar dealing with the analysis of mixed dentition
cases, including discussion of the rationale and underlying
principles of orthodontic treatment procedures utilized in North
America and Europe.
89:210 Orthodontic Practicum 2 a.h.
89:210 Orthodontic Seminar 2 a.h.
Review of recent literature.

COLLEGE OF DENTISTRY
89:211 Problems: Orthodontics cr.arr.
Prerequisite, consent of instructor. Required of all stu-
dents who are working toward an advanced degree.
89:212 Research: Orthodontics cr.arr.
Prerequisites, Research 79:145 and consent of instructor.
Required of all students who are working toward an ad-
vanced degree.
89:214 Research Methodology cr.arr.
Scientific method with particular reference to the collec-
tion, analysis, and publication of dental research.
89:215 Journal Club cr.arr.
Intersective reporting of articles selected from the ortho-
dontic and related literature.
89:216 Practice Management cr.arr.
Principles of practice management covering office business
methods.

PEDODONTICS
Head of Department, Frederick M. Parkins
Office, 318 Dental Building

STAFF
Associate Professor: Frederick M. Parkins.
Assistant Professor: Clemens A. Poll, Ronald Johnson,
Stephen Hsin Yee, Wei.
Instructor: Jerry D. Walker.

COURSE DESCRIPTIONS
90:101 Pedodontic Diagnosis and
Treatment 2 a.h.
Concepts of growth and development, behavior manage-
ment, and preventive-restorative techniques for the pedi-
ant patient. 20 clock hours. Sophomore year.
90:104 Clinical Pedodontics 2 a.h.
Comprehensive clinical management of the pediatric pa-
tient. 20 clock hours. Junior year.

Primarily for Graduates
90:200 Pedodontic Literature Review I cr.arr.
Discussion of growth and development, behavior manage-
ment, preventive-restorative treatment, and diseases of the
pediatric patient.
90:201 Pedodontic Literature Review II cr.arr.
Discussion of preventive orthodontics, fluoride therapy,
health and nutrition guidance, anesthetic, pharmacology,
and minor oral surgery as related to the pediatric patient.
90:203 Pedodontic Literature Review III cr.arr.
Discussion of behavior management, preventive-restore-
tive techniques, and multidisciplinary care for the handicapped
child.
90:205 Pedodontic Literature Review IV cr.arr.
Discussion of community responsibilities and practice
management, hospital affiliations, and advanced pharma-
cology for the pedodontist.
90:204 Advanced Clinical Pedodontics cr.arr.
Comprehensive clinical management of the pediatric pa-
tient in the areas of preventive orthodontics, operative
therapy, endodontics, and minor oral surgery.
90:205 Research Pedodontics cr.arr.
90:206 Practice Teaching Pedodontics cr.arr.
Observations and practice in current teaching procedures.
90:207 Thesis Preparation cr.arr.
Preparation of an original research project and completion of a
thesis.

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# PERIODONTAL DISEASES

## COURSE DESCRIPTIONS

**92:008 Introduction to Advanced Pedodontics** 2 s.h.
For first-year graduate students with emphasis on growth and development, child management, and therapy.

**PERIODONTAL DISEASES**
Head of Department, C. M. Fraleigh
Office, 23 Dental Building

**STAFF**
Professor: C. M. Fraleigh,
Assistant Professor: Phillip A. Launton, William C. Sublett
Instructors: John J. Bergquist, Frank I. Mokhibber,

**COURSE DESCRIPTIONS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>92:114</td>
<td>Periodontal Methods</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Preclinical survey of the rationale and methods of periodontal practice. 35 clock hours. Second year.</td>
<td></td>
</tr>
<tr>
<td>92:108</td>
<td>Periodontology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td></td>
<td>Lectures, demonstrations, and clinical practice in diagnosis and treatment of periodontal disease. 8 clock hours. Junior year.</td>
<td></td>
</tr>
<tr>
<td>92:108</td>
<td>Clinical Periodontology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td></td>
<td>Clinical practice in diagnosis and treatment of periodontal disease. 18 clock hours. Senior year.</td>
<td></td>
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<tr>
<td>92:110</td>
<td>Periodontology for Dental Hygienists</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>An understanding of periodontal problems and therapy. 2 clock hours. Junior year.</td>
<td></td>
</tr>
<tr>
<td>92:112</td>
<td>Clinical Periodontology for Dental Hygienists</td>
<td>cr.arr.</td>
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<tr>
<td></td>
<td>Introduction to periodontology.</td>
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</tr>
</tbody>
</table>

**PREVENTIVE AND COMMUNITY DENTISTRY**

Head of Department, W. Philip Phair
Office, 109 Dental Building

**COURSE DESCRIPTION**

**111:102 Preventive Dentistry and Community Health** 3 s.h.
Lecture and discussion. Divided into three segments: an introduction to public health at the national, state, and local levels, including environmental and sociological problems; a review of epidemiology, inoculation, and decontamination techniques; and application of critical appraisal of the scientific literature, and a study of dental health care delivery process, manpower and financial resources, methods of payment for dental care, dental epidemiological methods and findings, and community action programs for the prevention and control of dental diseases and the promotion of dental health.
The College of Education prepares teachers and other professional personnel for positions in elementary and secondary schools and in colleges and universities. The various curricula are based on the assumptions that teachers should have a liberal education and that they should possess a detailed knowledge of their major teaching areas. In addition, their professional education should provide an understanding of the human learning process, a knowledge of the function and organization of the school, and professionally supervised laboratory experience.

There are seven divisions in the College of Education:

- Division of Social Foundations, Adult and Higher Education, and Educational Media
- Division of Educational Administration
- Division of Elementary Education
- Division of Educational Psychology, Measurement, and Statistics
- Division of Secondary Education
- Division of Counselor Education
- Division of Special Education

The University of Iowa is accredited by the National Council for Accreditation of Teacher Education (NCATE) for the preparation of elementary and secondary teachers and school personnel, with the doctor's degree as the highest degree approved.

FACULTY

Members of the College of Education faculty are productive in research and writing and are well qualified by preparation and experience. Ninety-six per cent of the 105 members with academic rank hold earned doctorates in their teaching fields, and 86 per cent have had teaching or administrative experience in the public schools. A major strength of the College is the close working relationship with the College of Liberal Arts. With few exceptions, professors on the College of Education faculty also hold rank in the College of Liberal Arts. Eighteen of the twenty-five professors who teach secondary school methods have a Ph.D. degree in their teaching discipline as well as preparation in education and hold academic rank both in their academic department and in education.

The faculty has a strong commitment to teaching and to the applications of new methods and media in their own classes. Most members employ modern audiovisual media, and field experiences are emphasized in such areas as teacher education, counseling, special education, curriculum, and administration.

In addition to independent research studies by individual faculty members, fourteen state, foundation, and federal research grants have been awarded research proposals submitted through the College since 1955. More than twenty professional books have been authored or coauthored by members of the education faculty during this period. In addition, most members of the faculty are active in professional societies. Several recently have held or now hold key offices in national organizations.

FACILITIES

The University High School. One of the laboratories of the College of Education is the University High School. The school provides opportunities for University students and staff to obtain experiences through observation, practice, and supervision which prepare them for positions of responsibility and leadership in education. The school also provides a facility for research and experimental teaching. It is a service center designed for Iowa teachers and other members of the profession in such areas as demonstration teaching, curriculum analysis and revision, and making available speakers, discussion leaders, and panel members.

Every attempt is made to provide a superior learning environment at the secondary level. The school is organized on the six-year basis, including grades seven through twelve, and is accredited by the North Central Association.

The University Elementary School. This school is made up of the kindergarten and first six grades and operates as one of the laboratories of the College of Education. It serves the University and the state through five main channels by operating as an experimental center where new theories, methods, materials, and research in education may be tried out; helping in the preparation of new course-of-study materials which may be appropriate for use in other schools of the state; serving as a laboratory for the training of supervisors and school administrators; providing classes for observation by students in the University and
by groups of teachers in the state who arrange visits to the school; and through conferences, letters and lectures, the staff of the school assists superintendents and teachers in the state in solving their teaching problems.

The University Hospital School is located in a building of its own just west of the General Hospital. It contains two unique sections within the same complex, the Children's Rehabilitation section and the Pine School section. The College of Education, in cooperation with the University Hospital School, studies and develops curricular procedures and materials for both sections of the University Hospital School.

The Children's Rehabilitation section has three main functions: the education, care, and treatment of children who can be educated, but who are so severely involved physically that they cannot attend or progress optimally in the regular schools; specialized training for workers and trainees in all areas concerned with handicapped children; and clinical research pertaining to causes and prevention of handicapping conditions in children and to management of handicapped children.

The Pine School section provides special help on a day-school basis for selected preschool and elementary school children in the Iowa City area who are mentally retarded. Educational research, teacher education, and broad services are the main functions of this section. Opportunity for student teaching and supervised clinical practice is available.

Basic medical research is ongoing in the Children's Research unit of the University Hospital School. This research pertains to mental retardation as related conditions. Such projects are carried on mainly by the Department of Pediatrics in the College of Medicine.

A School Program for Emotionally Disturbed Children is located in the child psychiatry unit of the Psychopathic Hospital. The children attending this school are residential patients in the child psychiatry unit. This school program is supported by the Psychopathic Hospital and is directed by the College of Education. Opportunities are available for student teaching and practicum in school psychological services.

The Reading Clinic makes possible investigations into the fundamental causes of reading deficiencies and experimentation with methods of overcoming these deficiencies. It provides opportunity for observation and practice in the diagnosis and teaching of severely retarded readers.

The Curriculum Laboratory provides materials for student teachers and students of curriculum problems. It brings into a convenient central location approximately 15,000 elementary and secondary school textbooks, reference books, courses of study, bibliographies, special pamphlets, teaching aids such as maps and games, other materials needed in curriculum development, and the Pine School Collection of approximately 10,000 volumes. It is staffed by two professional librarians, one assistant, and 4,000 hours of student help.

The Educational Media Instructional Area contains a variety of instructional equipment and materials. Laboratory facilities provide opportunities to develop skills in the design and production of instructional materials and in the operation of instructional equipment of all types.

The Statistical Laboratory contains a variety of calculating equipment. It provides experience in the application of such equipment to the analysis of statistical data and provides facilities for the analysis of research data.

The Iowan Educational Information Center maintains with the State Department of Public Instruction a computer-based file of educational data for research purposes and provides computer services to Iowa schools.

The Education-Psychology Library, with approximately 91,000 volumes, is located on the west second floor of East Hall. It offers periodicals, films, ERIC microfiche, books, reference books, a reserve room, and seating space for students of education, psychology, and child behavior. The library is staffed by three professional librarians to assist in research in the many areas of the above-mentioned fields, four full-time assistants, and 6,500 hours of student help.

UNIVERSITY COUNSELING SERVICES

Ther facilities of the University Counseling Services are available to students in counseling psychology for research and practicum purposes.

DEGREE PROGRAMS

Elementary Education

Program Objectives. To satisfy the elementary teacher certification requirements, the undergraduate student must successfully complete an elementary education major. This major is a joint offering of the College of Liberal Arts and the College of Education and is part of a four-year program in the College of Liberal Arts leading to a Bachelor of Arts degree.

The elementary education curriculum is based on two fundamental assumptions: that a broad liberal arts background accompanied by a study in depth of at least one area is the best foundation for teacher preparation; and that maximum emphasis in professional coursework should be placed on methods and laboratory practice.
Throughout the teacher preparation program, flexibility in planning is encouraged so that the student and his faculty adviser can respond to the student's unique interests and abilities. The elementary education major is designed specifically to prepare teachers for the kindergarten through the sixth grade. In addition, a special program emphasis is available for selected students desiring specialization at the nursery school-kindergarten level. This special program is available only to students completing requirements for both regular elementary certification and the specified nursery school-kindergarten certification. Such students should consult with their advisors no later than registration for the first semester of the junior year. Students interested in teaching such areas as art, music, and physical education in the elementary school should consult with their advisers concerning the special certification requirements which must be met. Students interested in becoming certified to work with special education classes at the elementary level must complete all requirements for the elementary education major as well as the requirements for the special education major of their choice.

Admission Procedures. The following application procedures are designed to accomplish two objectives: to provide prospective elementary education majors with professional assistance and guidance from the beginning of their preparation programs; and to insure that only those students who have the qualifications needed for successful teaching are permitted to enter and complete the program.

Admission to elementary education. All students planning to major in elementary education must complete a formal application for admission to the College of Education Teacher Education Program. A form for making this application may be obtained from the Admissions Office, Room 1, Jesse Hall, or from the College of Education Office, Room 200, Jesse Hall. The completed application should be returned to the Admissions Office in Jesse Hall.

All students applying to the elementary education program prior to or during the first semester of their freshman year must meet the following minimum requirements for eligibility to the program:
1. Admission to the University of Iowa as a degree candidate;
2. Completion of the American College Tests;
3. Evidence of good standing in the University and freedom from any physical handicap or health impairment which precludes teaching success.

All students applying to the elementary education program after having completed one or more semesters in the University or any other college or university must meet the above requirements and, in addition, must have achieved the following grade-point averages:
1. A 2.2 in all coursework attempted;
2. A 2.2 in all coursework taken at The University of Iowa.

Students will not be accepted as aides by College of Education faculty until their applications have been approved.

After having been admitted, students may continue in the program as long as they maintain the minimum grade-point averages stated above, together with the other minimum standards for admission. The status of all elementary education majors will be reviewed at the end of the freshman and sophomore years. At the time of each review, any student not maintaining the standards for continuation will be dropped from the program. Such students and all other students not currently accepted in the program may apply for admission at any time the minimum standards are met, until the end of their junior year. At that time all students planning to enter and/or continue in the program must meet the requirements for the senior professional semester.

Admission to the professional semester. All elementary education majors must enroll in a professional semester sequence during one of the semesters of their senior year. Work taken during this semester is devoted entirely to methodological procedures, curriculum organization, and actual teaching experience.

All juniors planning to complete the major in elementary education must formally apply for admission to the professional semester sequence. The requirements for admission to the professional semester are:
1. Admission to the Elementary Teacher Education Program;
2. Completion of no less than 8 semester hours during one semester or one summer session in residence in The University of Iowa;
3. Completion of the junior year prior to September 1 of the academic year in which the student enters the professional semester.
4. A cumulative grade-point average of 2.2 in:
   a. all college work attempted;
   b. all coursework attempted at The University of Iowa;
   c. all work taken in the major field; this will be based upon no fewer than five courses taken from the Foundation Courses portion of the Elementary Education major. In cases where at least five courses have not been completed by the end of the junior year, the application for the professional semester will be reviewed at the time the five courses are completed.
5. Completion of formal application for admission to the professional semester;
COLLEGE OF EDUCATION

6. Departmental approval of the Application for Admission to the professional semester. Application forms will be available at spring registration at the College of Education tables, or in 200 Jefferson building following registration. The application for admission to the professional semester must be on file in the College of Education Office by April 1 for all resident students who plan to enroll in the professional semester during the subsequent academic year. For students who transfer to the University after the April 1 deadline, the professional semester application must be filed no later than July 1. For transfer students or resident students unable to meet all requirements for the professional semester prior to the beginning of the academic year immediately following, their application will not be considered for admission until the next regular admission deadline, i.e., April 1 of the following year. A student faced with this problem should consult the Assistant Dean of Personnel in the College of Education concerning procedures to be followed.

Graduate students admitted to the elementary teacher certification program are subject to the same application deadlines, admission and course requirements as are undergraduates except that their grade-point averages must meet the requirements for admission to the Graduate College. (See Graduate College section of the Catalog.)

For purposes of determining eligibility under this section, grade-point averages will be computed on the basis of all coursework completed prior to the academic year during which the applicant desires to enroll in the professional semester.

Course Requirements for Elementary Education Majors

Liberal Arts Requirements

1. Proficiency in the following areas: rhetoric (reading, writing, and speaking), physical education, mathematics, and a foreign language.
2. Satisfaction of core course requirements in the areas of literature, natural science, historical-cultural studies, and social science.

All students who have not satisfied the natural science and social science core requirements prior to their decision to major in elementary education should consult with their education advisers about alternatives for satisfying these area requirements. Elementary education majors may substitute the two-semester Science Foundations (97:55 and 97:56) for the natural science requirements. All majors must complete one course in American Government or the equivalent. Course 30:1 Introduction to American Politics or 30:100 The American Political System satisfy this requirement. Either of these courses may also be applied to the social science core requirement. If possible, students should plan to satisfy this requirement during their freshman or sophomore year.

Area of Concentration. A minimum of 20 semester hours of approved credit must be completed in one of the majors offered by the College of Liberal Arts. Since this requirement is intended to provide indepth study of a specific major, only those courses which can be used to fulfill the requirements for the major selected will be approved for use in the area of concentration.

Completion of a second education major does not satisfy this requirement. When possible, it is recommended that elementary education majors continue work in their area of concentration until the second major is completed. Students should consult the University Catalog for listings of courses applicable to a given major.

For students anticipating a nursery school-kindergarten enforcement, the following areas of concentration are relevant: psychology, sociology, child development, and home economics (family development).

Major in elementary education. The major in elementary education consists of at least 29 semester hours of professional coursework. The professional courses are designed to provide the student with an understanding of the nature of the teaching-learning process and a background of appropriate skills and knowledge. The Teacher Education Program culminates in the professional semester, which is an intensive period devoted to methods of instruction and laboratory practice.

1. Foundation courses. (13 s.h.) Elementary Education students must complete at least 13 semester hours from the required and selected courses which constitute the preparation in foundations (a and b below). This work should be completed prior to the senior year. Students may elect more than the required minimum in this area.

a) Required courses: (Sophomore or Junior year)
   - TE:100 Introduction: Elementary Teaching 2 s.h.
   - TP:75 Educational Psychology 3 s.h.

b) Selected requirements (Junior year) (Minimum of 3)
   - TV:110 Selection and Utilization of Educational Media 2 s.h.
   - TE:120 Methods and Materials: Music for the Classroom Teacher 3 s.h.
   - TE:121 Elementary School Physical Education 3 s.h.
   - TE:122 Methods and Materials: Art for the Classroom Teacher 3 s.h.
   - TE:123 Children's Literature 3 s.h.
COLLEGE OF EDUCATION

c) Additional required courses for early child-
hood emphasis: (Junior year)
7E: 157 Methods: Early Childhood
Education I 3 s.h.
7E: 158 Observation and Participation
in Pre-Primary Education 4 s.h.
2. Professional semester. (15-18 s.h.*) The pro-
fessional semester course offering consists of six
methods courses and laboratory practice during
the professional semester. The methods courses
meet daily during the first half of the semester.
The laboratory practice assignment consists of
an all-day classroom teaching assignment during
the last half of the semester and a seminar which
meets weekly throughout the semester.
Courses offered in the professional semester:
7E: 160 Methods: Elementary School
Language Arts 2 s.h.
7E: 161 Methods: Elementary School
Social Studies 2 s.h.
7E: 162 Methods: Elementary School
Science 2 s.h.
7E: 163 Methods: Elementary School
Mathematics 2 s.h.
7E: 164 Methods: Elementary School
Reading 2 s.h.
7E: 167 Methods: Early Childhood
Education II 2 s.h.
7E: 131 Laboratory Practice in the
Elementary School 8 s.h.

*Graduate students' registration adjusted to meet the
15-semester-hour maximum established by the Graduate
College.

Special Education
Program requirements for graduation. Students
intending to major in special education can select
one of two options:
1. Complete the requirements in special educa-
tion to qualify for certification to teach in the
area of special education for which they are pre-
pared. The major is listed in the College of
Liberal Arts and may have one of three em-
phases: teaching the mentally retarded, teaching
the physically handicapped, or teaching the deaf.
Interested students should consult with the staff
in the Division of Special Education regarding the
specific course requirements. Included are
courses in elementary education or secondary
education, but this option does not provide for
certification as an elementary or secondary school
teacher in other than special education pro-
grams.
2. Students may elect to meet the requirements
in special education and also in elementary or
secondary education. Students preferring this
option should refer to the Elementary Education
section or the Secondary Teacher Education
section of the Catalog and plan to include all of
these requirements plus the special education
requirements as they progress toward a degree.
Successful completion of this dual program quali-
ifies the student for multiple certification as either
an elementary or secondary teacher and also in
an area of special education.

The major is teaching the mentally retarded
or physically handicapped. The major in special
education emphasizing teaching the mentally re-
tarded or physically handicapped includes the
minimum concentration of 20 semester hours
in the respective area of special education.

Students interested in teaching the mentally
retarded have the following four options: certi-
fication to teach elementary education classes
and special education classes for the mentally
retarded at the elementary level, secondary educa-
tion classes in a major field and special education
classes for the mentally retarded at the secondary
level, special education classes for the mentally
retarded at the elementary level, and special ed-
uation classes for the mentally retarded at the
secondary level.

Students interested in teaching the physically
handicapped have the following three options:
certification to teach elementary education and
special education for the physically handicapped,
secondary education and special education for
the physically handicapped, and special educa-
tion for the physically handicapped at the
Elementary and secondary level.

A professional semester in special education is
required for the students emphasizing teaching
the mentally retarded and the physically handi-
capped. The professional semester is ordinarily
taken during one semester of the senior year.
Students getting dual certification will be assigned
to the other seminar for student teaching in
the other area of certification. Students majoring
in the education of physically handicapped ordinarily
take the professional seminar in that during the
spring semester. Formal admission and senior
standing are prerequisites to register for either
the elementary, secondary, or special education
professional semester.

The student emphasizing teaching the mentally
retarded at the elementary level should complete
the following courses:
A. Courses that must be taken prior to admission
to the professional semester:
TU: 120 Exceptional Children (31:117) 3 s.h.
TU: 135 Mental Retardation 3 s.h.
TP: 102 The Learner 3 s.h.
or
TP: 148 Social Development of the
School-Age Child 2 or 3 s.h.

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B. The special education professional semester consists of two methods courses in mental retardation which meet for five hours a week during the first half of the semester, a laboratory practicum assignment consisting of an all-day classroom teaching experience during the last half of the semester, and a seminar type course which meets one day a week throughout the semester.

Courses taken during the professional semester:

TU: 145 Curriculum Development and Methodology for the Mentally Retarded I 3 a.h.
TU: 146 Curriculum Development and Methodology for the Mentally Retarded II 3 a.h.
TU: 147 Cases and Problems in Teaching the Mentally Retarded 2 a.h.
TU: 192 Laboratory Practice in the Education of the Mentally Retarded Child 8 a.h.

C. Recommended electives:

34:1 Introduction to Sociology: Principles 4 a.h.

TU: 131 Psychology of Reading 3 or 4 a.h.
TU: 135 Teaching the Trainable Mentally Retarded 3 a.h.
TU: 137 Education of Gifted Children 2 a.h.
TU: 139 Vocational Resources for the Mentally Retarded 3 a.h.
TU: 117 Philosophies of Education 2 or 3 a.h.
TU: 135 John Dewey and Education 2 or 3 a.h.
31:13 Psychology of Adjustment 3 a.h.
31:15 Introduction to Social Psychology 3 a.h.
31:11 Child Development (TU: 106 and S: 150) 3 a.h.

Other: Additional methods courses such as language arts, sciences, etc. that might not have been taken in the regular elementary teacher preparation.

The student wishing to receive certification to teach only at the secondary level for educable mentally retarded should:

1. Declare a major in psychology and complete the following courses:

S1.13 Psychology of Adjustment 3 a.h.
S1.1 Elementary Psychology 3 a.h.
S1.17 Exceptional Children 3 a.h.

2. Choose the following courses:

31.15 Introduction to Social Psychology 3 a.h.
31.43 Psychological Measurement 3 a.h.

A. Complete the following (or their equivalent):

TU: 135 Mental Retardation 3 a.h.
TU: 143 Vocational Resources for the Mentally Retarded 3 a.h.
TU: 145 Curriculum Development and Methodology I 3 a.h.
TU: 146 Curriculum Development and Methodology II 3 a.h.
TU: 192 Laboratory Practice (Secondary Level) 8 a.h.

TU: 75 Educational Psychology and Measurement 3 a.h.
TU: 102 The Learner 3 a.h.
TU: 148 Social Development of the School-Age Child 2 or 3 a.h.
TU: 100 Methods: Elementary School Language Arts 2 a.h.
TU: 104 Methods: Elementary School Reading 2 or 3 a.h.
TU: 110 Selection and Utilization of Educational Media 2 a.h.
TU: 100 Introduction: Secondary School Teaching 3 a.h.
TU: 101 Principles of Guidance 2 or 3 a.h.
34:1 Introduction to Sociology: Principles 4 a.h.
34:143 Juvenile Delinquency 3 a.h.

If a student wishes a dual certification—special education and secondary education—he must complete the requirements for both programs.

The student emphasizing teaching the physically handicapped should complete the following courses:

TU: 139 Exceptional Children (TU: 137) 3 a.h.
TU: 139 Orientation to the Rehabilitation of the Physically Handicapped Child 3 a.h.
TU: 102 The Learner 3 a.h.
TU: 148 Social Development of the School-Age Child 2 or 3 a.h.

The professional semester consists of one methods course in the physically handicapped which meets for five hours a week during the first half of the semester, a laboratory practicum assignment consisting of an all-day classroom teaching experience during the last half of the semester,
and a seminar-type course which meets one day a week throughout the semester.

Courses taken during the professional semester:

**TU: 138 Methods in Education of the Physically Handicapped** 3 s.h.
**TU: 148 Cases and Problem in Teaching the Physically Handicapped** 2 s.h.
**TU: 191 Laboratory Practice in Education of the Physically Handicapped Child** cr.arr.

(3 to 8 s.h.)

Additional electives

Recommended electives for this program are:

**34: 1 Introduction to Sociology: Principles** 4 s.h.
**TP: 117 Philosophies of Education** 2 or 3 s.h.
**TP: 135 John Dewey and Education** 2 or 3 s.h.
**TP: 151 Psychology of Reading** 3 or 4 s.h.
**TU: 135 Mental Retardation** 3 s.h.
**31: 13 Psychology of Adjustment** 3 s.h.
**31: 15 Introduction to Social Psychology** 3 s.h.
**31: 111 Child Development** (TP: 106 and 5:100) 3 s.h.

The major is teaching the deaf. In addition to general liberal arts requirements, the major in special education emphasizing teaching the deaf requires a minimum concentration of 30 semester hours in professional coursework to be completed in the College of Education and the Department of Speech Pathology and Audiology in Iowa City, and a minimum concentration of 25 semester hours of professional courses to be completed at the Iowa School for the Deaf in Council Bluffs (I.S.D.). The final year of study is spent in residence at I.S.D. Coursework completed there is counted as residence credit.

A. Professional courses which should be completed at U of I.

**TU: 130 Exceptional Children (31:117)** 3 s.h.
**TP: 75 Educational Psychology and Measurement** (31:17) 3 s.h.
**TP: 102 The Learner** 3 s.h.
**TP: 148 Socialization of the School-Age Child** 3 s.h.
**72: 160 Methods: Elementary School Language Arts** 2 s.h.
**72: 163 Methods: Elementary School Mathematics** 2 s.h.
**5: 15 Introduction to Speech and Hearing Processes and Disorders** (31:167) 3 s.h.
**3: 20 Phonetics of American English** 3 s.h.
**5: 110 Anatomy of Speech and Hearing Mechanisms** 3 s.h.

**3: 112 Fundamentals of Speech Science** 3 s.h.
**Prerequisites, 3: 20 and 3: 110**

**3: 113 Introduction to Hearing Science** 3 s.h.
**108: 100 General Linguistics** 3 s.h.

**3: 114 Children’s Language Development** 3 s.h.
**Prerequisite, 103: 100**

**3: 185 Hearing Loss and Audiology** 4 s.h.
**Prerequisites, 3: 15 and 3: 113**
**3: 242 Conservation of Hearing** 3 s.h.
**Prerequisite, 3: 185**

**3: 244 Aural Rehabilitation** 3 s.h.
**Prerequisite, 3: 185**

**3: 310 Practicum: Aural Rehabilitation** cr.arr.
**Prerequisite, 3: 344**

**3: 311 Practicum: Hearing Measurement** cr.arr.

**Prerequisite, 3: 185**

B. Professional courses to be completed at I.S.D.:

**TU: 151 Language for the Deaf I** 3 s.h.
**TU: 152 Language for the Deaf II** 2 s.h.
**TU: 153 Speech Training for the Deaf I** 2 s.h.
**TU: 154 Speech Training for the Deaf II** 2 s.h.
**TU: 153 Education and Guidance of the Deaf** 2 s.h.
**TU: 156 Observation and Student Teaching for the Deaf I** 3 s.h.
**TU: 157 Teaching Elementary Subjects to the Deaf I** 2 s.h.
**TU: 158 Teaching Elementary Subjects to the Deaf II** 2 s.h.
**TU: 159 Speech Reading for the Deaf 2 s.h.
**TU: 160 Auditory Training for the Deaf 2 s.h.
**TU: 161 Anatomy of the Speech and Hearing Mechanisms 2 s.h.

**TU: 162 Observation and Student Teaching for the Deaf II** cr.arr.

Secondary Teacher Education

Admission procedures. Students who have completed the basic requirements and who desire admission for the fall semester must submit applications no later than July 1 to the Office of Admissions, Room 1, Jessup Hall. For those desiring admission for the spring semester the deadline is November 1.

Applicants for admission to a teacher education program must be free of any physical handicap or health impairment which precludes teaching success.

Undergraduates. Applications for admission may be submitted only by students who have been admitted to The University of Iowa as degree candidates.
Graduates. Applicants with baccalaureate or advanced degrees must have been admitted to the Graduate College.

Admission Requirements—Undergraduates
1. Satisfaction of liberal arts requirements in rhetoric, mathematics, physical education, and at least one core area (literature, historical-cultural, natural science, or social science);
2. Completion of a minimum of 40 semester hours of credit;
3. Completion of the American College Test;
4. Cumulative college grade-point average of not less than 2.2 (based on The University of Iowa’s 4-point marking system) on all college work attempted, all college work attempted at The University of Iowa, and all work attempted in major;
5. Satisfactory completion of at least one semester or one summer session of work in residence at The University of Iowa, during which at least 8 semester hours of credit were earned.

Tentative admission status may be granted to transfer students with senior standing (30 semester hours) prior to fulfillment of the residence requirement provided requirements 1, 2, 3, and 4 have been satisfied. Final admission to the program and assignment to student teaching must await the completion of the residence requirement.

Admission Requirements—Graduates
1. Cumulative grade-point average of not less than 2.5 on a 4-point marking system;
2. Satisfactory completion of at least one semester or one summer session of work in residence at The University of Iowa, during which at least 8 semester hours of credit were earned.

Tentative admission status may be granted to students prior to fulfillment of the residence credit requirement. Final admission to the program and assignment to student teaching must await completion of the residence requirement.

Once formally admitted, applicants will be continued in the teacher education program as long as their work is satisfactory. In July of each year, the achievement of all students in secondary education, as revealed by grade-point averages and other data, will be reviewed. Any student failing to maintain a grade-point average of at least 2.0 at the undergraduate level and 2.5 at the graduate level, or having displayed marked inadequacies for teaching will be dropped from the program.

Program Requirements
A. General requirements for graduation from the College of Liberal Arts:
1. Proficiency in rhetoric (reading, writing, and speaking), mathematics, physical education, and foreign language. Students whose major is business education (in the College of Business Administration) are not required to take physical education skills, foreign language, and social science core courses.
2. Satisfaction of core course requirements in literature, natural science, social science, and historical-cultural.

B. Teaching majors and minors:
1. A sufficient number of courses to satisfy the requirements for a teaching major in a department within the College of Liberal Arts or the College of Business Administration. The completion of an academic major, as defined by the major department, in most cases, will satisfy this requirement. See College of Liberal Arts and College of Business Administration sections of the Catalog for outlines of department requirements and teaching majors.
2. It is strongly recommended that students earn sufficient credits in a field outside the area of the major to obtain approval by the University for teaching in that second field (18 to 35 semester hours). Copies of approved patterns of courses for this purpose may be obtained from the Dean, College of Education.

C. State requirement, state of Iowa, 2 semester hours of credit in American history or American government.

D. Required courses in education (20 to 24 semester hours):
Junior year—TS:100 Introduction to Secondary Teaching, 3 semester hours (first semester); TP:75 Educational Psychology and Measurements, 3 semester hours (second semester).
 Majors in art, music, and physical education must earn credit in elementary and secondary special methods and in elementary and secondary student teaching.
 Graduate students may be permitted to substitute appropriate graduate courses for TP:75 and TS:100.
 Senior year—Special Methods, 6 semester hours. The entire 6 semester hours may be required in the student’s major or 3 semester hours may be in his major and 3 semester hours in his minor teaching field. Students who do not declare a minor will be expected to elect a 3-semester-hour course in some other area of professional education such as audiovisual methods.
 Professional semester in education. The professional semester in education consists of six
hours of methods and eight hours of teaching. The methods courses meet daily during the first half of the semester.

The student teaching assignment consists of an all-day classroom assignment during the last half of the semester. Formal admission and senior standing are prerequisites to registration for the professional semester.

In order to register for 78:191 Observation and Laboratory Practice, the student must have:

1. Satisfactorily completed courses 7P:75 and 7S:100;
2. Maintained a cumulative grade-point average of not less than 2.3 (2.5 if a graduate student) on all college work attempted, all college work attempted at The University of Iowa, and all work attempted in his major;
3. Filed application for an assignment by April 1 preceding the academic year during which student teaching is desired. Students transferring to The University of Iowa as seniors or graduate students must submit applications for admission to the professional semester prior to October 1.
4. Consulted with and been recommended by the appropriate department head in the University High School and the Coordinator of Student Teaching.

The department heads in the University High School serve as supervisors of student teaching and as advisers to students in their respective academic fields of art, business education, English, foreign language, home economics, mathematics, music, physical education for boys, physical education for girls, science, social studies, and speech.

Graduate Programs

Graduate study in the College of Education proceeds under the general regulations of the Graduate College with certain additional requirements imposed by the Dean and faculty of the College of Education. Graduate students in education register in the Graduate College and receive their degrees from that College and therefore must meet all admission and graduation requirements of the Graduate College.

The course organization consists of a series of introductory and advanced courses offered throughout the academic year in each of the following areas: elementary education, secondary education (including joint programs in some teaching fields), adult education, educational administration, educational psychology, school psychology, remedial reading, tests and measurement, educational media, counseling and guidance (including secondary and elementary school guidance), college student personnel work and rehabilitation counseling, special education, statistical methods, social foundations, comparative education, and higher education.

In the first year of graduate study, emphasis is upon breadth rather than intensive specialization. Graduate programs should include at least one field in education if a minor outside the College of Education is declared. If there is no declared minor, the program should include three fields in education.

In addition to the traditional programs leading to the M.A. and Ph.D. degrees in education, the Graduate College has authorized the offering of a nonthesis M.A. program, a Master of Arts in Teaching (M.A.T.) program, and a Specialist in Education (S.M.S.) program.

Professional M.A. The nonthesis M.A. program provides for a somewhat more specialized professional preparation than is available in the traditional M.A. program, by permitting the substitution of approved coursework for the thesis. The curricula in the nonthesis programs are more closely prescribed and require a minimum of 30 semester hours of coursework. Most curricula require more than the minimum, generally ranging from 32 to 36 semester hours. The College of Education currently offers nonthesis M.A. programs in adult education, educational administration, educational media, educational psychology, measurement and statistics, elementary education, elementary administration, developmental reading, guidance and counseling, college student personnel, rehabilitation counseling, higher education, remedial reading, school psychology, special education, supervisory administration, secondary curriculum and supervision, and various teaching areas in secondary education.

Students planning to continue graduate study beyond the master's degree should follow the M.A. program with thesis. Applicants for candidacy for the Ph.D. degree who have not completed a master's degree are required to present an organized research project or other evidence of their ability to carry on independent investigations.

Master of Arts in teaching. The M.A.T. programs offer graduates from four-year liberal arts colleges an opportunity to acquire certification for secondary school teaching while participating in specialized graduate curricula. These curricula are specifically designed for students who majored in a subject area in their undergraduate studies and who wish to work in the public schools and who possess superior academic records.

The M.A.T. curricula include a minimum of 20 semester hours of graduate work in professional education including at least two courses from educational psychology, history of education, philosophy of education or introduction to secondary school teaching, and courses in special areas of teaching and student teaching or an internship. In addition to the professional educat-
tion requirements, a minimum of 18 semester hours of approved graduate coursework in the student's teaching field must be completed.

Specialist in Education. Coursework for the specialist in Education degree (Ed.S.) is authorized in guidance and counseling, college student personnel work, educational administration, educational media, elementary administration, higher education, science education, secondary administration, school psychology, and special education. The Ed.S. degree constitutes Graduate College recognition of the student's successful completion of a prescribed two-year postbaccalaureate program. Twenty-eight of the 60 semester hours are prescribed in the area of specialization; the others are in cognate fields, supervised experience, electives, and successful completion of a comprehensive examination. Four semester hours of research culminate in a written report.

Students admitted to programs in education leading to a master's or specialist's degree should locate an advisor and file their degree programs before their second registration. Detailed information about these degree programs may be obtained from the Office of the Dean, College of Education.

Doctor of Philosophy. Graduate programs leading to the Ph.D. degree are offered in adult education, art education, educational media, business education, college student personnel, counseling and guidance, curriculum development, educational administration, educational psychology, elementary education, English education, higher education, social foundations, mathematics education, music education, rehabilitation counseling, school psychology, science education, secondary education, social studies education, special education, and statistics and measurement. The Ph.D. programs are individually planned to complement the general preparation of the candidate and to satisfy the requirements of the area of specialization.

The applicant for admission to a Ph.D. program should possess a superior academic record and should present evidence of successful professional experience. Information about specific Ph.D. programs may be obtained from the Office of the Dean, College of Education.

CERTIFICATION

Certificates for teachers are issued by certification agencies in the respective states. In Iowa, this agency is the State Department of Public Instruction. Most states require that applicants for original certificates be recommended by the institution in which they complete their program of study. Although each state has its own certification requirements, a majority of the state certification agencies have entered into an agreement to issue certificates to applicants who have completed approved teacher education programs in institutions accredited by the National Council for Accreditation of Teacher Education. The University of Iowa teacher education programs have been approved by the Council.

Application forms for Iowa certificates may be obtained at the Office of Admissions. The student in his last semester should complete an application for Iowa certification and submit it to the Office of Admissions. Students who wish to obtain certificates in other states should contact certification agencies in those states or the Office of Admissions, 1 Jessup Hall.

EDUCATIONAL PLACEMENT OFFICE

The University maintains placement services for those interested in teaching and administrative positions. The services of the office are available to current University of Iowa graduates and to alumni. University and college positions as well as public and private school vacancies are reported to the office.

It is strongly recommended that students completing certification programs register with the Educational Placement Office and establish a permanent credential file before they leave the campus. This can be used in seeking placement opportunities currently or in the future. The office is located in C105 East Hall. Requests for information may be addressed to Miss Judith Henderhot, Acting Director.

EXPENSES

See Admissions-Registration-Fees and Housing sections of the Catalog.

ADMINISTRATIVE STAFF

Dean: Howard R. Jones
Associate Dean: Lauren A. Van Dyke
Assistant Deans: Stuart G. Gray, Ray A. Muston, Owen L. Springer
University Schools: Director, Wesley A. Bee; Principals: High School, Dr. E. W. Wimsler; Principals, Elementary School, Robert C. Jordan
University Hospital School: Principal, Samuel B. Walden
Iowa Testing Program: Director, William E. Coffman
Iowa Center for Research in School Administration: Directors, Donald D. Tobin, W. C. Adair, Associate Directors, William G. Mims, Robert Stephens
Iowa Educational Information Center: Director, Walter J. Foley
Educational Placement Office: Acting Director, Judith D. Henderhot
Educational-Psychology Library: Librarian, Anne G. Evans
Curriculum Laboratory: Librarian, Grace M. Wynn

CHAIRMAN OF DIVISIONS

Division of Social Foundations: Charles D. Talmage, Higher Education, and Educational Media: Robert E. Bedding
Division of Educational Administration: William K. Lense
Division of Elementary Education: Jerry N. Kohn
Division of Educational Psychology, Measurement, and Statistics: Paul J. Bloemers
Director: John E. McDonald
Division of Counseling Education: Leonard A. Miller
Division of Special Education: Clifford R. Howe.

STAFF

Professors Emeriti: Henry C. DeKock, Harry A. Greeno,* Everett F. Lindquist, Elmer T. Peterson,* James B. Stevens.

Associate Prof. Emeriti: C. Zeno Obermann.


On leave of absence.

COURSE DESCRIPTIONS
For Undergraduates and Graduates

Adult Education
TA:110 Introduction to Adult Education 3 s.h.
Philosophy and scope of the adult education movement in the United States.
TA:112 Teaching of Adults 3 s.h.
Adult learning factors and the consideration of recognized variations in learning techniques for adults.
TA:221 Administration of Adult Education 3 s.h.
Methods of coordinating and operating adult education associations.
TA:222 A Philosophy for Adult Education 3 s.h.
Goals of adult education and their relationship to the goals of the field.
TA:223 Problems and Issues in Adult Education 2 s.h.
Perspective: institutional roles; interrelationships, between youth and adult education; process, program, and potential of the field.

C O L L E G E O F E D U C A T I O N

TA:293 Individual Instruction in Adult Education cr.arr.
Prerequisites, consent of instructor.
TA:297 Workshop: Adult Education 0 or 2 s.h.
TA:313 Seminar: Adult Education 2 s.h.
Prerequisites, consent of instructor.
TA:363 M.A. Thesis in Adult Education cr.arr.
Prerequisites, consent of instructor.
Prerequisites, consent of instructor.

Counseling and Guidance
TC:101 Principles of Guidance 2 or 3 s.h.
Background, philosophy, and science in school guidance programs. Relationship of guidance to other student personnel services.
TC:102 Introduction to Group Counseling 0 or 2 s.h.
No credit needed: limited to majors in school counseling; affords counseling candidates experience in a group setting. Two-semester-hours section: survey of research, theory, and practice in group counseling. Prerequisites, consent of instructor.

TC:103 Junior High School Counseling 3 s.h.
Counseling processes and procedures appropriate for working with younger adolescents in a school setting.
TC:104 Issues and Trends in School Guidance 2 s.h.
Survey of research and authoritative opinion on current issues concerning school guidance, and trends in school guidance and counselor education.
TC:108 Occupational Analysis and Information 3 s.h.
Occupational choice: classification of occupations, vocational theory, analysis of the individual in relation to occupation.

TC:190 Training Group Processes 2 s.h.
The workshop will cover small-group procedures used for personal and organizational development in educational settings. Demonstration of training group (T-group) and structured group procedures will supplement discussions of theoretical issues and end results related to group process and outcomes. Primary emphasis will be on the individual's reactions to the information and his experiences associated with the various group procedures.
TC:200 School Counseling 3 s.h.
Prerequisites, consent of instructor.

TC:201 Student Appreciation Procedures 2 or 3 s.h.
Techniques for administering and interpreting student appraisal devices in elementary and secondary school guidance programs. Standardized test devices. Case study procedures.

TC:203 Practicum in School Guidance cr.arr.
Provides experience in each phase of the school counselor's job. Major emphasis on counseling procedures. Prerequisites, consent of instructor.

TC:209 Counseling the Disadvantaged 3 s.h.
A general overview of disadvantaged persons, rural and urban. This course emphasizes educational aspects concerning the disadvantaged with special emphasis on counseling methods and techniques.

TC:230 The Elementary School Counselor 3 s.h.
Familiarizes the counselor with issues, theories, methods, and procedures, which are unique to counselors in the elementary schools.
COLLEGE OF EDUCATION

TC:336 Workshop: College Union
Program 2 s.h.
Develops a deeper understanding of the roles of union pro-
gressives as it relates to higher education, the university, and the civic life of the campus.
Taught on an understanding of group process and current practices in union programming. Lecture, group seminars and discussion, and practical experience in program advising through the use of case studies, role-playing, and group interaction. Same as Recreation Educa-
tion 104-154.

TC:341 Introduction to Rehabilitation Services 2 s.h.
Historical and legal background of rehabilitation. Roles of rehabilitation workers and nature of rehabilitation re-
sources. Same as Psychology 21:225.

TC:342 Rehabilitation Counseling 2 s.h.
Counseling process in a rehabilitation setting. Approval and counseling procedures. Same as Psychology 21:204.
Prerequisite, consent of instructor.

TC:347 Medical Aspects of Disability 4 s.h.
Orientation to medical evaluation as part of the rehabili-
tation process. Body systems, medical terminology, and medical description of disabilities of importance to recov-
ering. Integration of medical information with the social, psychological, and vocational aspects of disabling condi-
tions.

TC:348 Medical Aspects of Disability 4 s.h.
Continuation of TC:347. Prerequisite, TC:347 or consent of instructor.

TC:351 Vocational-Educational Counseling 3 s.h.
A survey of theories and techniques of counseling clients with vocational and educational problems.

TC:354 Appraisal in Counseling 3 s.h.
Counselor evaluation of theories, interest, and per-
motivation of clients with disabilities. Laboratory practic-
ium in test administration, scoring, and interpretation.

TC:355 Vocational Psychology 3 s.h.
Comprehensive review of theory and research on voca-
tional development. Two units: vocational choices and vocational adjustment.

TC:353 Individual Instruction in Counselor Education cr.arr.
Prerequisite, consent of instructor.

TC:300 Counseling: Theories, Issues, and Process 2 or 3 s.h.
Current theoretical concepts; both process and issues as-
ving therein. Evaluation of research in the field. Pre-
quisite, consent of instructor.

TC:302 Advanced Practicum in School Counseling cr.arr.
Supervised practices in counseling, intensive analysis of counselor styles and methods. For advanced graduate students in school counseling. Prerequisite, consent of instructor.

TC:330 Introduction to Student Personnel Work 2 or 3 s.h.
History, philosophy, and status of student personnel serv-
ces. Emphasis on case study approach to personal plan-
ning and decision-making.

TC:331 Seminar: The College Student 2 or 3 s.h.
Characteristics of college students, their implications for goals of higher education, the impact of college on student characterizations, and influences which seem especially potent.

TC:332 Seminar: Student Personnel Work 2 or 3 s.h.
Intensive study and seminar presentation of current issues, problems, and conflicts related to certain areas of student personnel administration in higher education. May be repeated. Prerequisite, consent of instructor.

TC:333 Practicum in Personal Services 2 s.h.
Supervised practice in college student personnel agencies. Prerequisite, consent of instructor. May be repeated.

TC:335 Administration of College Student Personal Services 2 s.h.
Organizational theories, theories of administration, personnel administration, personnel relations, and other aspects of management for college student personnel workers.

TC:338 Seminar: College Student Personal Research 1 or 2 s.h.
Lectures, discussions, and seminars on selected college stu-
dents personnel research studies. May be repeated for credit.

TC:334 Seminar: Placement in Vocational Rehabilitation 2 s.h.
Prerequisite, consent of instructor. Same as Psychology 21:205.

TC:342 Seminar: Psychological Aspects of Disability 1 s.h.
May be repeated. Same as Psychology 21:206.

TC:351 Supervised Practice in Rehabilitation Procedures 2 s.h.
May be repeated. Same as Psychology 21:208. Prerequi-
site, consent of instructor.

TC:352 Supervised Field Work: Rehabilitation Procedures 2 s.h.
Full-time work. Taken on a project registration basis. Same as Psychology 21:208. Prerequisite, consent of in-
structor.

TC:353 Personal-Adjustment Counseling 2 s.h.
A survey of theories and techniques of counseling clients with personal and interpersonal problems. Prerequisite, TC:352.

TC:354 Experimental Approaches in Counseling Research 3 s.h.
Application of experimental methodology and laboratory procedures to the study of counseling and vocational phenom-
ena.

TC:355 Counseling Processes and Outcomes 3 s.h.
Review of research on counseling theories and outcome variables. Prerequisite, TC:352.

TC:360 Supervising the Counseling Practicum 3 s.h.
Supervision of students enrolled in a counseling practi-

TC:362 M.A. Thesis in Counselor Education cr.arr.
Prerequisite, consent of instructor.

TC:454 Practicum in Vocational-Educational Counseling cr.arr.
Praction counseling with clients with vocational and emotional problems and supervised experience in the Univer-
sity Counseling Service. Prerequisite, TC:325, TC:342.

TC:453 Practicum in Personal-Adjustment Counseling cr.arr.
Praction in counseling clients with personal and interpersonal problems and supervised experience in the Univer-
sity Counseling Service. Prerequisite, TC:342.
COLLEGE OF EDUCATION

mation and covers the collection, organization, formatting, and retrieval of information; development of criteria for evaluation and program administration.

TD:377 Seminar: Organizational Theory and Educational Administration 3 s.h.
Students select work of particular theorists or theoretical systems and develop papers for presentation and discussion. Prerequisites: TD:301, TD:307, Ph.D. candidacy, and consent of instructor.

TD:380 Seminar: Value Problems in the Administerion of American Education 3 s.h.
Analysis of the philosophical and sociological ideas which underlie the American system for the administration of public education. Investigation of various ideas as to the place of both conformity and dissent in a democratic so-
ciety and the democratic educational problems. Contemporary issues will be used to provide the focus for the examination of these ideas. Same as TPD:380.

TD:384 Summer Seminar for School Administrators 0 to 4 s.h.

TD:390 Seminar: Recent Developments in School Administration cr.arr.
Student investigates some phase of school administration and submits results to group criticism. Prerequisites, former course 7:181 or TD:260 and consent of instructor.

TD:391 Seminar: Case Studies in School Administration 2 or 3 s.h.
Administrative problems and cases experienced in actual school situations. Construction and/or discussion of cases using theoretical models and theory. Open to people who have studied one or other courses in administration or who have had some administrative experience. Prerequisites, former course 7:181 or TD:260 and consent of instructor.

TD:392 Field Service Project in Educational Administration cr.arr.
Prerequisites, consent of instructor. Cr.arr.

TD:393 M.A. Thesis in Educational Administration cr.arr.
Prerequisites, consent of instructor.

Prerequisites, consent of instructor.

Elementary Education

TE:100 Introduction: Elementary Teaching 2 s.h.
Mental requirements for elementary grades. Opportunities, responsibilities, and requirements in teaching. Open to all students.

TE:102 Nutrition Work with Children 3 s.h.
Same as Home Economics 17:186. Prerequisite: 17:186 or consent of instructor.

TE:103 Geography in the School 3 s.h.
Same as Geography 41:126.

TE:104 Remedial Methods in Speech and Hearing 3 s.h.
Emphasis on elementary grades. Usually taken in conjunction with TE:103, which provides approximately 20 clock hours of supervised clinical practice in elementary schools. Prerequisites, Speech Pathology and Audiology 21:180.

TE:120 Methods and Materials: Music for the Classroom Teacher 3 s.h.
Basic singing, part singing, music reading, rhythm activities for instruments, autoharp, marimba, keyboard, harmonica, and guitar. Descriptive to music for the elementary grades. Teaching and organization of the elementary school music program. For elementary education majors only.

TE:121 Elementary School Physical Education 2 or 3 s.h.
Materials, methods, curriculum planning, and improvement of performance skills. Prereq.: for elementary education majors. Same as Physical Education for Men 27:140 and Physical Education for Women 28:140.

TE:122 Method and Materials: Art for the Classroom Teacher 3 s.h.
Combination lecture and studio. Same as Art 18:156.

TE:123 Children's Literature 5 s.h.

TE:133 Principles of Outdoor Education 2 or 3 s.h.
Developments in outdoor education. Instructional principles of outing activities and outdoor education program materials and methods. Same as Physical Education 27:133 and 28:133.

TE:136 Practicum: Environmental Education 2 or 3 s.h.
Same as Physical Education 28:136 and Recreation Education 39:144.

TE:141 Methods and Materials: Elementary School Physical Education 2 or 3 s.h.
For physical education majors only. Same as Physical Education for Men 27:156 and Physical Education for Women 28:157.

TE:142 Methods and Materials: Elementary School Physical Education 2 or 3 s.h.
Same as Physical Education for Men 27:31 and Physical Education for Women 28:31. For physical education majors only. Prerequisite, TE:141 or consent of instructor.

TE:143 Methods: Elementary School Art 3 s.h.
For art majors only.

TE:145 Methods and Materials: Elementary School Science 3 s.h.
Both high school and elementary school methods are required for a certificate. For music education majors only. TE:145 Workshop in Economic Education 3 s.h.
Same as TE:147.

TE:152 Workshop in Economic Education 3 s.h.

TE:153 Workshop in Economic Education 3 s.h.

TE:157 Methods: Early Childhood Education 1 3 s.h.
Acquaintance with current educational concepts in all curricular areas. Emphasis on application of educational theory and instructional materials in preprimary education. Open only to junior elementary education majors; seniors and graduate students with the consent of the instructor.

TE:158 Observation and Participation in Preprimary Education 4 s.h.
Supervised observation and participation in preprimary classrooms. Open only to junior elementary education majors; seniors and graduate students with the consent of the instructor. To be taken concurrently with TE:157.

TE:160 Methods: Elementary School Language Arts 3 s.h.
Methods for kindergarten through grade 1 or development of effective oral and written communication; handwriting, spelling, grammar, usage, punctuation, vocabulary, creative and functional writing.

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SPEAKING, LISTENING, AND OBSERVING. Techniques developed through discussions of methods and materials and through observation at University Elementary School.

TE:161 Methods: Elementary School Social Studies 3 s.h.

Objectives and content for grades kindergarten through sixth. Development of work-study skills and the problem of applying techniques through observation in University Schools.

TE:162 Methods: Elementary School Science 2 or 3 s.h.

Principles and concepts of science instruction in the elementary school for preservation instruction of elementary education majors. Emphasis upon techniques which characterize the new approaches to science.

TE:163 Methods: Elementary School Mathematics 2 s.h.

Methods used in kindergarten and grades 1 through 6. Teaching number system and arithmetical operations meaningfully.

TE:164 Methods: Elementary School Reading 2 s.h.

Basic methods, trends, recent materials, and crucial issues in reading programs of kindergartens, primary, and upper elementary grades.

TE:167 Methods: Early Childhood Education II 2 s.h.

Acquaintance with current educational literature in all curricular areas. Special emphasis in application of educational theory and instructional materials for the kindergarten, first, and second grades. Observation in the University Elementary School. Open only to seniors.

TE:171 Reading Clinic: Teaching 3 to 5 s.h.

Supervised teaching of children with reading disability. Five teaching hours and staff meeting weekly. Pre-requisites: teaching experience, reading methods course, consent of instructor.

TE:172 Reading Clinic: Teaching 3 to 5 s.h.

Continuation of TE:171 or may be taken as a separate course. Consent of instructor.

TE:177 Workshop: Kindergartens Instruction 2 or 3 s.h.

Emphasis on exposure to most recent developments in curriculum materials and supporting theoretical background. Application to these materials and development of new materials for specific instructional situations. Includes direct observation of children. Enrollment by permission.

TE:180 Elementary School Patterns 2 s.h.

Recommended procedures and materials; the problem or unit method of teaching; organizing the school program; understanding factors affecting child development; relationship of instructional techniques to learning objectives. Applicable to the methods requirements for either the elementary or secondary teachers seeking supervisory or administrative certification.

TE:182 Music Workshop for Classroom Teachers and Elementary Music Teachers 0 or 3 s.h.

TE:183 Supervision of Science in the Elementary School 3 s.h.

Objectives, selection, and grade placement of course curriculum standards, and evaluation of results. Teaching aids, such as books, demonstration equipment, visual aids, and field trips.

TE:184 Practicum in School Libraries or s.a.v.

Same as TE:184 and Library Science 21125.

TE:185 Elementary Art Workshop 2 s.h.

Curriculum content for elementary school art. Emphasis on recent procedures, new methods, and materials include studio practice, field trips, demonstrations, and observations.

TE:186 Curriculum Foundations 2 or 3 s.h.

Elementary and secondary background developments in curriculum, definitions, elemental perspective, philosophy, theories of knowledge, models, learning theories, directions of development, and shaping forces. Same as TE:188.

TE:191 Laboratory Practice in Elementary School s.a.v.

Supervised teaching and observation in elementary school classrooms. Prerequisites: consent of instructor.

TE:192 Laboratory Practice in Elementary School s.a.v.

Supervised teaching and observation in special areas of elementary curriculum. Prerequisites: consent of instructor.

TE:201 Literature and Storytelling for Younger Children 3 s.h.

A survey of current children's books appropriate for pre-school and early primary grades. Oral reading, storytelling, and related techniques for presenting literature to young children. Same as Library Science 21201. Prerequisites: TE:120.

TE:204 Analysis and Selection of Literature for the Classroom 3 s.h.

Development of criteria and methodologies appropriate in literature programs in elementary schools. Indepth analysis of books, research techniques in literature, and sources in the multimedia approaches to learning. Prerequisites: TE:120.

TE:241 Physical Education for Elementary School 2 or 3 s.h.

Same as Physical Education for Men 21310.

TE:242 Seminar: Improvement of Instruction in Physical Education in the Elementary School 2 s.h.

Same as Physical Education for Women 26440.

TE:243 Supervision of Art Education 3 s.h.

Organizations of art education programs in elementary, junior high and high school; trends in pedagogy; curriculum, techniques, and materials. Same as Art 19:243 and TE:243.

TE:245 General Music in the Elementary School 2 s.h.

TE:246 Problems of Science Instruction in the Elementary School s.a.v.

Special research projects. University Elementary School and other school situations will be utilized as experimental design is considered. Pilot studies conducted, and techniques of research at this level are practiced. For graduate students interested in evaluation technique and the completion of all beginning graduate students at this level who have little or no previous experience with research.

TE:251 Construction of Teaching Materials for Science Instruction 2 s.h.

Preparation of special laboratory materials for instruction in the new elementary, junior high, and high school courses. Some attention is to be given to those who are a specialist in that area. Students will work individually on the design and development of a laboratory or in small groups in the design and development of an instructional laboratory. Consent to teaching with experience. Same as TE:250.

TE:250 Supervision of Elementary School Language Arts 2 or 3 s.h.

Methods and materials relating to current issues in language arts instruction. Emphasis on improvement of teach-
COLLEGE OF EDUCATION

B.E.261 Supervision of Elementary School
Social Studies 2 or 3 h.
Curriculum content used in the consideration of modern classroom procedures; the cooperative problem assignment, provision for individual differences; functional development of study skills; observation in University Elementary School.

B.E.263 Advanced Techniques of Teaching
Science in the Elementary School 3 h.
Theories of teaching science at the elementary school level. Emphasis upon procedures which enable implementation of modern philosophy characterizing elementary science education. Primarily for experienced elementary school teachers. Graduate students in science education may also find consideration of these concepts valuable.

B.E.265 Supervision of Elementary School
Mathematics 2 or 3 h.
Methods of instruction, nature of arithmetic processes, number system; testing, use of proof, drill, research, selection, and graduation of arithmetic content.

B.E.266 Supervision of Primary Grade Reading 2 or 3 h.
For superintendents, supervisors, and teachers. Pertinent research, specific teaching materials, currently used materials, organization for instruction, and use of reading in other curricular areas.

B.E.266 Supervision of Intermediate Grade Reading 3 h.
For teachers, principals, and supervisors. Reading with comprehensiveness, provision for individual differences, relation of reading, the extension of skills taught in the primary grades.

B.E.267 Improvement of Instruction in the Primary Grade 2 or 3 h.
Crucial and current problems in selection and organization of the curriculum and in methods of teaching to promote learning. Involves both theory and practice.

B.E.268 Supervision and Curriculum Development in Pre-Primary Education 2 or 3 h.
History and trends, curricular problems and instructional materials for nursery school and kindergarten education. Recent research pertinent to the development of pre-primary programs. Reading, discussion, and guided observations.

B.E.269 Observation and Conference in Supervision 2 or 3 h.
Teachers and supervisors study intensively practices in the University Elementary School. Requires two hours of observation per week (between 9 a.m. and 11:30) for each hour of credit; a condensed hour in the afternoon, reading contributing to the solving of problems raised in the classroom and conferences. Prerequisite, consent of instructor.

B.E.293 Individual Instruction in Elementary Education cr.arr.
Prerequisite, consent of instructor.

B.E.300 Elementary Curriculum 2 or 3 h.
Major issues; modern selection, sequential arrangement, and organization of content; relations of time with elements to implementation; utilization of instructional equipment and related procedures; staff participation in curriculum development. Basic requirement in supervision and administration programs.

B.E.301 Seminar: Theory Underlying Early Childhood Education 3 h.
History and trends of kindergarten education, particular problems, instructional materials, and appropriate knowledge edge from related fields such as educational psychology and child psychology. Recent research pertinent to the development of a kindergarten program. Readings and class discussions coordinated with observations in the University Elementary School.

B.E.302 Science Curricula in the Elementary School 3 h.
Analysis of major science series and curricular materials. Ratios, history, and reports of evaluative studies for each program will be considered. Sample programs will be experienced by the students, and use in the classroom with peers. For graduate students interested in supervision, adoption will be read, analyzed, and discussed. Prerequisites: consent of instructor.

B.E.303 Seminar: Elementary Education 2 or 3 h.
Consideration of major problems, research findings, and current developments in elementary school instructional programs. Prerequisite, consent of instructor.

B.E.304 Seminar: Elementary Education 2 h.
Continuation of B.E.303, but may be taken independently with consent of instructor.

B.E.305 Seminar: Teaching Children's Literature 2 h.
Development of curriculum content for college courses in children's literature. Construction of course in literature will be required. Students placed on the development of adequate background for teaching and supervised experience will be arranged. Prerequisites: consent of instructor.

B.E.306 Seminar: Elementary School Language Arts 2 h.
For advanced students in elementary education who have taken the systematic course (e.g., B.E.361). Opportunity to do further intensive study on specific topics. Prerequisite, consent of instructor.

B.E.306 Seminar: Current Research and Concerns in Science Education 2 h.
Trends and modern research. Advanced investigation where original research reports will be read, analyzed, and discussed. Emphasis on learning theory. Primarily for advanced graduate students.

B.E.307 Seminar: Elementary School Mathematics 2 h.
Intensive study and seminar discussion of curricular and instructional questions in elementary school mathematics instruction; e.g., developing an understanding of the multiplication operation by concrete product or repeated addition situation; geometric regions or set representations to receive major emphasis in developing basic notions of rational number; content of elementary school mathematics to play a major or minor role in instruction.

B.E.308 Seminar: Elementary Reading 2 h.
For advanced students in elementary education who have taken the systematic course (e.g., B.E.304 or B.E.362). Opportunity to do further intensive study on specific topics. Prerequisites: consent of instructor.

B.E.308 Reading Clinic: Supervision cr.arr.
Prerequisite, consent of instructor.

B.E.308 Supervision of Science 3 h.
Intensive study and seminar discussion of curricular and instructional questions in elementary school science instruction; e.g., developing an understanding of the multiplication operation by concrete product or repeated addition situation; geometric regions or set representations to receive major emphasis in developing basic notions of rational number; content of elementary school mathematics to play a major or minor role in instruction.
time arising from coordinating programs at the same level (elementary, junior high, and high school). Science supervisors at the regional, state, and national levels will
be consulted. "Practicum's" science supervisors will be utilized. Primary supervisors, service trains and advanced
students. Same as RES 63.

TE 367 Seminar: Elementary Art Education 2 or 3 a.h.

TE 380 Supervision of Instruction 2 or 3 a.h.

Problems and procedures in working effectively with the
beginning teacher. Designed for principals and elemen-
tary school supervisors. strong emphasis on the human
relations aspect of supervisor-beginning-teacher relation-
ships. Prerequisite, consent of instructor.

TE 381 Advanced Laboratory in Elementary Education 2 or 3 a.h.

Observation of planned lessons at the University Elemen-
tary School for critical examination of practices and prob-
lems in elementary education. Prerequisite, consent of
instructor.

TE 383 Advanced Laboratory in Elementary Education 2 or 3 a.h.

Continuation of TE 382, but may be taken as an independ-
ent unit. Prerequisite, consent of instructor.

TE 384 Laboratory Practice in Supervision cr.arr.

For graduate students who have had teaching experience.
Prerequisite, consent of instructor.

TE 386 Laboratory Practice in Supervision cr.arr.

Continuation of TE 385, but may be taken independently
with consent of instructor.

TE 391 Special Problems in Science Education cr.arr.

Individual research projects which may or may not evolve
into themes for proposed papers. Emphasis on gaining se-
quences with special investigations for advanced students.
Prerequisite, consent of instructor.

TE 391 Field Service Project in Elementary Education cr.arr.

Prerequisite, consent of instructor.

TE 393 M.A. Thesis in Elementary Education cr.arr.

Prerequisite, consent of instructor.

TE 493 P.H.D. Thesis in Elementary Education cr.arr.

Prerequisite, consent of instructor.

Social Foundations and Comparative Education

TF 203 History of American Education 2 or 3 a.h.

Educational thinking and actions of the past four hundred
years as they have contributed to today's schools in the
United States.

TF 203 Comparative Education 2 or 3 a.h.

Contemporary educational systems. Similarity and con-
tact between educational policies and patterns in the United
States, England, France, Scandinavia, and the U.S.S.R.

TF 104 Education in Newly Developing Countries 2 or 3 a.h.

Problems and trends of education in selected areas and
countries of Latin America, Africa, and Southern Asia.

TF 107 History of Education 2 or 3 a.h.

Here and actions of the great educational contributors
from the earliest days to the present. Men and move-
ments are treated especially as they have influenced con-
temporary educational practices in the United States.

TF 110 Education for International Understanding 2 or 3 a.h.

Political, cultural, and economic problems that impinge on
individual lives and influence educational policies; pre-
pare to improve understanding and adjustment of these
problems; contribution of various disciplines and the work
of various organizations, including UNESCO; applying
such knowledge to teaching.

TF 111 Philosophy of Education 2, 3, or 5 a.h.

Introduction survey of the principal educational philoso-
phies and philosophies that have influenced Western
education. Given is placed on how philosophical ideas
and conflicts have served to shape our contemporary edu-
cational enterprise.

TF 120 Foundations of Educational Sociology 2 or 3 a.h.

Overview of major social trends, influences, and contra-
versies in American culture and an analysis of their
influence with the school viewed as a social institution.

TF 135 John Dewey and Education 2 or 3 a.h.

Dewey's philosophy of "instrumentalism" with particular
emphasis on his theories of knowledge, value, and reli-
bility, especially as they apply to educational theory
and practice.

TF 205 British Education cr.arr.

Offered summers only, in Cambridge, England. Lectures,
discussions, field trips in affiliation with The University of
Cambridge and the British Ministry of Education. Sem-
inars conducted evenings by course instructor. This course
does not affect on campus for the academic year for 2 semester hours.

TF 206 Scandinavian Education cr.arr.

Offered summers only, in Scandinavia. Lectures, discus-
sions, field trips in cooperation with The University of Oslo
and with ministries of education. Seminars conducted evenings by course instructor.

TF 203 Individual Instruction in Social Foundations and Comparative Education cr.arr.

Prerequisite, consent of instructor.


Comprehensive and analysis of competing social philosophies,
their theoretical bases, and their practical influence on
contemporary higher education. Prerequisite, consent of
instructor.

TF 304 American Contribution to Educational Philosophy 2 a.h.

American philosophy and its influence on American public
education.

TF 306 Seminar: Soviet Education cr.arr.

Prerequisite, consent of instructor.

TF 307 Seminar: Problems of Higher Education cr.arr.

Philosophical and historical approach to higher education
in the United States. Comparative study of related de-
velopments in European higher education.

TF 308 Seminar: Value Problems in the Administration of American Education 3 a.h.

Philosophical and sociological ideas which underlie the
American system for the administration of public educat-
ion. Investigation of various ideas as they bear on the
place of the teacher, student, and the role of a democratic society and a
democratic educational system. Contemporary issues

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Higher Education

TH:100 Problems and Policies in Higher Education 3 s.h.
A study and analysis of current, selected functions, pro-
blems, and policies in American higher education; a basic
course open to majors and undergraduates.

TH:175 Post-High School Faculty Development Workshop 0 to 2 s.h.
This workshop is designed to provide post-high school in-
structors with work in either the discipline area(s) or in
some aspect of professional education. Workshop topics
may include programs for the upgrading of administrative
and supportive personnel as well as faculty members in
post-high school institutions.

TH:185 Higher Education Colloquium 0 to 6 s.h.
Students and faculty are invited to attend seminar topics
and other projects for consideration. Projects must be
sponsored by at least one faculty member in higher edu-
cation, and must be approved by the departmental execu-
tive. No project can be offered more than twice under
this course description. Students may repeat the course
once for credit up to a total of 6 hours.

TH:211 Problems in College Teaching 2 or 3 s.h.
Principles of course planning, teaching procedures, eval-
uation techniques, and assessment of instructional objec-
tives and outcomes.

TH:212 Structure and Organization of American Higher Education 2 or 3 s.h.
Procedures of various types of institutions: community col-
leges, colleges, universities technical, and professional in-
situtions. Policy determination at federal, state, and insti-
tutional levels.

TH:230 Intern Seminar cr.arr.
Designed to prepare interns to assume faculty or admin-
istrative role in a community college setting. Prerequi-
site, enrollment in the community college teacher prepara-
tion program or preparing to enroll in a community college
instructor preparation program during the fall term.

TH:233 Seminar: Teaching Modern Languages 1 s.h.
Research and practices in materials and methods of in-
stitution in French and Spanish at the college level; recent
correlations by structural linguistics to modern language teaching. Primarily for graduate assistants in French and Spanish but open to other graduate
students with permission. Same as French 6.233 and Spanish 6.233.

TH:234 Seminar: Teaching Modern Languages 1 s.h.
Prerequisite, TH:225 or equivalent. Same as French 9.234 and Spanish 9.234.

TH:240 Workshop: Higher Education 0 to 2 s.h.

TH:250 Administration of Technical Skills Education Programs 2 or 3 s.h.
Administrator's role in post-high school occupational edu-
cation. Legal, financial, and staffing aspects of vocational-
technical and semiprofessional education.

TH:271 The Community College 2 or 3 s.h.
Survey of problems in organization, administration, and
curriculum.

TH:275 Iowa Community College Workshop 0 or 1 s.h.

TH:293 Individual Instruction in Higher Education cr.arr.
Prerequisite, consent of instructor.

TH:302 Seminar: Higher Education cr.arr.
Analysis of special problems; preparation and presenta-
tion of one major research project.

TH:305 Seminar: Recent Research in Higher Education 2 or 3 s.h.
Assessments of college environments and student poten-
tials; effects of college experiences upon student achieve-
ments, aspirations, and personal development.

TH:315 Curriculum Development in Higher Education 2 or 3 s.h.
Prerequisite, consent of instructor.

TH:317 Administrative Decision-Making in Higher Education 2 or 3 s.h.
Administrative problems in higher education using simu-
lated materials.

TH:321 Seminar: Administration in Higher Education 2 or 3 s.h.
Prerequisite, consent of instructor.

TH:323 Practicum in Higher Education 0 to 6 s.h.
Prerequisite, consent of instructor.

TH:333 M.A. Thesis in Higher Education cr.arr.
Prerequisite, consent of instructor.

Prerequisite, consent of instructor.

Educational Psychology, Measurement, and Statistics

TH:75 Educational Psychology and Measurement 3 s.h.
Factors in mental development and classroom learning.
Child and adolescent development. Problems in class-
room management. Construction, use, interpretation, and
evaluation of educational tests. Open only to under-
graduates. Same as Psychology 8.117.

TH:102 The Learner 3 s.h.
Characteristics related to classroom learning; individual
differences in physical, emotional, and intellectual factors.

TH:106 Child Development 3 s.h.
Same as Child Behavior 8.106 and Psychology 8.111. Not open to sophomores.

TH:108 Personality and Mental Hygiene 3 s.h.
Personality and adjustment of the normal child. An-
tecedents and causes of typical behavior patterns. Prin-
ciples for modifying behavior. Prevention of adjustment
disorders.

TH:109 Socialization of the School-Age Child 2 or 3 s.h.
Social development, preschool influences, development of
attitudes and interests, effects of social class on social
development.

TH:121 Educational Psychology 3 to 4 s.h.
Teaching and learning. Developmental con-
cept, social processes, language and thought, personality
and mental health, models of teaching and research,
theory and motivation of the learning process. Same as Psychology 8.118.
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TP:133 Adolescence 3 a.h.
Readings and discussion relating physical, psychological, and cultural development of adolescent behavior in contemporary society. Traditional academic literature on adolescence supplemented by fiction, films, and materials reflecting current youth culture. Prerequisite, consent of instructor.

TP:134 Introduction to Programmed Learning 2 a.h.
Theoretical tests of programming of learning. Examination of various techniques and other devices for use in the structuring of learning. Model programs for summative evaluation. Frame construction.

TP:143 Introduction to Statistical Methods 3 a.h.
Analysis and interpretation of research data. Descriptive statistics (frequency distributions, central tendency, variability); introduction to statistical inference (normal curve, sampling theory, simple t-test); introduction to correlation and linear regression. Same as Statistics 220:143 and Psychology 21:143.

TP:146 Statistical Methods in Educational Research 1 3 a.h.
An introduction to Bayesian and regression methods with applications to the analysis of educational data. Conditional probability, Bayes Theorem, the analysis of test-exam densities, Beta-binomial analysis, normal models, correlation and regression theory, multiple regression. Model 1 ARGOY. Same as Statistics 226:146. Prerequisites, TP:134 or equivalent.

A continuation of TP:148. Model II ARGOY, the classical test theory. Bayesian inference with the classical model, simple and multiple regression in many groups, a portfolio of academic prediction systems with emphasis on guidance technology. Same as Statistics 226:149. Prerequisites, TP:148.

TP:150 Educational Measurement for the Classroom Teacher 3 a.h.
Interpretation and use of standardized test results. Development of classroom tests and evaluation of pupil achievement. Elementary statistical concepts relating to interpretation of test scores.

TP:170 Psychology of Reading 3 or 4 a.h.
Psychological and linguistic analysis of reading processes, implications for teaching methods and materials. Reading ability. Prerequisites, TP:134 or equivalent.

TP:178 Reading Clinic: Diagnosis 3 or 3 a.h.
Evaluation of diagnostic tests of reading ability. Clinical procedures and techniques. Interpretation of test results. Prerequisites, TP:150.

TP:181 Theories and Conditions of Learning 3 a.h.
Review of contemporary theories of learning. Application of learning principles to the classroom setting.

TP:182 Cognitive Processes in Classroom Learning 3 a.h.

TP:185 Group Processes in Classroom Learning 3 a.h.
Interaction processes in the classroom. Application and evaluation of techniques for interpreting the group process, and attitudes of the classroom atmosphere.

TP:193 Special Readings and Projects 1-9 a.h.
Supervised individual study. Prerequisites, senior standing and consent of instructor.

TP:231 Problems of Adult Learning 3 a.h.
Designed for students whose interests and professional responsibilities involve work with older adolescents and adults. Course content includes a survey of learning theories and their possible practical applications, consideration of self-concept in relation to motivation and learning, and exploration of adult learning literature. Due to diversity of student backgrounds, the course provides opportunities for both large and small group interaction with the instructor, and independent study projects.

TP:234 Advanced Programmed Learning 3 a.h.
A survey and critical review of current concepts of programmed instruction with primary emphasis on systems approaches to the organization of instructional programs.

TP:241 Selected Applications of Statistical Techniques 3 a.h.
For the student planning to take only one course in statistical methods beyond the scope of a single elementary course. Not equivalent to TP:244. Application and interpretation of correlation techniques, chi-square, t-tests, interval estimation and simple cases of analysis of variance. Prerequisites, TP:143 or equivalent.

TP:243 Advanced Statistical Methods 4 a.h.
Logic of statistical inference, Chi-square and other tests of statistical hypotheses, small sample theory, interval estimation, introduction to sampling theory and selected parametric methods. Prerequisite, TP:134 or equivalent. Same as Statistics 226:243.

TP:244 Correlation Methods 3 a.h.
Regression analysis and correlation techniques. Multiple, partial, curvilinear, bivariate, and tetrachoric correlation; discriminant analysis; correlation ratio; sampling theory applied to regression analysis and correlation. Prerequisites, TP:143 and TP:243 or equivalent. Same as Statistics 226:244.

TP:245 Application of Multivariate Statistical Techniques 2 or 3 a.h.
Application of selected multivariate statistical techniques in educational research. Techniques include factor analysis, multiple regression, analysis of variance, and discriminant analysis. Same as Statistics 226:245.

TP:246 Design of Experiments 4 a.h.
Theory and methods in the planning and statistical analysis of experiments. Design of experiments; testing of hypotheses; analysis of variances; linear contrasts; and interaction. Same as Statistics 226:246.

TP:247 Distribution Free Statistical Methods 3 or 3 a.h.
Theory and development of selected non-parametric techniques. Includes measures of association and analysis of variance. Special emphasis on non-parametric procedures. Same as Statistics 226:247.

TP:255 Construction and Use of Classroom Tests 2 or 3 a.h.
Role of testing, test planning, item analysis, test administration, scoring, and interpretation of scores, analysis, and group retest. Prerequisite, TP:145 or consent of instructor.

TP:256 Educational Measurement and Evaluation 3 a.h.
The use of standardized tests. Sources of test information and criticism, evaluation of reliability and validity data, and interpretation of scores and profiles. Prerequisites, TP:145 or equivalent.

TP:258 Theory and Technique in Educational Measurement 3 a.h.
Mathematical theories underlying educational and psychological measurement. Philosophical issues in achieve-ment test construciton, estimation of test reliability and
validity, derivation of norms, scaling and equating test
situations. Prerequisite, TP-338 and TP-351 or equivalent and
consent of instructor.
TP-393 Individual Instruction in Educational
Psychology, Measurement, and
Statistics cr.arr.
Prerequisite, consent of instructor.
TP-330 Seminar in Advanced
Psychodiagnosis 2 s.h.
Same as Psychology 11357.
TP-331 Seminar: Educational Psychology I:
Research and Teaching cr.arr.
The profession of educational psychology. Current in-
terest. Literature review of research in educational
psychology. Prerequisite, consent of instructor.
TP-332 Seminar: Educational Psychology II:
The Psychology of Learning cr.arr.
Psychology of learning as related to classroom practice
and curriculum organization. Prerequisite, consent of
instructor.
TP-333 Seminar: Educational Psychology III:
Social Psychology of Education cr.arr.
Educational aims and societal values; the school as a social
system; individuals and subcultures; nature and dynamics
of the instructional group. Prerequisite, consent of in-
structor.
TP-334 Seminar: Educational Psychology IV:
Mental Hygiene in School Practice cr.arr.
Mental health, adjustment, normality, abnormality, integra-
tive and discriminative forces in education; behavior prob-
lems in the classroom; professional role, personal develop-
ment of teachers. Prerequisite, consent of instructor.
TP-335 Seminar: Educational Psychology V:
The Disadvantaged 3 s.h.
Readings and discussion to understand effects of cultural
regression and economic deprivation on psychological
development and school performance. Analysis of oppor-
tunities to meet the educational needs of disadvan-
taged youth. Prerequisite, consent of instructor.
TP-337 Seminar: Educational Psychology VII:
Advanced Readings in Educational Psychology cr.arr.
Review and evaluation of recent literature in educational
psychology. Prerequisite, consent of instructor.
TP-343 Seminar: Data Processing cr.arr.
Computer data processing with special emphasis on the
FORTRAN language used by the computer at the Univer-
sity Computer Center. Use of the Computer Center sta-
tistical library. Preparation of data to be submitted to the
computer. Use of computer in editing statistical analy-
ses and research data. Prerequisites, consent of
instructor.
TP-345 Seminar: Statistical Analysis cr.arr.
TP-346 Seminar: Educational Research
Methodology cr.arr.
Restricted to education majors in division other than
the Division of Educational Psychology, Measurement,
and Statistics. Prerequisite, consent of instructor.
TP-355 Seminar: Educational
Measurement cr.arr.
Prerequisite, consent of instructor.
TP-371 Seminar: Experimental Approaches
to Psychology of Reading cr.arr.
Experimental investigations of the reading process; em-
phasis on discrimination, association, and language vari-
ables. Analysis of theory, experimental methods, re-
search findings, and problem areas. Prerequisite, consent of
instructor.
TP-375 Seminar: Reading Disability cr.arr.
Problems in defining disability; determining profile of
skills necessary for successful reading; adjusting instruc-
tion to needs of individual learners; administrative and
instructional means of preventing failure; survey of remedial
procedures, their bases in theory, and evidence of
their effectiveness. Prerequisite, consent of instructor.
TP-392 Field Service Project in
Educational Psychology, Measure-
ment, and Statistics cr.arr.
Prerequisite, consent of instructor.
TP-383 M.A. Thesis: Educational
Psychology, Measurement, and
Statistics cr.arr.
Prerequisite, consent of instructor.
TP-453 Ph.D. Thesis in Educational
Psychology, Measurement, and
Statistics cr.arr.
Prerequisite, consent of instructor.
Secondary Education
75:100 Introduction: Secondary
School Teaching 3 s.h.
Historical and philosophical foundations of American
education. Role of the teacher in curriculum development,
guidance, school and community relationships, professional
organizations, code of ethics, test construction and admin-
istration. Opportunities and requirements for teachers.
75:105 Methods: Secondary School Art 3 s.h.
For art majors only.
75:110 Methods: Office Education 3 s.h.
Same as Business Education 65108.
75:111 Methods: Basic Business Education 3 s.h.
Same as Business Education 65118.
75:113 Supervision of School Publications 3 s.h.
Basic methods course in high school journalism; school
newspaper and yearbook. Same as Journalism 1133.
75:115 Methods: High School English 3 or 6 s.h.
Instruction in methods, materials, and organizational tech-
niques in teaching high school English. During labora-
tory sessions, integrated with lectures and discussions,
students will receive experience in simulated teaching
situations. Same as English 51197.
75:120 Methods: High School Foreign
Languages 3 s.h.
May be taken for credit in one of the languages. For
registration purposes, registration must be under the
75:120 number. Same as French 9130, German 11310,
Latin 91171, Spanish 85130, and Russian 41120.
75:184 Language Laboratory Procedures 1 s.h.
Planning a laboratory, purchasing of equipment, simple
maintenance procedures, scheduling of laboratory classes,
classification and storing of tapes, laboratory manipula-
tions methods of recording, evaluating student re-
sponses. Same as French 91211 and Spanish 85121.
75:125 Methods: High School Home
Economics 3 s.h.
Same as Home Economics 17164.
75:126 Materials and Methods in Family
Life Education 2 s.h.
Same as Home Economics 17165.
COLLEGE OF EDUCATION

79.130 Newspapers in the Classroom of a Free Society 0 or 1 a.h.
Same as Journalism 20:114.

79.135 Methods: High School Mathematics 6 a.h.
Survey of modern subject matter, organization of content, and methods of teaching. Prerequisite, Mathematics 22:50 or consent of instructor.

79.140 Methods and Materials: Junior and Senior High School Music 5 a.h.
Both high school and elementary school methods are required for a certificate. Required of all music education majors.

79.143 Instrumental Techniques 1 to 3 a.h.
Same as Music 23:15.

79.144 Instrumental Techniques 1 to 3 a.h.
Same as Music 23:15.

79.145 Methods and Measurement: High School Physical Education for boys 4 a.h.
Course in theory to be taken concurrently with 79:181.

79.146 Methods: High School Physical Education for Girls 3 a.h.
Same as Physical Education for Women 26:119.

79.147 Choral Methods and Conducting 3 a.h.
Same as Music 25:106.

79.148 Choral Literature and Conducting 3 a.h.
Same as Music 23:15.

79.150 String Techniques and Methods 2 or 3 a.h.
Same as Music 23:15.

79.151 Methods: Secondary Physical Science 3 a.h.
Specific methods peculiar to the modern secondary courses in this area. Observation and microteaching experiences will be a central part of the course. Specific courses will be structured and the various "national" curricula will be explored.

79.153 Methods: Secondary Biological Methods suggested and explored in teaching biology, involving in the biology program in the laboratory school will be a focus. Practice with specific courses, laboratories, and classroom situations will provide the basis for discussions and learning procedures.

79.155 Introduction to Alcohol Education 2 a.h.
Basic information on alcohol use and abuse and the alcoholism problem, for elementary and secondary teachers. Value in teaching alcohol education units in biology, chemistry, the social sciences, driver education, drivers' physical education, health education, and other subject areas.

79.160 Methods: High School Speech 3 a.h.
Same as Speech 26:17.

79.170 Methods: High School Social Studies 3 a.h.
Open only to seniors. Majors in anthropology, economics, geography, history, political science, psychology, sociology, or social studies must take practice teaching 79:181 and 79:194 concurrently. Organizing social studies content for teaching purposes, building classroom tests, learning procedures, and new practices in teaching.

79.171 Methods: High School Social Studies 3 a.h.
Majors in the social studies area must register for 79:170 and 79:171 concurrently. Minors in social studies register
72:245 Methods and Principles in Physical Education 3 s.h.
For teachers of physical education for secondary school boys. Covers foundations of method, basic concepts and techniques of method, techniques of methods applied to specific activities, and evaluation of the effectiveness of teaching methods. Utilizes a textbook in physical education for secondary school boys.
72:246 Supervision of Physical Education for Boys 3 s.h.
Same as Physical Education for Men 21:129.
72:250 Problems of Science Education cr.arr.
Research design characterizing specific studies in science education. Laboratory school will provide the classroom setting for the variety of investigative problems. Special ideas may be structured and tried prior to the preparation of a paper for a journal.
72:251 Construction of Teaching Materials for Science Instruction 2 s.h.
Preparation of special laboratory materials for instruction in the new elementary, junior high, and high school courses. Some attention to other learning materials where there is a special interest. Students will work individually or in small groups at the academic level of most concern. Open to teachers with teaching experience. Same as 72:251.
72:252 Advanced Methods: Science Education 3 s.h.
Implementing a modern philosophy of science teaching; experience with science teaching as a profession; major methodological trends reflected in the current secondary and college teaching. Required of all graduate students.
72:253 The Science Curriculum 3 s.h.
National programs of the secondary and college levels; observation and involvement with parts of the programs; analysis of similarities, differences, trends.
72:254 Supervision of Science 3 s.h.
Problems, practices, responsibilities, and techniques characterizing the practice of the science supervisor. Special work with the articulation of a K-12 program and situations arising from coordinating programs at the same levels (elementary, junior high, and high school). Science supervision at the regional, state, and national levels will be considered. Practicing science supervisors will be utilized. Primarily for supervisor trainees and advanced students. Same as 72:254.
72:255 Structure of Science and Its Application in Science Teaching 3 s.h.
Relationship between the nature of science and teaching science. Primary purpose is one of bringing the science teacher to understand the peculiar, and perhaps unique, structures within which the facts and ideas of science fit. Emphasis upon how this information affects methodology, curriculum, structures of specific courses, etc. Required of all Ph.D. candidates. Prerequisite, previous work in philosophy or science.
72:256 History of Science and Its Role in Science Instruction 3 s.h.
Explores science teacher's knowledge of science history and his ability to apply that knowledge in designing and teaching science courses. Concerns tracing the presence and growth of certain great themes in science with systematic consideration of the use of such materials in science education. Portions of the course is focused upon the impact of these great scientific causes, case-studies, and graphic material in teaching and course construction. Required of all Ph.D. candidates. Prerequisite, previous work in history or philosophy of science.
72:260 Teaching of Speech 3 s.h.
Same as Speech 23:117.
72:261 Speech for Educators 3 s.h.
Same as Speech 23:111. For administrators, teachers, and other adults who desire opportunity to study and develop their speaking abilities and attributes to serve the professional and social situations in which they desire to execute influence and leadership in their schools and communities. Emphasis on preparation, performance, techniques, and evaluation in speaking-musical drama, and conference leadership. Individualized assignments in readings and performance.
72:262 Workshop in Teaching Speech 0 to 4 s.h.
Same as Speech 23:118.
72:270 Curriculum Development in the Social Studies 2 or 3 s.h.
For school administrators, curriculum specialists, and experienced social studies teachers. Major areas will include the present status of the social studies curriculum, trends indicating out of current research and development in the past decade, and problems involved in curriculum development and supervision. An investigative study will be required.
72:271 Building Resources and Teaching Units in the Social Studies 3 s.h.
For the inservice teacher who wishes to build resource or teaching units. Emphasis on the rationale and provides a model for building resource or teaching units. Special emphasis is placed on the incorporation of recent developments.
72:272 Current Issues, Approaches, and Materials in Social Studies Teaching 3 s.h.
For experienced social studies teachers and curriculum coordinators. Investigates the implications of current research conducted by Project Social Studies Centers and design lessons using inquiry, case study, and simulation approaches. Strategies for incorporating behavioral, social science, and area studies within existing courses considered.
72:280 Junior High School Organization and Administration 2 or 3 s.h.
Development of the junior high school; nature of the junior high school population; problems of organizing the junior high school; junior high school programs; certain administrative techniques.
72:281 Junior High School Curriculum 3 or 3 s.h.
Current practices and trends in the program of the junior high school; objectives and content in the various subject areas; curriculum planning.
72:282 Improving Instruction in the Secondary School 3 s.h.
Upgrading the instructional program and consideration of special instructional problems in secondary schools.
72:291 Secondary School Curriculum 3 or 3 s.h.
72:292 Individual Instruction in Secondary Education cr.arr.
Prerequisite, consent of instructor.
73:300 Humanities and Fine Arts Workshop 2 s.h.
Designed for administrators and teachers who wish to develop new approaches in the liberal arts areas of the secondary school. Major emphasis on aesthetics and its interdisciplinary impact on the curriculum. Individual projects emphasize strategies for implementation.
73:315 Seminar: English Education cr.arr.
A discussion of significant developments in English education from primary and secondary schools. Prerequisite, completion of elementary education courses in English Education.
73:331 High School Journalism Advisers Workshop 0 or 1 s.h.
Same as Journalism 23:118.
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1:441 The Psychology of Teaching Music 3 a.h. The nature of musicality and its relationship to age, sex, intelligence, aesthetic response, characteristics of children, teaching methods, etc.

1:442 Music Education: Advanced Observation and Laboratory Practice 3 a.h.

1:443 Evaluation and Measurement in Music 3 a.h.

1:444 Research in Music Education 0 or 2 a.h.

1:445 Social and Psychological Factors in Music Education 0 or 2 a.h.

1:490 Seminar: Secondary Education 3 a.h.

1:493 Ph.D. Thesis 3 a.h.

Special Education
1:30 Introduction to and Observation of Exceptional Children I 5 a.h.

The various types of exceptional children and their educational problems. Includes treatment of five hours a week, observing and working with children with various types of handicaps. Restricted to majors in special education. Offered first semester of a two-semester sequence.

1:31 Introduction to and Observation of Exceptional Children II 5 a.h.

Continuation of 1:30 and required for special education majors. Prerequisite: 1:30.

1:130 Exceptional Children 2 a.h.

Problems and methods of teaching exceptional children. For teachers and school or clinical psychologists. Same as Psychology 1:23.

1:43 Teaching the Educationally Disadvantaged 3 a.h.

Educational methods for teaching the culturally disadvantaged child of school age. Relevant research on impact of disadvantaged background on learning potential of students.

1:335 Mental Retardation 3 a.h.

The mentally retarded child and his problems. Causes, diagnosis, and psychological problems of retardates. Principles, factors, and conditions in learning of educable mentally retarded in the public school setting.

1:138 Teaching the Trainable Mentally Retarded Child 2 or 3 a.h.

Selection of pupils, organization of program, management of the trainable child. Curriculum content; ample materials and methods for instructing trainable children.

1:137 Education of Gifted Children 3 a.h.

Identification and characteristics of gifted children. Methods of teaching, curriculum.

1:136 Methods in Education of the Physically Handicapped Child 3 a.h.

For teachers and supervisors in special education. Emphasis on learning and remediation problems of the physically handicapped. Coordination with therapies and treatment. Prerequisite: 1:135 or consent of instructor.

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TU:139 Orientation to Rehabilitation of the Physically Handicapped Child 3 s.h.
Medical, therapeutic, and educational aspects. The several problems involved in the evaluation, treatment, and general management of handicapped children. Nature of the various handicapping conditions, their causes, and special considerations of each.
TU:141 Workshop in Parent-Teacher Relationships 3 s.h.
TU:143 Vocational Resources for Exceptional Children 2 or 3 s.h.
Processes involved in developing programs for all students who need or wish job experiences at the high school level. Job analysis, investigation of related professions, and relevant community agencies. Undergraduates need permission of instructor.
TU:145 Curriculum Development and Methodology for the Mentally Retarded 1 2 or 3 s.h.
Basic aspects of curriculum development for educable mentally retarded at the preschool, primary, and intermediate levels; major objectives selected in the organization of curricula; content; specific materials and methods for instructing mentally retarded; evaluation techniques; observation in five schools. Meets the prerequisite requirement for certification to teach the mentally retarded.
TU:146 Curriculum Development and Methodology for the Mentally Retarded 2 or 3 s.h.
Continuation of TU:145, but with the emphasis on junior and senior high school programs for educable mentally retarded; objective; curriculum content; evaluation techniques; high school credit and graduation requirements for the mentally retarded; development and coordination of work study programs; observation in five schools. May be taken concurrently with TU:145. Meets the requirements for certification to teach educable mentally retarded.
TU:147 Cases and Problems in Teaching the Mentally Retarded 2 s.h.
Taken in conjunction with student teaching. Provides the student in the professional semester with assistance on problems specifically related to teaching children with severe mental retardation. The teacher from the related areas of mental retardation accompanies the student during school morning and afternoon, in a depth study of selected cases of mental retardation individual.
TU:148 Cases and Problems in Teaching the Physically Handicapped 2 s.h.
Taken in conjunction with student teaching. Provides coordination between staff of the University program and the students. An in-depth study of selected cases of physically handicapped individuals.
TU:151 Language for the Deaf I 3 s.h.
Rationale for multiple approach, in presenting language to deaf child; techniques for introducing a deaf child to understanding and use of language, particularly in first four years of school; selection and use of teaching materials.
TU:152 Language for the Deaf II 3 s.h.
Continuation of TU:151. Language requirements of second four years of school. Prerequisite, TU:151.
TU:153 Speech Training for the Deaf I 2 s.h.
Philosophy underlying methods for meeting communica
tion needs of deaf speech development goals; phonetics as related for use in the production and modification of speech.
TU:154 Speech Training for the Deaf II 2 s.h.
Continuation of TU:153.
TU:155 Education and Guidance of the Deaf 2 s.h.
History and philosophy of education of deaf in the United States; facilities for teaching deaf; psychology and social adjustment of deaf during and after school life.
TU:156 Observation and Student Teaching for the Deaf I 3 s.h.
Thirty to 90 observations of 45 minutes each during first year of training; written reports required; approved by director of training program; supervised and classroom teaching.
TU:157 Teaching Elementary Subjects to the Deaf I 2 s.h.
Specialized techniques and methods appropriate for presenting elementary school subjects to deaf children.
TU:158 Teaching Elementary Subjects to the Deaf II 2 s.h.
School curricula for the deaf; underlying rationale for each; the problems encountered in, and materials available for, teaching these subjects.
TU:159 Speech Reading for the Deaf 2 s.h.
Speech reading in communicative process: methods and materials used to develop speech-reading ability in deaf children.
TU:160 Auditory Training for the Deaf 2 s.h.
Basic reconstructive techniques and evaluation of test results; methods and objectives of auditory training for deaf.
TU:162 Observations and Student Teaching for the Deaf II 2 or 3 s.h.
Thirty to 90 observations of 45 minutes each during the second year of training; written reports approved by director of training program are required; supervised classroom teaching.
TU:191 Laboratory Practice in Education of the Physically Handicapped Child 2 or 3 s.h.
Practice and observation in University Hospital School. Prerequisite, consent of instructor.
TU:192 Laboratory Practice in Education of the Mentally Retarded Child 2 or 3 s.h.
Prerequisite, consent of instructor.
TU:193 Tutorial Assistance 2 or 3 s.h.
Helping secondary age students tutorially. May be taken in conjunction with the Hawkins Area Community Action Program. Prerequisite, consent of instructor.
TU:198 Human Relations for the Classroom Teacher 2 s.h.
Relationship between parents and teachers; teachers and pupil; teachers and other school personnel; teachers and community.
TU:199 Individual Instruction in Special Education: Undergraduate 2 or 3 s.h.
Prerequisite, consent of instructor.
TU:320 Advanced Problems in Psychology of Exceptional Children 2 or 3 s.h.
Current research in the identification, diagnosis, management, and education of mentally, emotionally disturbed, and neurologically handicapped children. Current research findings; techniques of psychological and educational management and administrative approaches. Prerequisite, consent of instructor.
TU:335 Theory and Practice in School Psychology 3 s.h.
School psychology; professional function of the school psychologist. Mental health consultation; mental-
TU:231 Administration and Supervision of Special Education 3 s.h.
For supervision of day and home programs of special education, organization of programs, examinations, selection, and classification of children for special services. Objectives, methods, and instructional materials in various fields of special education.
TU:231 Practicum in School Psychological Services 1 cr.arr.
Supervised practice in psychological and educational evaluation in various University facilities and in community schools. Prerequisite: TP:231. Consent of instructor.
TU:233 Problems in Psychoeducational Assessment of Children 3 s.h.
Techniques of psychoeducational assessment. Supervised practice in psychological and educational assessment in university, school, and community programs. Prerequisite: Consent of instructor.
TU:234 Seminar: Community and Regional Services for the Mentally Retarded 3 s.h.
Organization of community and regional services for the mentally retarded, i.e., day care, clinics, residential care, sheltered workshops, and activity centers. Experience will be provided in assessing need for services as well as planning for the implementation of services.
TU:235 Clinical Aspects of Mental Retardation and Allied Disorders 3 s.h.
Open to graduate students in special education and allied fields. Includes prenatal and postnatal factors as they affect future growth and development; exposure to medical facilities for diagnostic and care for the normal newborn and the neurologically handicapped child; demonstrates the multidisciplinary team approach to the evaluation and treatment of the handicapped child, including special education, neurological investigation, and learning problems.
TU:235 Practicum in School Psychological Services 2 cr.arr.
Continuation of TU:231. Prerequisite: TU:231 and consent of instructor.
TU:236 Advanced Problems in Psychoeducational Assessment of Children 3 s.h.
Personnel assessment of children and adolescents. Special emphasis on projective techniques, specifically the TAT with respect to its theoretical, task construction, and validity. Prerequisite: Consent of instructor.
TU:236 Educational Programs for Children and Youth With Behavior Disorders 3 s.h.
Systematic examination of a theoretical model of behavior disorders and of interdisciplinary services within various community settings providing psycho-social-educational programs for children and youth with behavior difficulties. Prerequisite: Consent of instructor.
TU:236 Educating Children and Youth With Behavior Disorders 1 3 s.h.
Tutorial function, organizational, administrative, problems, issues, methods, and procedures of specific educational programs governing educational practice for children and youth with behavioral dysfunctions. Prerequisite: Consent of instructor.
TU:236 Educating Children and Youth With Behavior Disorders 2 3 s.h.
Continuation of TU:236. Prerequisite: Consent of instructor.
TU:236 Practicum in School Psychological Services 1 cr.arr.
Supervised practice with children and youth with psychoeducational disorders. Taken concurrently with TU:235 and TU:236. Prerequisite: Consent of instructor.
TU:248 Practicum: Educating Children and Youth With Behavior Disorders II 3 s.h.
Continuation of TU:248. Taken concurrently with TU:248 and TU:248. Prerequisite: Consent of instructor.
TU:249 Seminar: Educating Children and Youth With Behavior Disorders I 1 s.h.
Integration of theoretical and practical considerations of behavior problems. Taken concurrently with TU:249 and TU:248. Prerequisite: Consent of instructor.
TU:250 Seminar: Educating Children and Youth With Behavior Disorders II 1 s.h.
Integration of theoretical and practical considerations of behavior problems. Taken concurrently with TU:249 and TU:248. Prerequisite: Consent of instructor.
TU:251 Individual Intelligence Testing 3 s.h.
Administration of individual intelligence tests and interpretation of raw results. Issues in psychological testing. Focus on influence of performance. Prerequisite: TP:153 or TP:150 or consent of instructor.
TU:252 Advanced Laboratory Practice in Education of the Exceptional Child 3 cr.
Observation, experimentation, and individual instruction pertaining to problems of teaching, guidance, and administration. Evaluation, construction, and application of curriculum material for the mentally retarded. Prerequisites: TU:249 or TU:249 and consent of instructor.
TU:253 Individual Instruction in Special Education 3 cr.
Prerequisite: Consent of instructor.
TU:301 Seminar: Rehabilitation of the Physically Handicapped Child 3 cr.
Prerequisites: TU:230 and graduate standing.
Indepth reading and discussions of psychology, specific community programs, and psycho-social-educational processes utilized in the classroom. Prerequisite: Consent of instructor and completion of an M.A. program in behavior disorders.
TU:306 Seminar: Clinical Supervision for Practicum Supervisors—Behavior Disorders 3 cr.
Prerequisite: completion of course TP:231 with a minimum grade of B or better.
TU:306 Seminar: Advanced Problems in Research on Educational Practice for Children and Youth. With Behavior Disorders 3 cr.
Investigative approach stressing the relationship of personal and social factors to educational practice. Limited to doctoral students. Prerequisite, consent of instructor.
TU:306 Seminar: Advanced Problems in Teacher Education for Prospective Teachers of Children and Youth With Behavior Disorders 3 cr.
Perspective on problems dealing with pupil design, pretest design, methods, experiences, and evaluation practices, recruitment, selection, certification, retention,
and practice processes. Limited to doctoral students. Prerequisite, consent of instructor.

TU.338 Seminar: School Psychological Services 3 s.h.
Selected topics: prevention and presentation of research projects. Doctoral students only. Prerequisite, consent of instructor.

TU.340 Internship in Curriculum Development for the Mentally Retarded 3 s.h.
Process of curriculum development and the design of individualized materials. Supervised experience will be provided in a laboratory setting as well as in a field situation such as in a community and/or at the regional or state level. Open only to students with teaching experience.

TU.344 Seminar: Research Practicum in Mental Retardation 3 s.h.
Areas of needed research in mental retardation will be explored. Small-scale research projects will be designed. The seminar will be given in planning, conducting, and reporting research. Students will be assigned to current research projects for practical experience in research.

TU.366 Seminar: Special Education: Special Problems in Exceptional Children 3 s.h.
Prerequisite, consent of instructor.

TU.367 Seminar: Exceptional Children: Special Problems in the Administration of Special Education 3 s.h.
Taken concurrently with an internship. Field experience integrated with theory and practice. Prerequisites, TU.328 and consent of instructor.

TU.394 Field Service Project in Special Educational Internship 3 s.h.
Prerequisite, consent of instructor.

TU.395 M.A. Thesis in Special Education 3 s.h.
Prerequisite, consent of instructor.

TU.394 B.S. Research Project in Special Education 1-6 s.h.
Prerequisite, consent of instructor.

TU.399 Field Service Project in School Psychology 3 s.h.
Prerequisite, consent of instructor.

TU.493 Ph.D. Thesis in Special Education 3-9 s.h.
Prerequisite, consent of instructor.

Educational Media

TV.101 Operation of AV Equipment 0 or 1 s.h.
Principles and practices in operating still and motion picture projection, tape recorders, record players, slide projectors, copy machines, and the dry-cleaning press.

TV.110 Selection and Utilization of Instructional Media 2 s.h.
Primarily for students who expect to teach, but open to non-educational majors. Knowledge of the selection, evaluation, utilization of instructional materials and methods. Basic techniques for developing teacher-made instructional materials. Prerequisite, TV.104 which can be taken concurrently.

TV.120 Theory and Practice of Educational Communication: Technology 3 s.h.
The relationship of educational communication to problems of teaching and learning. The "state of the art" of "new media technology" research evidence from the behavioral sciences, and innovative instructional programs.

Prerequisites, TV.111 which can be taken concurrently.

TV.127 Planning and Production of Instructional Materials I 3 s.h.
Theory and practice of planning and producing instructional materials that can be developed by the classroom teacher. Emphases are given in designing, displaying, originating, preserving, duplicating, and simple lettering and photographic techniques. Prerequisites, TV.110 or TV.111.

TV.128 Planning and Production of Instructional Materials II 3 s.h.
The development of instructional materials using still or motion picture photography, audio tapes, or advanced graphic techniques. These skills will be covered, then students will produce self-instructional programs using selected media. Prerequisites, TV.117 and consent of instructor.

TV.130 Communication Through Drawing 2 or 3 s.h.
Principles of freehand drawing, observation, and practice in the use of line, tone, and shape that will be used in drawing flat and three-dimensional objects. Training in using drawings as a means of communication. No art experience necessary.

TV.131 Principles and Techniques of Graphic Communication 2 or 3 s.h.
Lamp; design and use of graphic communication materials; principles from psychology and art. Experience in making and using graphic symbols, freehand drawing, layout and design, and simple lettering techniques. No art background necessary.

TV.135 Seminar: Survey of Educational Media Research 2 s.h.
Investigation of research from the behavioral sciences, art, and technology, pertinent to instructional development and/or message design problems. Prerequisites, TV.110 or TV.116.

TV.136 Seminar: Administration of Educational Media Programs 2 or 3 s.h.
Selecting, distributing, financing, organizing, and managing the hardware, software, materials, and personnel in an educational media program. Prerequisites, TV.110 or TV.116.

TV.137 Seminar: Educational Media and the Systems Approach to Instruction 2 or 3 s.h.
Planning for instruction through systematic integration of learning units through effective utilization of man, machine, and media. Prerequisites, TV.114, TV.128 and consent of instructor.

TV.235 Seminar: Research Methods in Educational Media 2 or 3 s.h.
Research practices, experimental design considerations, and writing for publication. Prerequisites, TV.114, TV.128, TV.220, and consent of instructor.

TV.236 Individual Instruction in Educational Media 2 s.h.
Opportunity to investigate areas of specific concern to the student. Prerequisite, consent of instructor.

TV.310 Practicum in Educational Media 2 s.h.
On-campus, supervised administrative, and other non-teaching experiences in public schools, social agencies, or industry.

TV.320 Internship in Educational Media 3 s.h.
Off-campus, supervised administrative, and other non-teaching experiences in public schools, social agencies, or industry.

TV.323 M.A. Thesis: Educational Media 3 s.h.
Prerequisite, consent of instructor.

TV.493 Ph.D. Thesis: Educational Media 3 s.h.
Prerequisite, consent of instructor.
From its beginning in 1857 as a course in mathematics, engineering education at Iowa has grown to the status of a college that is an essential part of a university distinguished for its broad educational environment. As one of eight professional colleges of the University that apply the physical, biological, and social sciences taught in liberal arts, engineering has maintained its close ties with the other colleges, and these ties are now being strengthened still further as the profession itself becomes an ever-more-essential part of civilized life as a whole. Undergraduate students in engineering at Iowa take more than one-third of their instruction in common with students in other colleges, and interdisciplinary interests are encouraged. Notable in this regard is the five-year option leading to degrees from both the College of Liberal Arts and the College of Engineering.

The College comprises six departmental subdivisions providing undergraduate and graduate instruction. Programs are offered leading to the Bachelor of Science, Master of Science, and Doctor of Philosophy degrees in chemical, civil, electrical, industrial and management, and mechanical engineering, and to the M.S. and Ph.D. degrees in mechanics and hydraulics. The M.S. and Ph.D. degrees are awarded by the Graduate College, and candidates for these degrees register in that College.

Any of the undergraduate programs may be combined with the Bachelor of Arts in the five-year option, and any department may sponsor the general Bachelor of Science degree in engineering for the student electing to pursue interdisciplinary studies of a broader nature. Such flexibility of program arrangement is one feature of the new engineering curriculum at Iowa. First implemented in 1969, this curriculum consists of four years extending through all four years of undergraduate study. The four years are socio-humanistic studies, mathematics, basic and applied science, and analysis and design. It is the latter sequence which distinguishes engineering education from all others; it begins in the Iowa curriculum, with Introduction to Engineering in the first semester of the freshmen year and terminates with departmental specialization or an interdisciplinary combination in the senior year.

The University of Iowa College of Engineering is accredited by the Engineers Council for Professional Development. Its undergraduate enrollment including pre-engineering registrants, numbers well over 500 students, divided fairly evenly among the five departments offering baccalaureate programs. The enrollment in postgraduate studies is approximately half as large as the undergraduate enrollment. Among schools of engineering nationally, the College is about 8 per cent below median size in undergraduate enrollment, and about 8 per cent above median size in post-graduate enrollment. At Iowa the emphasis is on quality, rather than size, and the numbers are such that close personal contact can be maintained between student and instructor.

DEGREE REQUIREMENTS

Baccalaureate degrees. The Bachelor of Science degree in engineering or in a designated departmental program is granted upon completion of a minimum of 128 semester hours of credit. The degree candidate must be enrolled in the College of Engineering for at least the last 30 semester hours, or 45 of the last 60 semester hours.

The socio-humanistic electives are to be elected by the student with his advisor's approval so as to form a social science sequence and a historical-cultural sequence of at least 6 semester hours each, within the total required.

The social science sequence shall consist of courses from the following Departments: Anthropology, Economics, Geography, Political Science, Psychology, and Sociology. Students are encouraged to elect a sequence of related courses from one of the above departments rather than beginning courses from a number of different departments.

The historical-cultural sequence shall consist of core courses in the historical-cultural area and/or from any of the following Departments: American Civilization, Art, Classics, English, European Literature and Thought, History, Music, Philosophy, and Religion. Advanced courses in any foreign language department will also satisfy the historical-cultural requirements. Studio courses in art and music, however, are not acceptable.

Other course and hour requirements are designated in the curriculum outlines of each department of the College, in the following pages.
not only on the whole but as far as possible with individual faculty members. The College has neither full-time research professors who have no student contacts, nor full-time teachers who are not contributing new knowledge. At least a third of the faculty are internationally recognized for their contributions to teaching and research.

FACILITIES

The Engineering Building. The Engineering Building includes administrative offices, the Library, and the Department of Civil Engineering, Electrical Engineering, Industrial and Management Engineering, Mechanical Engineering, and Mechanics and Hydraulics.

The new Engineering Library is the center of College activity. Its collection includes 35,000 books and 750 periodicals. The Library is equipped with microfilm and microfiche readers. A full-time librarian is in charge. This area is also used for informal receptions.

Chemical Engineering Laboratories. The Department of Chemical Engineering is located in the Chemistry-Booth Building. Its main laboratories include pilot-plant equipment for the study of industrial evaporation, distillation, drying, fluid flow, and heat transfer. A section of the laboratory devoted to the study of nuclear reactions contains a subcritical nuclear reactor, a pulsed neutron generator, and a reactor simulator. Laboratory has recently been added for the study of materials research. Smaller laboratories are provided for investigations of plastics and other engineering materials. Laboratories for individual research are available to graduate students; these are equipped with chromatographs, analog computers, and other instruments.

Electrical Engineering Laboratories. The Instructional laboratories of the electrical engineering department include dynamic systems, digital systems, and control systems laboratories, and a general-purpose laboratory for special projects. Research laboratories are equipped for investigations in plasma physics, signal analysis, electronic circuits and devices, and digital systems. A computer laboratory is provided for undergraduate and graduate student use for study and research in analog, digital, and hybrid computation and simulation.

Environmental Engineering Laboratories. Facilities for environmental engineering teaching and research are located in the Phillip F. Morgan Sanitary Engineering Laboratory, the University Water Treatment Plant, and the Department of Preventive Medicine and Environmental Health of the College of Medicine. Research in water pollution abatement is conducted primarily in the Morgan Laboratory located at the Iowa City University wastewater treatment plant. This lab-
COLLEGE OF ENGINEERING

Orbital is especially equipped for pilot-plant projects and contains a full-scale activated-sludge aeration tank, as well as an activated-sludge pilot plant. The wastewater treatment plant is used as a full-scale system for research. Water quality control and limnological research are conducted at the New University Water Treatment Plant.

Industrial Engineering Laboratories. The department has laboratories equipped for research in the principal areas of materials and processing, including materials science, powder science, metal casting, cutting, and fabricating. Human factors laboratories are equipped to investigate basic motor capabilities and the effects of selected task and environmental variables. Unique equipment for the measurement of human factors includes electronic timing, force sensing, recording, and computation equipment.

Mechanical Engineering Laboratories. The mechanical engineering laboratories contain instruments and equipment for experimental investigations in a variety of fields. These fields include thermodynamics, thermal systems, heat transfer, gas dynamics, behavior of materials, control systems, and machine dynamics. The laboratories provide educational experience in all important scientific areas on which mechanical engineering is based, and valuable experience in modern methods of measurement and analysis including use of modern computers.

Structures and Materials Testing Laboratories. These laboratories are equipped for the determination of physical properties of materials of engineering construction, such as soils, aggregates, concrete, steel, wood, lumber, and plastics. Included are a compression testing machine, a universal testing machine, and an axial testing machine, along with mechanical and electronic instruments and photocell equipment for the accurate measurement of deformations under load. The structural laboratory also contains a prestressing bed and frame which permits construction of prestressed concrete structural members. A humidity control room and curing rooms are also available. A soils laboratory contains consolidation equipment and triaxial testing equipment of the latest design. Special equipment is available for negative pore water pressure studies and model footing tests.

Hydraulics Laboratory. Located on the west bank of the Iowa River at the end of the University dam, this laboratory houses the latest facilities for undergraduate and graduate laboratory instruction, and for basic and applied research by staff and students in the area of hydraulics and fluid mechanics. The equipment includes an ESL-800 data acquisition and control system for online analysis of experimental data, a 330-foot towing tank, several flumes and wind tunnels, a low-temperature frozen facility for investigation of ice phenomena, a dispersion flume, and a wave tank.

The Iowa Institute of Hydraulic Research has earned international recognition for its work in a broad-based program of research in hydraulics, fluid mechanics, ship hydrodynamics, bioengineering, environmental control, and ice dynamics. In addition, a program of fundamental research is conducted by staff members and graduate stu-

Computer services. Services of the University Computer Center are used extensively by students and faculty of the College, with approval of the College Computer Committee. The College itself maintains remote terminals for conversational access to the University computer and key-punch equipment for computer cards.

PLACEMENT SERVICES

Students and alumni can avail themselves of the placement services provided by the College of Engineering. Interview rooms and a placement library of informational material are located in the Engineering Building. Assistance is available for arranging interviews and obtaining information on job opportunities. Additional information can be obtained from the Dean of the College of Engineering.

STUDENT ORGANIZATIONS AND ACTIVITIES

The entire student body in the College of Engineering is organized as The Associated Students of Engineering.

Engineering students publish a monthly periodical, the Iowa Transient.

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 Iowa.

The U of I chapter of Tau Beta Pi, an honorary engineering society, 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. Psi Lambda Upsilon, honorary chemistry and chemical engineering fraternity; Chi Epsilon, honorary civil engineering fraternity;Eta Kappa Nu, honorary electrical engineering fraternity; and Pi Tau Sigma, honorary mechanical engineering fraternity, recognize the work of outstanding students in their respective fields.

ADMISSION

Freshmen. The applicant must submit a formal application for admission and have his secondary
school provide a certificate of high school credits, including a complete statement of the applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence the University may require, such as a certificate of health.

To qualify for admission to the College of Engineering, an applicant must have:

1. Completed the American College Tests with a composite standard score of 24 or above and a standard score of 24 or above in the mathematics battery;

2. Successfully completed at least one and one-half years of algebra and one unit of plane geometry; and

3. Ranked in the upper one-half of his high school graduating class.

High school physics and chemistry are recommended for all applicants.

After reviewing the records of an applicant who does not meet minimum admission requirements, the Director of Admissions may admit the applicant unconditionally, admit him on probation, require him to enroll for a summer session on a trial basis, or deny admission.

Undergraduate Transfers. The applicant must submit a formal application and official transcript of all college work. Each applicant should have:

1. Completed at least analytic geometry or its equivalent;

2. Maintained a cumulative grade-point average of at least 2.25 (C+), based on a 4-point marking system; and

3. Attained satisfactory scores on the American College Tests.

A maximum of 66 semester hours credit (or the equivalent) from a junior college will be accepted for a baccalaureate degree.

The Director of Admissions will review individual records of applicants who do not meet recommended requirements, and may offer probationary admission.

Graduate Students. Applicants for admission to postgraduate study in any college of the University must meet the general requirements for admission to the Graduate College. For those requirements and related information, see the Graduate College section of the Catalog.

For the Iowa Board of Regents' formal statement of requirements for admission, see the Appendix of the Catalog.

All inquiries concerning admission to any college of the University should be addressed to the Director of Admissions, 1 Jessup Hall, The University of Iowa, Iowa City 52240.
COLLEGE OF ENGINEERING

51:4 Engineering Drawing
3 a.h.
Freelash lettering, orthographic and auxiliary projections, dimensioning, sections, working drawings, basic description, geometry. One lecture and one laboratory period per week.

51:6 Thermodynamics I
4 a.h.

51:12 Dynamic Systems Analysis I
3 a.h.
The concepts of dynamic systems are introduced and the techniques used for analysis of system behavior are presented from a generalized viewpoint. The generation and use of mathematical models to represent physical systems is developed with emphasis on comparison of the model and actual system behavior. Laboratory experience is used to complement classroom work as well as to familiarize the student with experimental techniques. Corequisite: Mathematics 22:337.

51:13 Materials Science
3 a.h.
The course is founded upon the concept that the science of materials is based upon the physics and chemistry of the internal structure of materials. The objective of this course is to present a framework for analyzing materials in service so that the relationship between the microstructure and the behavior of materials is interpreted in terms of the atomic, micro, and macro levels.

51:17 Mechanics of Solids
4 a.h.
Vectors, tensors, work, forces, couple-systems, Newton's laws, equilibrium analysis, vector calculus, particle, beam, rigid-body kinematics, particle dynamics, rigid body dynamics. Prerequisite: Mathematics 22:332-333.

51:18 Mechanics of Fluids and Transfer
3 a.h.
Processes 4 a.h.

51:21 Principles of Design I
3 a.h.
The first of a two-course sequence which emphasizes two- to three-week projects involving optimization and design computer-aided design, and probabilistic and statistical analyses in design. Prerequisite: 51:12 or consent of instructor.

51:22 Principles of Design II
3 a.h.
All four offerings, which is prerequisite.

51:25 Electromagnetic Theory
4 a.h.

51:101 Communication in Industry
3 or 4 a.h.
An introduction to the communication methods within groups of people, from work-groups to large organizations, and to the principles involved in effectively exchanging information in industry through the various channels of communication. Emphasis will be placed on effective presentation of technical material, with knowledge obtained by reading from books listed in a bibliography, with practice derived from interacting within the group, and with applications and feedback drawn from working on a self-chosen project. The fourth hour will be earned by writing a well-prepared and well-supported report or paper. Prerequisite: Senior standing.

51:108 Communication in Industry
3 or 4 a.h.
Practice in application of knowledge of group interaction and of principles of human communication through solving group situations. Further learning and useful feedback will be derived from seminar meetings held for the exchange of ideas resulting from the advising practice and from required reading selected by each student. The fourth hour will be earned by writing a well-prepared 16-page term-report, papers, or a study connected with the advisory work. Prerequisites: 51:101 and consent of instructor.

51:169 Technology and Society
3 a.h.
The course introduces the student to the relationship between technology and society. Emphasis is placed on the history of technology. The student will investigate four case studies of highly specified and tangible instances of recent technological progress. The course will be taught in a seminar format.

51:167 Chemical Engineering
Head of Department, Karl Kamerameyer, Office, 125A Chemistry-Botany Building

STAFF
Professors: Karl Kamerameyer, James O. Osburn.

Assistant Professor: Richard W. Toick.
Instructor: Patrick L. Markovic.


Undergraduate Curriculum

Semester Hours Total
Freshman Year 16
Principles of Chemistry I, II 4 3 7
4 3 7
Elementary Chemistry Laboratory 2 2 2
Laboratory 2 2 2
4 4 8
Mathematics 22:332-333, 51:15, 51:37 3 3 3 10
5 3 3 10
Introduction to Engineering I, II 4 4 8
5 5 5 15
Sophomore Year 17 15 32
Chemical Engineering I, II 3 3 6
4 121, 122 4 121, 122 4 121, 122
Organic Chemistry I, II 3 3 6
4 4 14 4 14 4 14
Intermediate Chemistry Laboratory 2 2 2
2 2 2
Mathematics II, III 3 3 6
5 11, 12 5 11, 12 5 11, 12
Dynamic Systems Analysis I, II 4 4 8
5 11, 12 5 11, 12 5 11, 12
Mechanics of Fluids and Transfer Processes 4 4 8
4 4 8
Sophisticated Electives 3 3 6
3 3 6
Junior Year 16 16 32
Chemical Engineering I, II 3 3 6
4 123, 124 4 123, 124 4 123, 124
Physical Chemistry I, II 3 3 6
4 123, 124 4 123, 124 4 123, 124
Chemistry for Engineers, Physics for Engineers 3 3 6
3 3 6
Mathematics II, III 3 3 6
5 11, 12 5 11, 12 5 11, 12
Mechanics of Fluids and Transfer Processes 4 4 8
4 4 8
Sophisticated Electives 3 3 6
3 3 6
Senior Year 16 16 32
Chemical Engineering I, II 3 3 6
4 123, 124 4 123, 124 4 123, 124
Chemistry for Engineers, Physics for Engineers 3 3 6
3 3 6
Mathematics II, III 3 3 6
5 11, 12 5 11, 12 5 11, 12
Mechanics of Fluids and Transfer Processes 4 4 8
4 4 8
Sophisticated Electives 3 3 6
3 3 6
Total 100 100 200
COURSE DESCRIPTIONS
Primary for Undergraduates

52:1 Introduction to Engineering I 2 or 4 s.h.
Same as Engineering 31.1.

52:2 Introduction to Engineering II 2 or 4 s.h.
Same as Engineering 31.2.

52:38, 62, 63, 84 Professional Seminar no cr.
Lectures and discussions on topics of current interest in chemical engineering. Prerequisites: junior standing.

52:120 Reaction Kinetics 2 s.h.
Application of chemical reaction kinetics theory to chemical engineering equipment design. Prerequisites: 52:140, 141, Chemistry 4232.

52:125 Process Calculations 2 s.h.
Application of laws of conservation of energy and mass to the solution of industrial problems. Units and dimensions; the energy balance, material balance, methods of systematic computation. Three lectures. Prerequisite: Mathematics 2288-28.

52:130 Chemical Industries 2 s.h.
Technology and economic relations of the principal chemical industries. Process descriptions, raw materials, description of types of instrumentation and control used in the processes. Elective for students in Liberal Arts and Graduate Colleges. Two lectures. Prerequisites: Chemistry 4:4.

52:139 Structure of Materials 2 or 3 s.h.
Basic principles of chemistry and physics as applied to an understanding of the properties of materials for engineering and biomaterials applications. Phase diagrams and microstructure of metals as affecting properties; polymer formulation; crystals, whiskers, ceramics, ultramicro materials. Two lectures and one laboratory. Prerequisites: Chemistry 4:4, 4:131.

52:140 Design for Energy and Momentum Transfer 4 s.h.
The design of chemical process equipment for movement of materials or transfer of heat, based on physical chemical principles. Three recitations. Prerequisites: 52:125, Chemistry 4:32.1.

52:141 Mass Transfer Operations 3 or 4 s.h.
Theoretical bases and design of equipment for molecular transfer of matter, including distillation, absorption processes, extraction, drying, and related stage systems. Three recitations. Prerequisites: 52:125, Chemistry 4:32.1.

52:145 Unit Operations Laboratory 2 s.h.
Continuation of 52:146, may be taken as an independent unit. Two laboratory periods. Prerequisites, 52:145.

52:146 Analog Computer Laboratory 1 s.h.
Design and testing of basic analog circuit. Use of the analog computer in solving engineering problems. One laboratory period. Prerequisites, Mathematics 2288-28.

52:150 Chemical Engineering Thermodynamics 3 s.h.

52:154 Economics in Design 3 s.h.
Economic principles applied to the design and operation of chemical process plants. Three recitations. Prerequisites: 2288-28.

52:155 Chemical Engineering Process Design 3 or 4 s.h.
An integrative course in the design of chemical processes and process equipment, requiring the application of process calculationsting, thermodynamics, unit operations theory, and economics. Three recitations. Prerequisites, 52:141.

52:160 Survey of Chemical Industry 1 s.h.
One trip annually to leading chemical plants at St. Louis or Chicago. Four days of inspection, exclusive of travel time. Prerequisite, junior standing.

525
52:180 Introduction to Nuclear Science and Engineering 3 a.h.
The production of power from nuclear reactions. Basic principles, terminology. Prerequisite, junior standing in engineering or science.

52:190 Special Problems cr.arr.
Prerequisite, consent of instructor.

Primarily for Graduates

52:221 Heat Transfer 2 a.h.
Theory and practice of industrial heat transfer. Problems in unsteady-state heat transfer, conduction, convection, radiation, thermal conductivity. Two lectures. Prerequisites, 52:140, 141.

52:222 Fluid Flow I 2 a.h.
Molecular flow phenomena and flow separation processes. Two lectures. Prerequisites, 52:140, 141.

52:223 Fluid Flow II 2 a.h.
Advanced theory and problems on fluid flow in pipe lines and process equipment. Two lectures. Prerequisites, 52:140, 141.

52:224 Distillation I 2 a.h.
Theoretical and applied treatment of vapor-liquid equilib-rium and fractionation of binary systems. Two lectures. Prerequisites, 52:140, 141.

52:225 Distillation II 2 a.h.
Principles of multicomponent systems. Two lectures. Prerequisites, 52:140, 141.

52:226 Extraction 2 a.h.
Theory and calculations for solids-leaching and liquid-liquid extraction equipment. Two lectures. Prerequisites, 52:140, 141.

52:237 Separation Processes 2 a.h.
Theory and calculations for equipment for separation of gases in liquids and absorption of gases in solids. Two lectures. Prerequisites, 52:140, 141.

52:238 Solids Processing 2 a.h.
Compounding problems in drying, filtration, and other operations involving treatment of solid materials. Two lectures. Prerequisites, 52:140, 141.

52:241 Separations Processes 2 a.h.
Basic theory of multistage separations; applications to separations in the nuclear industry; designing projects in separations processes research. Two lectures. Prerequisites, 52:140, 141.

52:242 Advanced Chemical Engineering Thermodynamics 2 a.h.
Applications to industrial design. Two lectures. Prerequisites, 52:140, 141.

52:243 Transport Phenomena I 2 a.h.
A unified treatment of momentum, mass, and energy transport in chemical engineering problems. Two lectures. Prerequisites, 52:140, 141.

52:244 Transport Phenomena II 2 a.h.
Continuation of 52:243. Two lectures. Prerequisites, 52:140, 141.

52:250 Chemical Engineering Design I 2 a.h.
Design, cost, estimation, and selection of chemical processing equipment. Flowing, pressure vessels, condensers, heat exchangers, distillation columns, and other equipment. Two lectures. Prerequisite, 52:255. May be repeated.

52:251 Chemical Engineering Design II 2 a.h.
Continuation of 52:250. Plant layout, preconstruction cost estimations, product cost estimation, economic evaluation of processes and special design methods. Two lectures. Prerequisites, 52:255. May be repeated.

52:253 Industrial Instrumentation 2 a.h.
Theory and operation of industrial control instruments as applied to the chemical industry. Two lectures. Prerequisites, 52:145, 141.

52:253 Reactor Design 2 a.h.
Theory and problems in design of equipment for carrying out chemical reactions or for producing nuclear reactions. Two lectures or lecture and laboratory. Prerequisites, 52:145, 141.

52:254 Special Topics cr.arr.
Problems of a comprehensive nature similar to those en countered in chemical industry. Prerequisite, consent of instructor. May be repeated.

52:255 Seminar: Chemical Engineering 0 or 1 a.h.
Discussion of latest advances in chemical engineering. One conference. Prerequisite, consent of instructor.

52:292 Research: Chemical Engineering cr.arr.
Thesis work for advanced degrees. Conference and laboratory work arranged. Prerequisite, consent of head of department and major advisor.

CIVIL ENGINEERING
Chairman of Department, Rolf T. Skirnde
Office, 4136 Engineering Building

STAFF

Professor: Dan R. Benson, Howard W. McClenery, Rolf T. Skirnde.
Adjunct Associate Professor: Harold W. Wells.
Assistant Professor: George W. Brown, Richard R. Dupp, Hall R. Fisher.

Undergraduate Curriculum

<table>
<thead>
<tr>
<th>Semester Hours</th>
<th>2nd Total</th>
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<tbody>
<tr>
<td>Freshman Year</td>
<td></td>
</tr>
<tr>
<td>Principles of Chemistry I</td>
<td>4</td>
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<tr>
<td>Literature and General Science</td>
<td>4</td>
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<tr>
<td>Mathematics I, II</td>
<td>5</td>
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<tr>
<td>Introduction to Engineering I, II</td>
<td>4</td>
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<tr>
<td>Thermodynamics</td>
<td>4</td>
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<td>17</td>
<td>17</td>
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<tr>
<td>Sophomore Year</td>
<td></td>
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<tr>
<td>Mechanics III, IV</td>
<td>3</td>
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<tr>
<td>Dynamics Systems Analysis I, II</td>
<td>3</td>
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<tr>
<td>Materials Science</td>
<td>3</td>
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<tr>
<td>Mechanics of Solids</td>
<td>4</td>
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<tr>
<td>Mechanics of Fluids and Transfer Processes</td>
<td>4</td>
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<tr>
<td>Mechanics of Deformable Bodies</td>
<td>3</td>
</tr>
<tr>
<td>Sociotechnical Sciences</td>
<td>3</td>
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<tr>
<td>16</td>
<td>16</td>
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<tr>
<td>Junior Year</td>
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<tr>
<td>Probability and Statistics for Engineering and Physical Sciences</td>
<td>3</td>
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<tr>
<td>Principles of Design I, II</td>
<td>3</td>
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<tr>
<td>Electromagnetic Theory</td>
<td>3</td>
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<tr>
<td>Structural Analysis</td>
<td>3</td>
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<tr>
<td>Civil Engineering I, II</td>
<td>3</td>
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<tr>
<td>Flow Systems in Environmental Engineering</td>
<td>3</td>
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<tr>
<td>Professional Seminar</td>
<td>3</td>
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<tr>
<td>Principles of Environmental Engineering</td>
<td>3</td>
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<tr>
<td>Transportation Engineering I, II</td>
<td>3</td>
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<tr>
<td>10</td>
<td>10</td>
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<tr>
<td>Course</td>
<td>Credits</td>
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<tr>
<td>53:1 Introduction to Engineering</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>53:2 Introduction to Engineering II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>53:22 Surveying</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>53:35 Structural Analysis I</td>
<td>3 or 4 s.h.</td>
</tr>
<tr>
<td>53:36 Fluid Mechanics</td>
<td>3 or 4 s.h.</td>
</tr>
<tr>
<td>53:37 Materials Science</td>
<td>3 s.h.</td>
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<tr>
<td>53:41 Civil Engineering Design I</td>
<td>3 s.h.</td>
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<tr>
<td>53:42 Civil Engineering Design II</td>
<td>3 s.h.</td>
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<tr>
<td>53:43 Fluid Mechanics</td>
<td>3 s.h.</td>
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<tr>
<td>53:44 Materials Science</td>
<td>3 s.h.</td>
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<tr>
<td>53:45 Structural Analysis II</td>
<td>3 s.h.</td>
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<tr>
<td>53:46 Thermodynamics</td>
<td>3 s.h.</td>
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</tbody>
</table>

Course Descriptions:
- **53:1 Introduction to Engineering I**: An introduction to the principles of engineering, focusing on the fundamentals of statics and mechanics. 4 s.h.
- **53:2 Introduction to Engineering II**: Continuation of 53:1, focusing on dynamics and materials. 4 s.h.
- **53:22 Surveying**: Principles and techniques of surveying, including topographic and cadastral surveys. 3 s.h.
- **53:35 Structural Analysis I**: Analysis of structures using one-dimensional beams. 3 or 4 s.h.
- **53:36 Fluid Mechanics**: Study of fluid behavior, including statics and dynamics. 3 s.h.
- **53:37 Materials Science**: Introduction to the properties and behavior of materials. 3 s.h.
- **53:41 Civil Engineering Design I**: Basic principles of structural design. 3 s.h.
- **53:42 Civil Engineering Design II**: Advanced design techniques for civil engineers. 3 s.h.
- **53:43 Fluid Mechanics**: Understanding fluid flow and heat transfer. 3 s.h.
- **53:44 Materials Science**: Properties and applications of materials. 3 s.h.
- **53:45 Structural Analysis II**: Advanced topics in structural analysis. 3 s.h.
- **53:46 Thermodynamics**: Study of energy and its conversion. 3 s.h.
53:140 Structural Design 3 a.h.
Steel and concrete bridge design, composite design, seismic building design, limit analysis and plastic design, yield-line theory of slabs, fundamentals and design of simple and indeterminate prestressed concrete structures, concrete slab roof design. Prerequisite, consent of instructor.

53:144 Advanced Metal Structures 3 a.h.
Analysis and design of rigid frames by elastic and by plastic methods; light gage structural members. Prerequisite, 53:140 or 53:144.

53:147 Prestressed Concrete Structures 3 a.h.
Analysis and design of statically determinate and indeterminate prestressed and un prestressed concrete structures; review of current literature and specifications. Prerequisite, consent of instructor.

53:151 Environmental Engineering Microbiology 3 a.h.
Elements of microbiology for environmental engineers. Applications in water quality control. Lectures and laboratory. Prerequisite or corequisite, 53:138; a course in biology, or consent of instructor.

53:153 Environmental Biology 3 a.h.
For engineers and other persons who, in addition to a knowledge of the basic principles of biology, require an understanding of the practical applications of biology and ecology in engineering and allied fields. Prerequisite, course in biology or consent of instructor.

53:155 Environmental Health 3 a.h.
Lectures covering the major problems in environmental health control in the modern era. Governmental regulation of food and drink, air pollution, waste disposal, vector, safety, occupational health, nosocomial, communicable diseases, etc., is stressed. Same as Preventive Medicine and Environmental Health 53:155.

53:156 Environmental Engineering Chemistry I 3 a.h.
Lectures covering the application of general, qualitative, analytical, organic, physical, colloid, bio, and radio chemistry to environmental problems. Same as Preventive Medicine and Environmental Health 53:156.

53:157 Environmental Engineering Chemistry II 3 a.h.
Laboratory study of the standard methods for the examination of water and air. Examination of their application in the control of water and wastewater treatment operations. Same as Preventive Medicine and Environmental Health 53:157. Prerequisite, 53:156 or equivalent.

53:161 Principles of Environmental Engineering 3 a.h.
Physical, chemical, and biological principles applied to water quality control, air pollution control, and solid waste systems. Same as Preventive Medicine and Environmental Health 53:161.

53:162 Environmental Engineering I: Physical, Chemical, and Biological Systems 3 a.h.
The theory of the physical, chemical, and biological systems applied in water quality management. Consideration of the behavior of domestic and industrial wastewaters. Prerequisite, 53:157; corequisite, 53:156 or consent of instructor.

53:164 Environmental Engineering II: Design 3 a.h.
The application of physical, chemical, and biological principles to the design of water quality control systems. Consideration of the behavior of domestic and industrial waste systems. Prerequisite, 53:163.

53:165 Environmental Engineering III: Air Pollution and Solid Wastes 3 a.h.
Analysis and design of air pollution and solid waste control systems. Sources and characteristics of air pollutants and solid wastes. Need for control to protect the total environment.

53:167 Solid Waste Technology 3 a.h.
Principles of design and operation of solid wastes collection and disposal systems. Determination of solid wastes characteristics. Studies of solid wastes disposal processes, including beneficial composting, and incineration; salvaging and utilization of converted solid wastes.

53:168 Limnology 3 a.h.
Chemical, physical, and biotic characteristics of natural waters with emphasis on relationships between biota and physicochemical aspects of the aquatic environment.

53:171 Traffic Systems Analysis 3 a.h.
The formulation of analytic traffic models. The application of statistical theories in traffic. Trend, projection, and programming of traffic systems. Prerequisite or corequisite, 53:138 or Industrial and Management Engineering 53:130 or consent of instructor.

53:173 Transportation Engineering I 3 a.h.
The location and design of routes of transportation; measurements and geometrical principles; application of traffic mathematics; earthwork and drainage; property rights and acquisition.

53:174 Transportation Engineering II 3 a.h.
Modes and systems of transportation; transportation in the United States; economic, regulation and control; financing, taxation, subsidy and public policy; traffic; studies in design and construction of pavements, streets and other ways; their appearances and foundations.

53:175 Transportation Safety 2 or 3 a.h.
The safety function of various modes of transportation with emphasis on motor vehicle safety.

53:176 Accident Analysis 3 a.h.
Analysis of accidents; physical forces in the accident; resultant injuries to persons; strains and deformations in materials and structures. Prerequisite, consent of instructor.

53:177 Traffic Engineering 4 a.h.
The operation of rural and urban roads, streets and expressways, including the control of traffic for safety and efficiency. Elective for civil engineering seniors and graduate students.

53:178 Safety Aspects of Transportation Vehicles 3 a.h.
Analysis and design of transportation vehicles with emphasis as the primary criterion. Emphasis is on the highway vehicle, but the airplane, train, and other transportation vehicles also are considered. The compatibility of the vehicle to the highway environment and to human control are included in design considerations. Prerequisite, consent of instructor.

53:184 Soil Mechanics 3 a.h.
Stress and strain in soils; subsurface exploration; natural soil deposits; backfills in retaining structures. Prerequisite, 53:138 and 53:156.

53:185 Advanced Soil Mechanics 3 a.h.
Steady state and transient flow through soils; stress-strain behavior of soil; shear strength of soils. Prerequisite, 53:184 or consent of instructor.

53:186 Foundations of Structures 3 a.h.
Application of soil mechanics to foundations of buildings, bearing capacity and settlement analyses; stability of earth slopes; earth pressures and retaining walls; braced cuts. Prerequisite, consent of instructor.

53:189 Measurement of Soil Properties 1 a.h.
Advanced laboratory experiments including permeability, consolidation, and triaxial shear, with pore pressure and volume change measurements.
S3:100 Procedures in Public Works Engineering 2 s.h.
Project organization, feasibility considerations, financing methods, reports, specifications, contract documents. Prerequisite, senior standing or consent of instructor.

Primarily for Graduates
S3:310 Advanced Special Studies cr.arr.
Special topics or investigation on selected problems by advanced students subject to approval of the department.
S3:330 Seminar: Civil Engineering 0 or 1 s.h.
Reports to, research and current advances in research and engineering by advanced students, history, and visiting engineers.
S3:331 Advanced Theory of Structures 3 s.h.
Matrix analysis of structures; two- and three-dimensional frames; analysis by division of structure; structural analysis by finite element. Prerequisite, S5:132.
S3:334 Advanced Structural Analysis by Numerical Methods 3 s.h.
Finite difference methods applied to beams, plates, skew slabs, elasticity problems; partial differential equation problems; relaxation and iteration techniques; methods of interpolation and extrapolation; numerical procedures applied to elastic and inelastic deflections, elastic and inelastic stability, vibration problems, plastic stress problems, beam-columns, and combinations of those for uniform and nonuniform members, influence lines for redundant structures; buckling and vibration of structural systems; nonlinear analysis; use of digital computers. Prerequisite, consent of instructor.
S5:340 Research: Civil Engineering cr.arr.
Experimental and analytical investigation of an approved problem in civil engineering.
S3:343 Modal Analysis and Experimental Methods 3 s.h.
Similarity requirements for direct, indirect, and distorted models; elastic and inelastic modeling for reinforced concrete structures; general research techniques; experimental design, measurement of forces, and deformation; analysis and interpretation of data. Prerequisite, consent of instructor.
S3:343 Structural Design for Dynamic Loads 3 s.h.
Evaluation of the effects of oscillating machinery, impurities, and accidental loads on isolated and continuous structures. Prerequisite, Engineering 51:17, corequisite, S3:132.
S3:345 Advanced Structural Design 3 s.h.
Advanced topics in the design of steel, aluminum, and concrete structures; concrete shell roofs. Prerequisite, consent of instructor.
S3:347 Stability of Structural Systems 3 s.h.
S3:350 Seminar: Environmental Engineering 0 or 1 s.h.
Reports and discussion of research and recent advances in environmental engineering by students, faculty, and guest lecturers.
S3:351 Biology of Water Quality Control 2 s.h.
Characteristics and ecology of organisms of importance in water quality control systems. Prerequisite, S3:131.
S3:357 Environmental Engineering Chemistry III 2 s.h.
Lectures and laboratory dealing with advanced instrumental methods of analyzing water and wastewaters.

Same as Preventive Medicine and Environmental Health S3:250. Prerequisite, S3:137.
S3:263 Environmental Engineering IV: Systems Laboratory 2 s.h.
Laboratory study and analysis of the physical, chemical, and biological systems utilized in environmental engineering with emphasis on the interpretation of theoretical concepts in real systems. Prerequisites, S3:137, 138; corequisite, S5:184.
S5:267 Industrial Water Quality Control 3 s.h.
Industrial water and wastewater treatment systems. Water quality needs for various industrial usages and the unit operations to achieve these requirements. The sources and characterization of industrial wastes and the unit operations as applied to treatment of industrial wastes. Prerequisites, S3:137, 160, 164.
S3:264 Applied Limnology cr.arr.
The practical application of biological techniques to stream and lake water quality investigations. Prerequisite, S5:168.
S3:269 Environmental Engineering Systems: Special Topical 2 s.h.
Detailed study of selected topics in water quality control, air pollution control, and solid waste disposal. Evaluation of current research reports and advances in environmental engineering practice. May be repeated for credit. Prerequisite, consent of instructor.
S3:272 Urban Transportation Planning 3 s.h.
Services and systems based upon the analysis of traffic, land use, economic and other survey data, and the preparation of mathematical models. Elective for qualified graduate students in civil engineering and in urban and regional planning.
S3:273 Transportation Systems I 3 s.h.
The design, construction, and operation of unique and integrated transportation systems and their terminal and exchange facilities. Prerequisite, consent of instructor.
S3:396 Earth Pressures and Retaining Structures 3 s.h.
Earth pressures and slope stability theories; experimental studies of earth pressures and testing in soils; theoretical and empirical bases for the design of retaining walls, based open cuts, anchored tiebacks, earthdams, embankments, and culverts. Prerequisite, S5:130 or consent of instructor.
S3:395 Seminar: Water Resources Development 3 s.h.
An interdisciplinary seminar on the sociological, economic, and engineering aspects of water resource exploitation. Same as Mechanics and Hydraulics S3:395. Prerequisite, approval of Department.

ELECTRICAL ENGINEERING
Chairman of Department, E. D. Eyma
Office, 4460 Engineering Building
STAFF
Professors: Donald L. Beeby, Karl D. Eymann, Professor Emeritus; Edwin W. Kurtz, Carl H. Munnier, Lawrence A. White.
Assistant Professors: Nan K. Liu, Franklin D. Moore, Subhasdas M. Reddy.

Undergraduate Curriculum
Semester Hours Total
Freshman Year
Freshman Year
Principles of Chemistry I 4 4
Principles of Chemistry II 4 4
Lecture and Laboratory 8 8

296
3. For these students, successful completion of a final examination which shall consist of an oral defense of the thesis.

4. Doctor of Philosophy. The Ph.D. degree involves a research degree. It is not awarded for successfully passing a number of courses or the M.S. alone, but is also based on high-quality research. The requirements other than those listed in the University’s graduate manual are:
   a. Selection of a program advisor and filing of a tentative plan of study with the department. This is to be done in the first year.
   b. Qualification on the Ph.D. level in the electrical engineering graduate qualifying examination.
   c. Successful completion of the Ph.D. comprehensive examination.
   d. Successful completion of a research program.
   e. Successful completion of a final oral defense of the thesis.

Financial Aid. A number of fellowships, traineeships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

### COURSE DESCRIPTIONS

#### Primarily for Undergraduates

**55:10 Logic and Digital Systems**
3 s.h.
Introductory level treatment of the logic of switching circuits, analysis and synthesis of combinational and sequential circuits. Introduction to digital computer: hardware organization and operation; study of algorithms and devices. Prerequisite: sophomore standing.

**55:11 Dynamic Systems Analysis I**
Same as Engineering 51:12.

**55:12 Dynamic Systems Analysis II**
Same as Engineering 51:13.

**55:21 Principles of Design I**
Same as Engineering 51:21.

**55:22 Principles of Design II**
Same as Engineering 51:22.

**55:23 Electronic Circuits I**
3 s.h.

**55:24 Electronic Circuits II**
3 s.h.
Active circuit design based on the device theory from 55:23. Amplifier design, basic feedback and oscillator theory, switching circuits and relaying circuits, and high-frequency theory for transmission of data. Electronic communication system design theory and philosophy. Use of modern computer techniques in analysis and design. Prerequisite: P55:23.

**55:25 Electromagnetic Theory**
4 s.h.

**55:27 Control and Communication I**
3 s.h.
Representation and analysis of signals and systems. Topics covered include time and frequency domain representation of signals and systems, representation of random signals, stability of systems, analog and digital modulation, and digital communication processes. Prerequisites: 55:15, Mathematics 23:38.

**55:28 Control and Communication II**
Continuation of 55:27, which is prerequisite.

**55:30 Electrical Engineering Materials and Devices**
3 s.h.
Introduction to the fundamentals of electrical properties of materials, semiconductor electronics, and plasma physics. Prerequisites: Physics and Astronomy 29:28.
55:42 Electromechanical Machines and Systems 3 a.h.
Principles of operation of electromechanical machines used for energy conversion and control; analysis of electromechanical control systems. Prerequisite: 55:42 or 55:84. 55:50, 60, 70, 80 Professional Seminar no cr. Four semesters required. For junior and senior electrical engineers.

55:51 Electrical Engineering Laboratory I 2 a.h.
Corequisite: 55:52.

55:52 Introduction to Electrical Engineering Analysis 4 a.h.
Mathematical methods used in the analysis of electrical systems, including matrix theory, vector calculus, functions of a complex variable, theory of residues, and special functions. Prerequisites: 55:12 and Mathematics 223M-31.

55:51 Electrical Engineering Laboratory II 2 a.h.

55:53 System Theory 4 a.h.
Application of Laplace transforms and other methods to the analysis of feedback control systems and distributed parameter systems. Prerequisite: 55:52.

55:71 Electrical Engineering Laboratory III 2 a.h.
Corequisite: 55:52.

55:74 Elements of Electrical Engineering 3 a.h.
Principles of electronics, circuits, and fields for engineers other than electrical.

55:81 Electrical Engineering Laboratory IV 2 a.h.
Special individual laboratory projects for advanced seniors. Prerequisite: 55:71.

55:82 Topics in Electrical Engineering 1 to 3 a.h.
Special topics in electrical engineering for undergraduates only. Prerequisite, consent of instructor.

55:84 Elements of Electrical Engineering 3 a.h.
Corequisite of 55:22, which is prerequisite.

55:91 Honors Senior Laboratory 2 a.h.
Individual laboratory projects for Honors senior students. Prerequisite: 55:82.

55:92 Electrical Engineering Design I 3 a.h.
Design principles and their application for some area of electrical engineering with a different section for each area of specialization. Prerequisite: 55:22.

55:93 Electrical Engineering Design II 3 a.h.
Corequisite of 55:22 with emphasis on the projects. Prerequisite: 55:92.

For Undergraduates and Graduates

55:100 Elements of Applied Electronics 2 or 3 a.h.
A survey course of topics in electrical engineering, including direct-current circuits, alternating-current circuits, analysis of circuits, Charles, vacuum tubes, and transistors. This emphasis is on practical applications. Prerequisite: 55:12. Corequisite: 55:22 or consent of instructor. Prerequisite: Mathematics 223M-4 or consent of instructor.

55:101 Elementary Electronic Instrumentation 2 or 3 a.h.
A continuation of 55:100. Topics include amplifiers, measurement circuits, feedback, oscilloscopes, and pulse and digital circuits. Prerequisite: 55:100.

55:133 Principles of Communication Engineering I 3 a.h.
A unified approach to principles underlying digital communication systems. Sampling, waveform, optimum receiver principles, and efficient signaling for message sequences. Prerequisite, 55:126 or consent of instructor.

55:150 Topics in Electrical Engineering 1 to 3 a.h.
Special topics in electrical engineering offered by arrangement with individual faculty members. Prerequisite, consent of instructor.

55:153 Advanced Electronics 3 a.h.
Principles of advanced electronic circuits; waveform shaping and timing circuits, oscillators, modulators, detectors, etc. Prerequisite: 55:87.

55:160 Control Systems Analysis 3 a.h.
Analysis and synthesis with applications. An integrated treatment using both frequency and time domain techniques is emphasized. The relative advantages of Laplace Transforms and State Variable formulations are illustrated by the treatment of real physical problems. Same as Mechanical Engineering 55:160. Prerequisite, senior status or consent of instructor.

55:161 Control Systems Synthesis 3 a.h.

55:162 Control Systems Laboratory 2 or 3 a.h.
Correlation between theory and practice is obtained through investigation of component and overall system behavior. Specification and design of control systems is carried out with emphasis on control laws imposed by the physical system. Same as Mechanical Engineering 55:162. Prerequisites, 55:160 and consent of instructor.

55:170 Theory of Linear Networks I 3 a.h.
Systematic formulation of active network equilibrium equations, Norton's, superposition, interconnections, and equivalence. Synthesis of active 1-ports. Open to seniors and graduate students only. Prerequisite, 55:82.

55:171 Electromagnetic Theory 3 a.h.
Continuation of 55:25, which is prerequisite.

55:172 Electromagnetic Theory 3 a.h.
Static and time-varying fields, Maxwell's equations, theory and applications. Prerequisite, graduate standing or consent of instructor.

55:173 Switching Theory I 3 a.h.
Analysis and synthesis of combinational and sequential digital circuits; hardware design of digital combinational circuits. Prerequisite, senior standing.

Logic and system design of computer systems and subassemblies. Logic design of typical circuits and artificial minds. Prerequisite, 55:173 or consent of instructor.

55:175 Digital Circuits and Systems I 3 a.h.
Introduction to digital circuit principles including logic gates, multivaluedness, basic combinational switching circuit design and computer organization. Prerequisites, senior standing in electrical engineering.

55:176 Digital Circuits and Systems II 3 a.h.
Continuation of 55:175, integrated digital circuit principles. Basic sequential circuit design. Logic and system design of computer components. Prerequisite, 55:175.

55:177 Digital Systems Laboratory 2 a.h.
Experiments on combinational logic circuits and digital systems. Prerequisite, 55:176 or consent of instructor.

55:180 Theory of Linear Networks II 3 a.h.

55:181 Introduction to Microwave Theory and Technique 3 a.h.
Theoretical and experimental studies of guided waves, microwave sources and devices and applications of high frequency signal propagation. Prerequisites, 55:170, 55:171.
55:183 Introduction to Statistical Communication Theory 3 s.h.
Representation of deterministic and random signals; analysis of modulation systems, multiplex systems and optimum systems; introduction to information theory. Prerequisite, Calculus 20:231 or equivalent.

55:186 Electronic Computers 3 s.h.
Introduction to the design and engineering application of digital, analog, and hybrid computers. Logical structure of computers; methods of problem preparation and scope of problems; study of computer components, input and output devices; treat system modeling and simulation; state variable techniques; application of computers to engineering problems. Students operate the department's digital and analog computers. Linear and nonlinear systems are treated throughout the course. Prerequisite, 55:183 or consent of instructor.

55:187 Hybrid Computers and Applications 3 s.h.
Analog and digital computer capabilities, hybrid computer system components, linkage systems, and applications. Problem formulation for hybrid systems. Prerequisite, 55:186 or consent of instructor.

55:189 Laboratory Plasma Physics 2 s.h.

Primaryly for Graduates

55:210 Advanced Circuit Theory 2 or 3 s.h.
Linear graphs and electrical networks; incidence, circuit, and current matrices; topological formulas; application in switching circuits. Prerequisite, consent of instructor.

55:212 Modern Topics in Electrical Engineering I 1 to 3 s.h.
Study of recent developments in the general field, primarily by groups, through special arrangements with individual faculty members.

55:213 Recent Advances in Electrical Engineering 1 to 3 s.h.
Concentrated study, normally on an independent individual basis, of specialized topics; supervised by individual faculty members through special arrangements.

55:216 Advanced Electromagnetic Theory I 3 s.h.
Mathematical methods of electromagnetic theory; Green's functions, variational and perturbative techniques, normal mode expansions, radiation principles, special propagation problems, and topics at a time permit. Prerequisite, consent of instructor.

55:217 Switching Theory II 3 s.h.

55:226 Advanced Electromagnetic Theory II 1 s.h.
Continuation of 55:216.

55:227 Advanced Topics in Plasma Physics 2 or 3 s.h.
Selected topics in plasma physics. Prerequisite consent of instructor.

55:230 Noise Theory 3 s.h.
Noise in thermodynamic systems, random signal theory, Wiener filters, matched filters, and detection devices. Prerequisite, 55:185 or consent of instructor.

55:331 Information Theory 3 s.h.
Quantitative measure of information; discrete and continuous sources; source encoding and decoding; discrete and continuous channels; channel encoding and decoding. Prerequisite, 55:185 or consent of instructor.

55:332 Coding for Communication and Computation 3 s.h.
Use of coding techniques to improve the reliability of communication and computation systems, error correcting codes, threshold and sequential decoding, reliable computing in the presence of noise. Prerequisite, 55:185 or 55:331.

55:333 Principles of Communication Engineering II 3 s.h.

55:341 Research: Electrical Engineering (M.S. Thesis) 1 to 6 s.h.
Credit arranged from 1 to 10 semester hours.

55:352 Seminar: Communication Systems 1 to 3 s.h.
Selected topics in communication systems theory. Prerequisite, consent of instructor.

55:353 Seminar: Digital Computer Systems 1 to 3 s.h.
Discussion of recent advances in digital computer organization and design. Prerequisite, consent of instructor.

55:354 Seminar: Switching Theory 2 or 3 s.h.
Individual or group study of outstanding problems in switching theory. Prerequisite, consent of instructor.

55:355 Seminar: Coding 2 or 3 s.h.
Selected topics in coding theory and techniques. Prerequisite, consent of instructor.

55:360 Sampled Data Control Systems 3 s.h.

55:361 Nonlinear Control Systems 3 s.h.
Same as Mechanical Engineering 55:361. Offered in alternate years beginning in 1959-70.

55:363 Optimal Control Systems 3 s.h.
Variational methods, the calculus of variations, dynamic programming, and the maximum principle. Same as Mechanical Engineering 55:363. Prerequisite, 55:185. Offered in alternate years beginning in 1959-70.

55:365 Stochastic Control Systems 3 s.h.
Probability theory and random variables, including probabilistic axioms, jointly distributed random variables, and conditional probabilities and expectations; stochastic processes, including random differential equations, normal, Markov, and other processes; optimal estimation theory including smoothing, filtering and predicting; and stochastic optimal control theory. Same as Mechanical Engineering 55:365. Prerequisite, consent of instructor.

55:364 Seminar: Control Systems 2 or 3 s.h.
Formal discussions of recent advances in control system analysis and synthesis. Same as Mechanical Engineering 55:364. Prerequisite, consent of instructor.
**Undergraduate Curriculum**

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
<th>1st Semester</th>
<th>2nd Semester</th>
</tr>
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<tbody>
<tr>
<td>4.1 Principles of Chemistry I</td>
<td>4</td>
<td>4</td>
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<tr>
<td>5.8.6 Literature and Composition I, II</td>
<td>4</td>
<td>4</td>
<td>0</td>
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<tr>
<td>200.05, 20.06 Mathematics I, II</td>
<td>5</td>
<td>5</td>
<td>10</td>
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<tr>
<td>11.1, 2 Introduction to Engineering I, II</td>
<td>4</td>
<td>4</td>
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<tr>
<td>21.08 Thermodynamics I</td>
<td>4</td>
<td>4</td>
<td>0</td>
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<td><strong>Total</strong></td>
<td><strong>17</strong></td>
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**Sophomore Year**

<table>
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<th>Course</th>
<th>Semester Hours</th>
<th>1st Semester</th>
<th>2nd Semester</th>
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<tbody>
<tr>
<td>322.07, 32.08 Mathematics III, IV</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td>311.12, 13 Dynamic Systems Analysis I, II</td>
<td>3</td>
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<tr>
<td>31.15 Materials Science</td>
<td>3</td>
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<tr>
<td>31.17 Mechanics of Solids</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>31.18 Mechanics of Fluids and Transfer Processes</td>
<td>0</td>
<td>4</td>
<td>4</td>
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<tr>
<td>58.34 Materials Processing I</td>
<td>0</td>
<td>3</td>
<td>1</td>
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<td><strong>Total</strong></td>
<td><strong>9</strong></td>
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**Junior Year**

<table>
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<tr>
<th>Course</th>
<th>Semester Hours</th>
<th>1st Semester</th>
<th>2nd Semester</th>
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<tbody>
<tr>
<td>225.39 Probability and Statistics for Engineering and Physical Sciences</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td>321.62 Principles of Design I, II</td>
<td>3</td>
<td>3</td>
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<tr>
<td>31.25 Electromagnetic Theory</td>
<td>4</td>
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<tr>
<td>36.03 Professional Seminar</td>
<td>7</td>
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<tr>
<td>36.181 Introduction to Mechanical and Manufacturing Engineering</td>
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<td>36.125 Materials Science II</td>
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<tr>
<td>36.132 Mechanical Engineering Statistics</td>
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**Senior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
<th>1st Semester</th>
<th>2nd Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.63 Materials II</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>36-68 Professional Seminar</td>
<td>9</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>36.141 Introduction to Research</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>36.144 Information Systems Design and Management</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>36.145 Design of Methods and Management Systems</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>36.146 Materials Elective</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>36.171, 172 Social/behavioral Electives*</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>36.181 Technical Electives</td>
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<td>0</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>16</strong></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>

*Strongly recommended social/behavioral electives include: 16.31 Elementary Psychology 18.35 Human Engineering 31.10 Psychology in Management

**Graduate Programs**

The purpose of the industrial and management engineering graduate programs at both M.S. and Ph.D. levels is to provide a modern, highly flexible curriculum of graduate studies. As far as feasible, each student's course of study will be based on his background and career objectives. Course selections suitable for emphases in engineering, management, human factors, operations research, related statistics, materials and processing, or quality assurance are available.

Master of Science degree. Students may be admitted from accredited baccalaureate curricula in any engineering discipline and the mathematical and physical sciences with a minimum grade-point average of 2.5 or 3.0 on an acceptable score on the Graduate Record Examination Aptitude Test (minimum 500 Verbal, 550 Quantitative). Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. 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**Graduate Program in M.S.**

The minimum M.S. program requires 30 semester hours of coursework and research. Students may choose either a thesis or a non-thesis program. Students in the thesis program are encouraged to obtain the master's degree with thesis. Each student's thesis plan is determined individually through consultation with his advisor and is approved by his department committee.

**Doctor of Philosophy degree.** Students may be admitted from accredited baccalaureate curricula in any engineering discipline and the mathematical and physical sciences with a minimum grade-point average of 2.5 or 3.0 on an acceptable score on the Graduate Record Examination Aptitude Test (minimum 500 Verbal, 550 Quantitative). Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average. Students may also be considered for initial graduate study with a 2.0 or 3.5 grade-point average.

**COURSE DESCRIPTIONS**

**36.15 Materials Science I**

*Same as Engineering 21.15.*
56.11 Principles of Design I
Same as Engineering 51.21.
3 s.h.

56.22 Principles of Design II
Same as Engineering 51.22.
3 s.h.

56.24 Materials Processing I
Filecr.
2 or 3 s.h.
Fundamentals of processing of engineering materials. Prerequisite: Engineering 51.21.

56.81 Professional Seminar
No cr.
1 s.h.
Guest lecturers, student reports, and assemblies. Required of juniors and seniors in industrial engineering.

For Undergraduates and Graduates

56.101 Introduction to Industrial and Management Engineering 4 s.h.
Methods of analysis of engineering and economic factors encountered in the development of a product, process, or service. Prerequisite: junior standing.

56.105 Engineering Administration 3 s.h.
Human and economic factors. Related behavioral science research, wages, incentives, nature of the engineering function. Prerequisite, consent of instructor.

56.107 Engineering and Management Projects and problems related to implementation of engineering in manufacturing, distribution, and service. Prerequisite, special departmental permission.

56.116 Procedure Analysis I
3 s.h.
Conventional methodology of work simplification and design. Brief consideration of time study. Primarily for nonengineering students. Prerequisites, senior standing.

56.128 Materials Science II
2 to 4 s.h.
Physical metallurgy and consideration of nonmetallic materials of engineering importance. Prerequisite, 51.13 or consent of instructor.

56.136 Statistical Operations Analysis
3 to 4 s.h.
Emphasis on construction, data collection, and optimization of models representing hospital situations. Course material and problem build on applications of the principles and approach of industrial engineering and operations research to the study of hospital management systems.

56.131 Probability and Statistics for Engineering and Physical Sciences 3 s.h.

56.133 Engineering Statistics
3 or 4 s.h.
Regression, correlation, correlation response surfaces, introduction to experimental design. Same as Statistics 212.252. Prerequisite, introductory probability and statistics.

56.139 Quality Control and Reliability
3 s.h.
Basic control charts, their purpose, comparison, various tests based on charts, sampling inspection; reliability data. Prerequisites: reliability estimation; discrete and continuous models, structure models, reliability decision. Same as Statistics 212.253. Prerequisites, 56.128 or equivalent.

56.141 Introduction to Operations Research
3 or 4 s.h.
Topics in operations research including linear programming, dynamic programming, queuing, inventory, and simulation. Primarily for engineering undergraduates and business or education graduate students desiring a one-semester treatment. Prerequisite, 56.131, Statistics 212.250, or equivalent.

56.142 Production - Inventory Models
3 s.h.
An introduction to production-inventory models with emphasis on construction, problems of practical application and optimization. Topics include deterministic and stochastic models, dynamic inventory models, and multi-echelon production. Prerequisite: 56.121 or equivalent.

56.143 Digital Systems Simulations I
3 s.h.
Simulation of the operating characteristics of complex systems using computer simulation languages. Topics include random number generation and file maintenance. Emphasis on the design of computer simulation experiments and the statistical analysis of simulation data. Prerequisite, 56.128 or equivalent.

56.144 Information Systems Design
3 s.h.
Study of the effect of digital computation upon the organization, its information and management requirements and problem-solving processes. Prerequisite, 56.131 or equivalent.

56.155 Human Engineering
3 s.h.
Design of man-machine systems and the development of an optimum work environment by applying principles of behavioral science, emphasis on sensory and perceptual processes, motor skills, and experimental methodology. Same as Psychology 311.25.

56.159 Psychology in Management
2 s.h.
Same as Psychology 311.25.

56.161 Design of Methods and Measurements Systems 4 s.h.
Problems of analysis and design encountered in integrating the human into productive systems. Prerequisite, 56.121, prerequisite 56.135.

56.164 Work Methods and Measurements
2 or 3 s.h.
Continuation of 56.161. Emphasis on measurement of in- tangible activities.

56.181 Nondestructive Testing
3 to 4 s.h.
Theory and management of nondestructive testing. Prerequisite, Engineering 51.15 or consent of instructor.

56.182 Industrial Engineering Laboratory
3 s.h.
Analysis, design, and testing of materials processing systems. Prerequisite, senior standing.

56.184 Materials Processing II
2 to 4 s.h.
Theoretical and design aspects of thermo-processing. Prerequisite, 56.11.

56.185 Industrial Automation
3 to 4 s.h.
Theory and application of control and power characteristics of fluid, mechanical and electrical devices utilized in the design of mechanized production facilities.

56.186 Materials Science III
3 s.h.
Structure and properties of emerging engineering materials. Prerequisite, Engineering 51.16.

56.196 Seminar: Applications of Psychology in Management
1 to 3 s.h.
Prerequisite, 56.126 or consent of instructor.

56.197 Seminar: Topics in Human Factors
3 s.h.
Structure of references to the field. Prerequisite, 56.125 or consent of instructor.

56.199 Seminar: Management Engineering c.arr.
Formal reports and discussions on recent scientific contributions to the field. Prerequisite, senior standing.

271
56.203 Advanced Topics in Industrial and Management Engineering 2 to 6 h.
Solving optimization and operating problems utilizing computer-oriented models and management science methods such as linear and integer programming, project scheduling, management science models, and other techniques. Prerequisites: consent of instructor.

56.212 Engineering Administration II 3 h.
Techniques of planning, controlling, and motivating research and development efforts. Prerequisites: consent of instructor.

56.224 Human Factors in Production Systems 2 to 4 h.
A critical consideration of current problems and the art for fitting man into productive systems. Prerequisite: consent of instructor.

56.231 Analysis and Design of Experiments 3 or 4 h.
Models in analysis of variance, single-factor multiple comparison, ranking and selection, multiple factors, crossed and nested experiments, incomplete block designs, Latin squares and hypercubes, mixed models, balanced and unbalanced experiments, confounding, fractional experiments, analysis of covariance. Same as Statistics 255.159. Prerequisites: M5.118 or equivalent.

56.232 Regression Analysis 3 h.
Empirical construction and testing of models using linear and multiple regression techniques. Emphasis on selection of independent variables for precision and adequacy. Same as Statistics 255.232. Prerequisites: M5.118 or equivalent.

56.233 Statistical Decision Theory 3 h.
The general problem of statistical decision theory and its applications. The comparison of decision rules including Bayes and minimax rules; the decision-theoretic viewpoint of classical statistics. Development of multiple decision procedures. Applications to problems in inventory, capital investment, and reliability. Same as Statistics 255.189. Prerequisites: Statistics 255.153 or consent of instructor.

56.240 Advanced Topics in Operations Research and Engineering Statistics 3 h.
Current topics chosen from areas such as information systems, engineering statistics, scheduling, and flow networks. Prerequisites: consent of instructor.

56.241 Operations Research 3 h.
A one-semester survey for M.S. level engineering or related students. Optimization topics from both linear and integer programming. Recent material and material arising from the fields of queuing, inventory theory, and decision theory. Prerequisites: graduate standing in engineering, mathematics, or science.

56.242 Mathematical Programming I 3 h.
An in-depth treatment of optimization topic and mathematical programming applied to decision problems covering linear and quadratic programming, linear and nonlinear programming, network flow, and mathematical algorithms. Prerequisites: graduate standing and knowledge of mathematics.

56.243 Mathematical Programming II 3 h.
Continuation of 56.242. Coverage includes primal-dual methods, gradient methods, interior point methods, dynamic programming, and convex functions. Prerequisites: 56.242.

56.244 Dynamic Programming and Related Topics 3 h.
Topics will include theory and computational aspects of dynamic programming. Emphasis on application to scientific decision making, inventory theory, allocation problems, search theory, and deterministic and stochastic multi-stage decision models. Prerequisites: 56.242 or equivalent.

56.245 Stochastic Service Systems I 2 to 6 h.
Stochastic-based models in the fields of queueing, renewal, and other service systems. Prerequisites: 56.242 or equivalent.

56.246 Stochastic Service Systems II 2 to 6 h.
Continuation of the study of stochastic problems from the fields of queueing, renewal, and reliability theory. Emphasis on data analysis and parameter estimation. Prerequisite: 56.245.

56.247 Theory of Scheduling 3 h.
Scheduling problems in machine shops, computer systems, and other complex systems; optimal scheduling rules for deterministic models; general models for stochastic models. Prerequisites: M5.235 and M5.345.

56.248 Branch and Bound Methods 3 h.
The use of branch and bound, heuristic and integer algorithms or problems of optimization research and management science. Prerequisites: 56.245.

56.249 Simulation for System Analysis and Design 3 h.
Continuation of M5.243 including Monte Carlo methods. Prerequisites: 56.243.

56.252 Materials Science IV 2 to 4 h.
Theoretical and structural aspects of crystalline and noncrystalline materials and the application of X-ray and electron techniques to research in materials science. Prerequisite: consent of instructor.

56.253 Materials Processing III 2 to 4 h.
Advanced topics in materials processing. Prerequisite: consent of instructor.

56.253 Powder Science 2 to 4 h.
Latest developments in the science of particulate materials. Prerequisites: consent of instructor.

56.254 Design for Production 2 to 4 h.
Tool, product, and process design from standpoint of ease of manufacture and operation. Prerequisites: consent of instructor.

56.259 Research: Industrial and Management Engineering c.c.w.
Prerequisite: consent of instructor.

MECHANICAL ENGINEERING

Chairman of Department, Thomas P. Anderson, Office, 2204 Engineering Building

Office: (617) 253-4567

Professor: Thomas P. Anderson, Donald H. Madsen, J. Merle Trompul.

Adjunct Professor: Emeritus C. P. Lundquist.

Associate Professor: George M. Lane, Donald L. Spencer, Ralph C. Shepherd.

Assistant Professors: Ching-Jen Chen, David C. Choe, Paul D. Schae.

Undergraduate Curriculum

<table>
<thead>
<tr>
<th>Semester-Hours</th>
<th>Freshman Year</th>
<th>Sophomore Year</th>
<th>Junior Year</th>
<th>Senior Year</th>
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<td>Freshman Year</td>
<td>Sophomore Year</td>
<td>Junior Year</td>
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</table>

Prerequisites: Principles of Chemistry I, Principles of Chemistry II, Linear Algebra, and Introduction to Engineering I, II, III.
COLLEGE OF ENGINEERING

Financial Aid. A limited number of fellowships, traineeships, assistantships, and scholarships are available to graduate students who qualify. Some are awarded on the basis of competition, others are the results of appointments.

COURSE DESCRIPTIONS

Primarily for Undergraduates

5.8.6 Thermodynamics I 4 s.h.
5.8.11 Dynamic Systems Analysis I 3 s.h.
5.8.12 Dynamic Systems Analysis II 3 s.h.
5.8.13 Experimental Engineering 4 s.h.
5.8.17 General principles of physical measurement. Standards, calibration, and estimation of error. Static and dynamic performances of measuring elements. Laboratory experiments on sensors, transducers, and data acquisition systems. Planning for experiments including individual experimental projects.

Elements of atomic theory and statistical mechanics; real gases; intermolecular forces; introductory quantum mechanics; and some applications. Prerequisite: 8.8.5.

5.8.15 Mechanical Engineering Design I 4 s.h.

5.8.16 Mechanical Engineering Design II 3 s.h.

5.8.17 Continuation of 5.8.15 with primary effort devoted to completion of a schematic design project. Prerequisite: 5.8.15 or consent of instructor.

5.8.18 Professional Seminar 0 to 3 s.h.

5.8.19 Seminar in selected topics of current interest. Prerequisite, consent of Instructor.

For Undergraduates and Graduates

5.8.101 Thermoelectricity 3 s.h.

A series of topics varying from basic theory to device design. Evaluation of a variety of materials used as thermal sensors or transducers. Introduction to refrigeration. Prerequisite: Consent of Instructor.

5.8.105 Analog Methods in Mechanical Engineering 3 s.h.

Demonstration and use of various analog devices and models for the analysis and design of mechanical elements and systems. Prerequisite: 5.8.10.

5.8.106 Aerodynamics 3 s.h.

Fundamental principles of flight applied to airplane vehicles. Equations of fluid motion, Bernoulli equation, vortex flow, lift, and drag. Prerequisites: Engineering 5.138, Mathematics 5.33, and 5.35.

5.8.110 Laboratory Investigations 2 to 5 s.h.

An advanced course for students who have completed 5.8.54. Given only by special permission and arrangements.

5.8.111 Gas Dynamics 3 s.h.

Thermodynamics of compressible fluid flow with applications of the energy, momentum, and continuity equations, flow with variable and constant area, flow with and without friction, and flow with and without heat transfer.

5.8.120 Heat and Mass Transfer 3 s.h.

An advanced course in the principles of heat and mass transfer, including conduction, convection, and radiation; principles of mass transfer and applications to
the solutions of engineering problems. Prerequisites: Mech 1 and consent of instructor.

58:119 Intermediate Mechanics of Fluids 3 s.h.
Solutions to problems. Prerequisite: Mechanics 2133. Engineering 2113.

58:159 Intermediate Heat Transfer 3 s.h.
Steady and unsteady heat conduction, material and forced convection, radiative heat transfer, and boiling and condensing, graphical and numerical solutions and applications. Prerequisites: Mech 2135, Math 2210 or equivalent.

58:160 Control Systems Analysis 3 s.h.
Fundamentals of linear systems analysis and synthesis with analog poles. An introduction to the use of frequency response analysis in the design of feedback systems. Prerequisite: Mech 2135.

58:161 Control Systems Synthesis 2 or 3 s.h.
A continuation of 58:160 with emphasis on synthesis. Same as Electrical Engineering 58:161. Prerequisite: 58:159.

58:162 Control Systems Laboratory 0 to 6 s.h.
Correlation between theory and practice is obtained through investigation of equipment and design exercises for automatic controls systems. Same as Electrical Engineering 58:162. Prerequisite: 58:159 and consent of instructor.

58:172 Fatigue 2 or 3 s.h.
Fundamental concepts of initiation and propagation of fatigue fractures; experimental evidence concerning fatigue fractures; influence of complex states of stress; damage without failure, surface text, and temperature effects; design interpretations and applications. Prerequisite, consent of instructor.

58:173 Theory of Failure in Design 2 or 3 s.h.
Experimental and theoretical analysis of the mechanical behavior of solids in a variety of applications; definition and creation of failures; failures in engineering structures. Prerequisite: Math 2210 or equivalent.

58:178 Foundation Analysis 3 s.h.
Classification of foundation devices, theoretical analysis of the important characteristics of each class of foundations. Prerequisite: Mech 2111.

58:189 Seminar: Mechanical Engineering 1 or 2 s.h.
Factual reports and discussions on recent scientific contributions to the field of mechanical engineering. Prerequisites, senior standing.

58:200 Kinetic Theory of Gases 2 to 3 s.h.
Fundamental treatment of the kinetic theory of gases. Topics include: binary collisions, the Boltzmann equation, the H-Theorem; the equation of ideal molecules, special solutions; polyatomic molecules, and solid molecules. Prerequisite, Mech 2135 or equivalent.

58:202 Advanced topics in thermodynamics. Prerequisites: Mech 2135.

58:213 Mechanical Design 2 to 3 s.h.
Advanced topics in design analysis and synthesis. Prerequisite: Mech 2111.

58:203 Advanced Heat Transfer 2 to 3 s.h.
Selected topics in heat transfer. Prerequisite: Mech 2135 or equivalent.

58:205 Advanced Aerodynamics 2 to 3 s.h.
An advanced course for graduate students with a background in thermodynamics, heat transfer, and fluid mechanics. Selected topics in theoretical aerodynamics will be presented.

58:206 Advanced Mechanical Vibrations 2 to 3 s.h.
Wave form analysis. Solutions for many degrees of freedom. Prerequisite: Mech 2111.

58:216 Boundary Layer II 3 s.h.
Combined study of boundary layer. Turbulent boundary layer, turbulent flow in pipes and around submerged bodies. Jets and wakes. Prerequisite: Mech 2160.

58:200 Kinetic Theory of Gases 2 to 3 s.h.
Fundamental treatment of the kinetic theory of gases. Topics include: binary collisions, the Boltzmann equation, the H-Theorem; the equation of ideal molecules, special solutions; polyatomic molecules, and solid molecules. Prerequisite, Mech 2135 or equivalent.

58:202 Advanced topics in thermodynamics. Prerequisites: Mech 2135.

58:213 Mechanical Design 2 to 3 s.h.
Advanced topics in design analysis and synthesis. Prerequisite: Mech 2111.

58:203 Advanced Heat Transfer 2 to 3 s.h.
Selected topics in heat transfer. Prerequisite: Mech 2135 or equivalent.

58:205 Advanced Aerodynamics 2 to 3 s.h.
An advanced course for graduate students with a background in thermodynamics, heat transfer, and fluid mechanics. Selected topics in theoretical aerodynamics will be presented.

58:206 Advanced Mechanical Vibrations 2 to 3 s.h.
Wave form analysis. Solutions for many degrees of freedom. Prerequisite: Mech 2111.

58:216 Boundary Layer II 3 s.h.
Combined study of boundary layer. Turbulent boundary layer, turbulent flow in pipes and around submerged bodies. Jets and wakes. Prerequisite: Mech 2160.
semester hours are devoted to the dissertation, and 18 or more semester hours to mathematics or other closely related areas, leaving approximately 30 semester hours of major courses to be taken in the department. Choice of major subjects is based on the particular line of interest which the student wishes to follow. Normally, the coursework is in the same area as the dissertation. All Ph.D. candidates are required to have one year of foreign language for its cultural value. Ability to pass the examinations for the first year of a language is accepted in lieu of actual registration. Furthermore, students from non-English-speaking countries are allowed to use English as their foreign language and to take a year or at least 1 hour of English at the appropriate level. Candidacy is decided upon the basis of grade-point average. A grade of B is expected of each graduate student with considerable attention to the student's desire in the matter, although some-adjustments may have to be made in the case of overloading of a particular student member. The comprehensive examination, following the Graduate College rules, must be taken by the next to the last academic period and the final examination, entirely on the dissertation, culminates the Ph.D. program.

Prerequisite: There is a considerable amount of support available for graduate students. In addition to federal traineeships, HDFA or NSF, graduate research assistantships are available from the Graduate College upon recommendation from the department, and a considerable amount of graduate work relies on initiating a number of graduate assistants as research assistants. Curricula in mathematics and engineering, in the neighborhood of $50,000 and in the biology phase amount half of that. Twenty-five or more students are supported by each work. Some of the older students are also used as instructors on a quarter- or half-time basis.

**Course Descriptions**

**For Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>59:17</td>
<td>Mechanics of Solids</td>
<td>3.0 h.</td>
</tr>
<tr>
<td>59:18</td>
<td>Mechanics of Fluids and Transfer Processes</td>
<td>4.0 h.</td>
</tr>
<tr>
<td>59:21</td>
<td>Computational Methods</td>
<td>1 or 2 h.</td>
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<tr>
<td>59:49</td>
<td>Fluid Mechanics Laboratory</td>
<td>1 h.</td>
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</tbody>
</table>

**For Undergraduates and Graduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>59:11</td>
<td>Hydrology</td>
<td>3 to 5 h.</td>
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<tr>
<td>59:12</td>
<td>Hydropower Development</td>
<td>3 to 5 h.</td>
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<tr>
<td>59:14</td>
<td>Hydraulic Machinery</td>
<td>3 h.</td>
</tr>
<tr>
<td>59:17</td>
<td>Analog and Digital Techniques</td>
<td>3 h.</td>
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<tr>
<td>59:18</td>
<td>Irrigation and Drainage</td>
<td>2 h.</td>
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<tr>
<td>59:19</td>
<td>Place in Open Channels</td>
<td>3 to 6 h.</td>
</tr>
<tr>
<td>59:121</td>
<td>Continuum Mechanics</td>
<td>3 h.</td>
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<tr>
<td>59:155</td>
<td>Intermediate Mechanics of Deformable Bodies</td>
<td>3 h.</td>
</tr>
<tr>
<td>59:156</td>
<td>Dynamic Analysis of Structures</td>
<td>3 h.</td>
</tr>
<tr>
<td>59:161</td>
<td>Mathematical Methods in Continuum Mechanics</td>
<td>3 h.</td>
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<tr>
<td>59:173</td>
<td>Theory of Elasticity</td>
<td>3 h.</td>
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<tr>
<td>59:180</td>
<td>Porous Media Hydrodynamics</td>
<td>2 h.</td>
</tr>
</tbody>
</table>

**For Data Reduction**

Utilization of the combined techniques of analog and digital computation to correlate, linearize, and perform analytic computations on electrical signals derived from physical systems.

Prerequisite: 3 h. Mathematically oriented senior standing or consent of instructor.

**For Mathematical Methods in Continuum Mechanics**

Analysis, approximation, and numerical methods for developing solutions to problems of continuum mechanics. Primarily for first-year graduate students in engineering or science.

Prerequisite: 3 h. of equivalent.

Continuation of 59:181.

**For Mathematical Methods in Continuum Mechanics II**

Continuation of 59:182.

**For Mathematical Methods in Continuum Mechanics III**

Continuation of 59:183.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>59:260</td>
<td>Theory of Plates</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Small deflection of thin plates.</td>
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<td></td>
<td>Application of the energy method</td>
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<tr>
<td></td>
<td>and the method of complex variables.</td>
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<td></td>
<td>Introduction to the analysis of thick plates.</td>
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<td>59:238.</td>
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<tr>
<td>59:261</td>
<td>Theory of Shells</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>General theory of thin shells.</td>
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<td></td>
<td>Membrane analysis.</td>
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<tr>
<td></td>
<td>General analysis of cylindrical shells and shells of revolution.</td>
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<td>59:265.</td>
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<tr>
<td>59:271</td>
<td>Plasticity</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Constitutive equations of plasticity</td>
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<tr>
<td></td>
<td>Boundary value problems, tension,</td>
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<tr>
<td></td>
<td>and general theory of plane stains.</td>
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<tr>
<td></td>
<td>Limit analysis and extremum principles.</td>
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<td>59:139.</td>
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</table>

59:275 Theory of Viscoelasticity 3 s.h.

59:295 Seminar: Water Resources Development 2 s.h.
An interdepartmental seminar on the sociological, economic, and engineering aspects of water resources development. Prerequisite, approval of department. Same as Civil Engineering 59:295.
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.

Graduate courses are offered in all colleges of the University, both professional and nonprofessional. The Graduate College provides the framework through which graduate degree programs are supervised and coordinated.

The announcement of courses is found in the respective college and departmental sections throughout this Catalog.

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 scholarship, fellowship, and research funds, the Graduate College encourages research and the strengthening of the departments. It offers extensive assistance to individual faculty members in finding the resources necessary for their research projects. The Graduate College works with the departments and other colleges of the University in the formulation of policies concerning selection, and in the supervision and support of graduate students.

FACULTY

The graduate faculty comprises University faculty and administrative personnel in the ranks of assistant, associate, and full professor. A nine-member Graduate Council elected from and by the graduate faculty is the executive committee of that body, and is advisory to the Dean of the Graduate College.

ADVANCED DEGREE PROGRAMS

The University offers graduate programs leading to the Master of Arts, Master of Science, Master of Business Administration, Master of Arts in Teaching, and Master of Comparative Law degrees; the two-year degrees, Master of Fine Arts, Educational Specialist, and Master of Social Work; and the Doctor of Philosophy and Doctor of Musical Arts degrees.

The University offers advanced degrees in the following areas:
- Accounting—M.A.
- American Civilization—M.A., Ph.D.
- Anatomy—M.S., Ph.D.
- Anthropology—M.A.
- Art—M.A., M.F.A., Ph.D.
- Astronomy—M.S.
- Biology—M.S.
- Botany—M.S., Ph.D.
- Biochemistry—M.S., Ph.D.
- Business Administration—M.A., M.B.A., Ph.D.
- Basic Education—M.A., Ph.D.
- Chemical Engineering—M.S., Ph.D.
- Chemical Physics—M.S., Ph.D.
- Chemistry—M.S., Ph.D.
- Child Behavior and Development—M.A., Ph.D.
- Chinese Language and Civilization—M.A.
- Civil Engineering—M.S., Ph.D.
- Classics—M.A., Ph.D.
- Comparative Law—M.C.L.
- Comparative Literature—M.A., Ph.D.
- Computer Science—M.S., Ph.D.
- Crown and Bridge Prescrip-
tives—M.S.
- Cultural Anthropology and Linguistics—Ph.D.
- Dental Hygiene—M.S.
- Dentistry—D.P.M., Ph.D.
- Drama—M.A., M.F.A., Ph.D.
- Education—M.A., M.A.T., Ph.D.
- Electrical Engineering—M.S., Ph.D.
- English—M.A., M.F.A.
- Environmental Engineering—M.S., Ph.D.
- French—M.A., Ph.D.
- Geography—M.S., Ph.D.
- Geology—M.S., Ph.D.
- German—M.A., Ph.D.
- Greek—M.A.
- History—M.A., Ph.D.
- Home Economics—M.A., Ph.D.
- Hospital and Health Ad-
ministration—M.A., Ph.D.
- Industrial and Management Engineer-
ing—M.S., Ph.D.
- Journalism—M.A.
- Latin—M.A.
- Law Enforcement and Cor-
rrections—M.A.
- Library Science—M.A.
- Linguistics—M.A.
- Mass Communications—Ph.D.
- Mathematics—M.S., Ph.D.
- Mechanical Engineering—M.S., Ph.D.
- Medicine and Surgery—M.D.
- Meteorology—M.S.
- Military Science—M.A., M.S., M.S., Ph.D.
- Modern Languages—M.A., M.S.
- Music—M.A., M.F.A.
- Naval Architecture—M.S., Ph.D.
- Nuclear Science and Technol-
yogy—M.S.
- Nursing—M.A.
- Nutrition—M.S., Ph.D.
- Obstetrics and Gynecology—M.S.
- Office Management—M.A.
- Operative Dentistry and Endodontics—M.S.
- Ophthalmology—M.S.
- Oral Diagnosis—M.S.
- Oral Pathology—M.S.
- Oral Surgery—M.S.
- Orthodontics—M.S.
- Orthopedic Surgery—M.S.
- Osteopathic Medicine—M.S.
- Pediatrics—M.S.
- Periodontology—M.A.
- Pharmacology—M.S., Ph.D.
- Pharmacy—M.S., Ph.D.
- Philosophy—M.A., Ph.D.
- Physical Education for Men—M.A., Ph.D.
- Physical Education for Women—M.A., Ph.D.
- Physical Therapy—M.A.
- Physician Assistant—M.S.
- Physiology—M.S., Ph.D.
- Psychological and Child Development—M.S.
- Political Science—M.A., Ph.D.
- Preventive Medicine and Health Services—M.S., Ph.D.
- Psychology—M.S., Ph.D.
- Psychiatry—M.D., Ph.D.
- Radiation Therapy—M.S.
- Religion—M.A.
- Russian—M.A.
- Russian Language—M.S., Ph.D.
- Social Work—M.S.
- Sociology—M.A., Ph.D.
- Speech Pathology and Au-
togenic Therapy—M.A., Ph.D.
- Statistics—M.A., Ph.D.
- Urban and Regional Planning—M.A., M.S.
- Zoology—M.S., Ph.D.
RESEARCH RESOURCES

The many and diverse research activities of the University are centrally administered by the Office of the Vice-President for Research, which has an interlocking relationship with the Graduate College. For further information see the Institutional Research section of the Catalog.

The University Computer Center. Located in East Hall, the Center has a system capable of an incredible wide variety of scientific data-processing applications. At present the major computer system is the IBM 360/65 with three-quarters of a million positions of high-speed core memory and one million positions of slow-speed core memory, two large disks, and eight tape units. It is now used in remote batch processing in connection with a regional computer activity partially funded by NSF, involving ten colleges in Iowa and one in Illinois. Conversational programming by way of typewriter terminals is also available.

Although the Center is a distinct entity from the Computer Science Department, there is a healthy interchange of students and ideas between the two staffs.

The number and variety of computer-related courses offered at the University have been constantly expanding as the concepts and techniques of computer applications continue to grow. The Computer Center is available to all students, faculty, and staff members of the University. The Center provides educational and consultative services compatible with its resources, to assist users in preparing projects for computer analysis.

The University Libraries. The University's library system comprises the main library and fourteen departmental libraries. Its holdings total more than 1.5 million volumes, and include nearly two dozen special collections. (See the Library section of the Catalog.)

The Traveling Scholar Program. Developed by the Committee on Institutional Cooperation (CIC), which represents the Big Ten universities and the University of Chicago, the Traveling Scholar Program gives graduate students at CIC institutions access to courses, research facilities, and source materials which other CIC institutions offer and their own do not. (See Section 11.4, Traveling Scholar Program in Rules and Regulations of the Graduate College of the Catalog.

FINANCIAL ASSISTANCE

Approximately one-half of the University's graduate students receive some form of University-administered financial assistance.

For eligibility requirements and application procedures, see Section VII. Graduate Appointments in Rules and Regulations of the Graduate College of the Catalog. Contact the department of your major interest to apply for the awards listed below.

The following are the primary sources of assistance:

- Teaching and research assistantships. Available in most departments; stipends range between $2,500 and $3,600 for half-time assistants; assistants are also eligible for tuition scholarships; non-resident assistants' (one-quarter time or more) tuition and fees are reduced to resident rates.

- University teaching-research fellowships. For doctoral students and first-year graduate students entering doctoral programs; stipends of $3,800 a year on a year-around basis, 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. $3,000 for the academic year.

- NDEA Title IV fellowships. For prospective college teachers; up to three years' support, with a first-year stipend of $2,400, second year $3,600, and third year $2,800, plus $200 a year for each dependent, and full tuition.

- NSF traineeships. For students interested in social, biological, or physical science; initial 12-month stipend of $2,400, renewable for a maximum of three additional years, providing $2,800 each intermediate year and $3,000 the terminal year; plus $500 annually for each dependent, and full tuition.

- EPDA Part E fellowships, college teacher program. Designed to prepare college or community college instructors, provides a 12-month stipend of $2,400 for the first year and $2,600 for the second year, plus full tuition, and $600 annually for each qualified dependent.

The provisions described above are subject to change.

University and National Defense Education Act loans are available through the University's Office of Student Financial Aid.

Many departments offer additional support through traineeships, part-time employment in research, or part-time teaching appointments. The Office of the Vice-President for 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
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 52240.

In addition to these forms, the 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 August 15 for first-semester enrollment, January 2 for second-semester enrollment, or May 15 for summer-session enrollment.

B. Graduate Record Examination. All applicants prior to consideration for admission should take the Aptitude Test of the Graduate Record Examination (GRE) or Graduate Record Examination in Business (GRe). Applicants for whom admission data are complete, with the exception of scores on the GRE or the ATGSS, may be admitted if they meet all other requirements. The GRE, or the ATGSS, must be taken within one semester 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 level of performance on this test and its weight 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 addressed 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 08541.

Foreign students transferring from unfinished degree programs of other universities in the United States who have not taken the examination, or who have received a grade lower than the minimum established by the Graduate Dean, must take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of those students barely passing the TOEFL test. Individual departments may require such students to take and pass a course in English usage at The University of Iowa designed especially for foreign students.

D. Early admission. A student who is within 4 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 conditional admission.

E. Candidacy. Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See Section X, Master's Degrees, and Section XII, Doctoral Degrees.)

F. Declaration of major and degree. Every applicant for admission must indicate on his application form the department or degree program or certificate program of his major interest and the degree, certificate, or professional objective he 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 have met the minimum requirements for admission and who have been accepted by a department, or interdepartmental degree program, for work leading to a graduate degree, or certificate, or stated professional goal.
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
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status. To be admitted on conditional status the student must be recommended by a department, which will assume responsibility for advising him. (See minimum grade-point requirements, Section I, F.) The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by attaining a grade-point average of at least 2.50 and acceptance by his major department, or be dismissed.

3. Special. Students in receipt of a valid bachelor's degree who wish 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 Admissions. Special graduate students are not eligible for a graduate degree or for a certificate in a certificate program.

4. Summer Session. Students with a valid bachelor's degree and at least a 2.3 grade-point average may register only for one summer session without being accepted by a department or college. (See Section II 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 subsequent session, including another summer session, the student must file an application and be admitted to regular or conditional status.

II. Minimum requirements for admission. Graduates of any college or university accredited by regional accrediting associations may be admitted to the Graduate College if their academic records meet the required standards. 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. The grade-point average is computed only on graduate work if the student has completed at least 12 graduate hours. If the student has not completed 12 graduate hours, the grade-point average is computed 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 Dean, his papers shall be forwarded to the department concerned for examination and decision.

Students applying for admission to a doctor's program must meet a minimum GPA of 2.3 based on completed graduate work, and by the entire record of collegiate work if the student has less than 12 semester hours of graduate credit. 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 executive of the department concerned.

For State Board of Regents' admission requirements, see Appendix of the Catalog.

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, 2 hours of graduate credit may be substituted for 1 hour of graduate credit, with registration limited to a credit total of 15 semester hours. The maximum for the eight-week summer session is 8 semester hours, or 9 semester hours if 2 or more semester hours of undergraduate work are included. Nine semester hours in the regular session constitutes full-time registration. (Half-year courses are not included in full registration.) One-quarter time and one-third time appointees are permitted to register for the maximum 15 semester hours per semester and 8 semester hours during the eight-week summer session.

B. Courses not included in total registration. In addition to a full schedule, a graduate student may register for courses printed in the Schedule of Courses as carrying no semester hour credit.

C. Changes is announced credit. Graduate students may not register for more credit in any course than the credit given in the Schedule of Courses, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the adviser and the approval of the Dean of the Graduate College.

D. Reduced schedules for teaching and research assistants and other appointees.

1. One-half-time appointees may register for no more than 15 semester hours during a semester or 6 semester hours during the eight-week summer session.

2. Five-eighths-time appointees may register for not more than 10 semester hours during a semester or 5 semester hours during the eight-week summer session.

3. Two-thirds and three-quarter-time appointees may register for not more than 9 semester hours during a semester or 4.5 semester hours during the eight-week summer session.

4. Seven-eighths-time appointees may register for not more than 7 semester hours during a semester or 3 semester hours during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for not more than 6
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semester hours during a semester or 3 semester hours during the eight-week summer session.
E. Restriction on credit to faculty. Persons who hold faculty rank of assistant professor (in- cluding assistant clinical professor) or above at The University of Iowa may earn no credit toward an advanced degree at this institution.
F. Retroactive registration. No form of retro- active registration is permitted.
G. Registration for part of a semester. A gradu- ate student may register at any time during the semester or the summer session for not more than 1 semester hour of credit for each of the remain- ing weeks of classes (not including the examina- tion 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 a 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 proj- ects, readings, individual study, thesis, or re- search, with the signed approval of the instructor concerned and the Graduate Dean.
H. Extramural registration. Registration for work done off campus is accepted for residence credit under the following circumstances:

  1. Traveling Scholar Program of the Com- mittee on Institutional Cooperation. (See Section III.)
  2. Research at approved locations under the direction of members of the graduate faculty at The University of Iowa.
  3. Field work as part of a regularly scheduled course of study.
  4. Courses taught off campus by members of the graduate faculty. (See Section X, D, and Section XII, C, for minimum semester hours re- quired on campus for the master's and doctor's degrees.)
  5. Residence graduate credit from another Iowa Regent's University (see Section V, II).

Extramural registration does not count toward residence credit in the following circumstances:

  1. Coursework transferred from another in- stitution.
  2. Correspondence courses.
  3. Extramural fees and privileges. Students registered for extramural courses for graduate residence credit must apply for admission to regular status (see Section I, G) and pay established fees. (See Section XII, I, for special fees applicable to post-comprehensive registration, which should not be confused with extramural registration for residence credit.)
  4. Correspondence courses. Correspondence study credit do not count as residence credits. Graduate correspondence study credit earned prior to a student's acceptance as a degree candi- date at The University of Iowa may be counted toward an advanced degree upon the approval of the appropriate college or department. Not more than 8 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 earned after the student has attained graduate status. A student enrolled for residence credit may not register for correspondence courses without the approval of the executive of his major depart- ment and of the Graduate Dean.
K. System of course numbers. Courses pri- marily for graduate students are numbered 200 or above in each department. Courses open to and carrying credit for both graduate and under- graduate students are numbered from 100 to 199. Courses below 100 are not accepted for graduate credit.
L. 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 per- missioned only to a student who is currently reg- istered.
M. Dropping of courses. All graduate students who drop courses after the deadline date estab- lished by the Dean of the Graduate College for each session and published by the Registrar shall receive the grade of F unless the entire registra- tion is canceled. This regulation may be waived only by the Graduate Dean on the recommenda- tion of the Student Health Director or the Student Counseling Service. If a student cancels his registration after the deadline date, he must obtain permission from the Dean of the Graduate College before he is permitted to reregister.

Section III. Traveling Scholar Program

A. Purpose. The program under the auspices of the Committee on Institutional Cooperation representing eleven universities in the Midwest will enable a graduate student to take advantage of special resources available on another campus but not available on his 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 own graduate adviser, who will approach an appropriate faculty mem- ber 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 deans 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 his home university and his fees will be collected and kept by that institution.
4. Credit for the work taken will be recorded at the home university.
5. Those desiring additional information should inquire at the Office of the Graduate College.

C. Conditions. CIC Traveling Scholars will normally be limited to one semester or two quarters on another campus. Each university retains its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal

A. Master’s, specialist, or certificate student. A student on regular status shall be placed on probation if, after completing 8 semester hours of graduate work, his cumulative grade-point average on graduate work done at The University of Iowa falls below 2.50. If, after completing 8 more semester hours of graduate work at this University, his grade-point average remains below 2.50, he shall be denied permission to reregister; otherwise, he shall be restored to good standing.

B. Doctoral students. For a doctoral student the minimum required grade-point average on graduate work at The University of Iowa is 3.70. A doctoral student whose performance falls below this level will be placed on probation. If, after completing 8 more semester hours of graduate work at this University, his cumulative grade-point average remains below the required level, he shall be dropped from the program and denied permission to reregister unless he applies and is accepted for another degree or certificate program. If the condition of his probation is met, the student is returned to good standing.

C. Departmental regulations. In addition to the above University-wide requirements, departments may establish higher requirements, which then determine the individual student’s standing with regard to probation and dismissal. Whenever departments raise standards, the new regulations will apply only to new students and not retroactively to the disadvantage of those already in the degree program. Departments must notify the student, the Graduate Dean, and the Registrar of actions affecting a student’s standing.

D. Decisions on students on probation. A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree and may receive no graduate degree or certificate.

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 major department, and the Dean of the Graduate College. Credit for these courses toward an advanced degree at Iowa must have the approval of the major department and the Dean of the Graduate College.

B. Residence transfer credit. Residence graduate credit from another Iowa Regents’ University may be counted as residence credit in this institution, provided such work is acceptable by the student’s major department on the basis of the departmentally determined applicability toward the degree. (See Sections X, D, and XII, C, 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 adaptations 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 proportional credit for students entering military service.

1. Students who leave within the first six weeks of the semester receive no credit.

2. Students who leave within the period of seven to nine weeks receive ½ credit.

3. Students who leave within the period of ten to twelve weeks receive ¾ credit.

4. Grade reports for the ½ and ¾ credit periods: (a) instructors report grades only as Pass or Fail; (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 by individual instructors on the above basis except that less than ½ credit may be assigned.

Section VI. Marking System

A. Marks carrying advanced degree credit. These are A, B, C, and S—satisfactory.
B. Marks carrying no credit for advanced degree. These are D—poor, F—failed, I—incomplete, W—withdrawn without discredit, R—registered, and U—unsatisfactory.

C. Incompletes. The grade of I is to be used only when a student registered for no credit attends as an auditor throughout the course; if the student drops the course before the close of the term, 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. In registrations for thesis, research, or independent study, the S/U grade may be applied. (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, else the 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 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 the completion of the specific work for which the mark is given.

E. Thesis, research, and independent study. Grades of S and U may be used for registrations in research, thesis, and independent study. S—satisfactory means that the student receives credit for the work; U—unsatisfactory means that he receives no credit. Neither S nor U 's used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade.

F. Grade of S and U may be used for courses taken by a graduate student outside his major department or interdepartmental degree program provided that the instructor of the course and the student's departmental advisor approve the registration. The arrangement of the S/U grading in a course is limited to a student's original registration into that course.

G. Computed grade-point average. This is based only upon graduate work graded A, B, C, D, and F. (A = 4, B = 3, C = 2, D = 1, F = 0.)

Section VII. Graduate Appointments

A. Scholarships. Scholarships are competitive and are awarded on merit.

1. Eligibility for graduate scholarships and fellowships will include: (a) registration in the Graduate College, (b) cumulative grade-point average of at least 3.0, (c) a GRE score or an ATGSB score above a point to be designated by the Graduate Dean, (d) a satisfactory rate of progress in completing the program for the degree.

2. Preference will be given to candidates for the doctoral degree.

3. Members of the University staff in the rank of assistant professor or above or those receiving a salary at the rate of $4,500 or over for the academic year are not eligible.

4. 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 are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellowships must be registered at full-time student. The primary purpose of the awards is to permit an advanced student to complete his dissertation or creative project and take his degree. Other terms of the award will be established by the Graduate 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 professional members of the academic staff, and (b) to provide apprenticeship experience for graduate students who are in training in research. Not more than twenty 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 II, D). Appointments are ordinarily made for the nine-month academic year, but appointments may be made for other periods of time by special arrangement. Stipends vary with the qualifications of the appointee and the type of service rendered. Faculty research assistantships appointed by the Graduate College pay their own fees. Graduate appointments beginning in September are usually made by the Graduate Dean upon recommendation of the various departments in March of each year, although appointments may be made at any other 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 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, scholastically superior graduate students who show exceptional promise as teachers are
selected for graduate assistantships. All appoint-
ments 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 assistsants in the Graduate Col-
lege budget must be registered as regular students in good standing in order to hold such appoint-
ments. Appointments will be terminated when registration and/or student status is terminated.
In no instance may a student be promised or 
terminated an appointment until after approval for 
appointment to the Graduate College by the Director of Admissions.

F. Research associateships and postdoctoral fellowships provide for independent research. Ap-
pointment is made by the Graduate Dean upon 
recommendation of the department.

G. 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.

H. Loans for graduate students requiring financial assistance are available at the Office of Student Financial Aids, See Scholarships and 
Loans section of the Catalog.

I. Other forms of support are available in many of the departments in the form of trainee-
ships, part-time employment on research pro-
grams, 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 Col-
lege 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 ten 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 ap-
lication signed by his adviser. Failure to file the 
application by that date will result in postpone-
ment of graduation to a subsequent convocation.

B. Enrollment in final semester. The student 
must be enrolled during the semester in which 
the degree is to be conferred. Students who are 
away from the University campus during the 
final semester may meet this requirement by reg-
istering for independent study, or research, or 
thesis according to the practice in the various 
departments. For doctoral candidates who have 
completed all work except the final examination, 
the postcomprehensive registration described in 
Section XII, J, will suffice. For master's candi-
dates who have completed all work except the 
final examination, a registration fee equivalent to 
the "postcomprehensive registration" will be charged. Registration in a correspondence course 
will not satisfy this requirement.

Section X. Masters' Degrees

A. Kind of degree. Masters' programs re-
quiring a minimum of 30 semester hours lead to 
the Master of Arts degree, the Master of Science 
degree, Master of Business Administration degree, 
Master of Arts in Teaching degree, and such other masters' degrees as are approved by the graduate 
department.

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 estab-
lished by the Graduate Dean. The Plan shall 
meet the requirements for the degree approved by 
the graduate faculty and set forth in the Univer-
sity Catalog for each department.

C. Major and related field. 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 requirements. Of the minimum of 30 semester hours required for the degree, at 
least 24 semester hours must be completed in 
residence at this University, of which 8 semester 
hours on campus are required. (See Section II, 
Residential Registration.)

E. Reduction of old credits. Credits for a 
master's degree dating back more than ten years 
from the semester in which the degree is to be 
conferred are not counted toward fulfillment of 
degree requirements. This rule may be waived 
by the Dean in cases affected by military service.

F. Limit on law, medical, or dental courses. 
Work taken by a student in the colleges of Law or 
in basic science courses in the Colleges of Medi-
cine or Dentistry while he is enrolled as a candi-
date 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 satisfied the requirements for the 
bachelor's degree, or work equivalent to the 
bachelor's degree at The University of Iowa. The 
work accepted from the professional college must 
be directly related to the student's major field of 
study in the Graduate College and be approved 
as a part of the Plan of Study by the student's 
adviser and the major department. Work com-
pleted while registered for a professional degree 
in medicine or dentistry will not be counted 
as part of the residence requirement for non-
doctoral degrees in the Graduate College.

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G. Two masters' degrees. The granting by this University of two masters' degrees simultaneously or in succession requires the satisfac-
tion of all requirements for each degree sepa-
rately, including two theses where the thesis is
required, and two examinations, with a minimum
combined total of 60 semester hours of graduate
credit.

H. Master's degree with thesis. Not more than
6 semester hours of credit for thesis prepara-
tion shall be counted in satisfying the 20-hour mini-
mum requirement. The thesis may be a scholarly
study or an artistic production.

One copy of the thesis, in typed manuscript
or print, must be presented to the Graduate Col-
lege for a check of formal characteristics not later
than four weeks before the convocation at which
the degree is to be conferred. (See Graduate
College publication: "Requirements for Graduate
Theses").) After approval by the Graduate Col-
lege and by the thesis committee a final copy of
the thesis must be deposited with the Graduate
College not later than ten days before the con-
voation.

The thesis committee shall consist of at least
three members of the graduate faculty and may
or may not be identical with the final examina-
tion committee. (See K, Examining Committee.)

I. Master's degree without thesis. A master's
degree without thesis, consisting of at least 30 se-
mester hours of graduate study, may be awarded
upon the completion of a curriculum prescribed
by a department and approved by the Graduate
College.

J. Final examination. The requirements for
all masters' degrees include a final examination,
which, at the discretion of the major department,
may be written or oral or both. Such an ex-
amination will not duplicate course examinations.
It will be evaluated by the examining committee
as satisfactory or unsatisfactory with two un-
satisfactory votes making the committee report
unsatisfactory. The report of the final examina-
tion is due in the Graduate College not later than
forty-eight hours after the date of the examina-
tion or, in the case of those departments giving a
general examination rather than a thesis examina-
tion, not later than the last day of the graduate
examining period.

If the examining committee so recommends, a
candidate who fails the examination may present
himself for reexamination, but not sooner than
the next regularly scheduled examination period
in the following term (semester or summer ses-
sion).

The examination may be repeated only once.
Upon recommendation of a department, the
comprehensive examination for the Ph.D. degree
may be substituted for the master's examination.

K. Examining committee. The examining
committee for the master's degree consists of at
least three members of the graduate faculty, ap-
pointed by the Dean upon recommendation of the
major department or program, at least two of
whom are from the major department. If the
examination covers work in another department,
one member of the committee must be from that
department. Upon recommendation of the major
department the Dean may appoint additional
qualified persons (not necessarily members of
the graduate faculty) to serve as voting members
of the examining committee, and at his discretion
the Graduate Dean may add a member to the com-
mmittee.

Section XI. Two-Year Degrees

A. Master of Fine Arts degree. This degree is
awarded for creative work in the visual arts,
dramatic art, music, and literature. It is de-
signed for students preparing themselves profes-
sionally in such fields as painting, design, mural
decoration, sculpture, playwriting, acting, produc-
ting, stage design, musical performance, composi-
tion, instrumentation, poetry, fiction, and transla-
tion. Central to the program, the thesis may
consist of a novel, a painting, a play, a musical
composition, or any other approved artistic ac-
complishment.

The program for the Master of Fine Arts re-
quires at least two years of residence credit in a
graduate college. This requires a minimum of
48 semester hours of graduate credit, at least 24
of which must qualify for residence credit at this
University. A Master of Arts degree may be
earned while the student is working toward the
Master of Fine Arts degree, but the student must
meet all requirements for each degree separately,
with a minimum combined total of 60 semester
hours of graduate credit.

For other requirements see Section X, para-
graphs 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 de-
gree 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 of 60 semester hours required
for the degree, at least 24 semester hours must be
completed in residence at this University of which
15 semester hours must be earned while the stu-
dent is on campus within one twelve-month period
or during two summer sessions.

Twenty-eight of the 60 semester hours are pre-
scribed in the area of specialization; the others are
in cognate fields, supervised experience, and

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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. As a minimum, two semesters or at least 9 semester hours each must be spent in full-time residence on campus at this University beyond the first 24 semester hours of graduate work. (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 78 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 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 apply toward the degree, a listing of courses in progress or to be completed after the comprehensive examination, and the tools of research in which competence has been demonstrated.

E. 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.

F. Limit on professional courses. Work taken by a student in the College of Law or in basic science courses in the College of Medicine or Dentistry, while he is enrolled for a professional degree, may be credited to a graduate program leading to a doctoral degree if it is taken after the student has satisfied the requirements for a bachelor's degree at this University. 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.
G. 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 doctoral 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 the recommendation of the department and approval of the 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.

H. Requirement in foreign languages. There is no Graduate College-wide requirement in foreign languages. Those departments which do require competence in one or more foreign languages establish standards as to the extent and level of competence, as well as methods of testing. Specific requirements will be found in the University Catalog under the doctoral programs of each department. 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 filed in the Graduate College Office and may be changed upon the initiative of the departments.

1. Comprehensive examination. The candidate must pass a comprehensive examination, consisting of written or oral parts or both, at the discretion of the department. Admission to the comprehensive examination is granted upon the recommendation of the major department, 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 tools of research 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 subject at or near the end of his formal preparation and prior to the completion of his 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 fourteen days after the completion of the examination. Two "unsatisfactory" votes will make the committee report unsatisfactory. The report of a satisfactory examination should contain the name of the supervising professor for the candidate's dissertation.

In the event of a "satisfactory with reservations," the exact stipulations of the committee should be recorded in the report. If the candidate wishes to take 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 in a comprehensive examination the committee may grant the candidate permission to present himself for reexamination not sooner than four months after the first examination. The examination may be repeated only once, at the option of the department.

J. Postcomprehensive registration. The student is required to register each semester after passing the comprehensive examination until the degree is awarded. He must register for the courses, research, and dissertation necessary to complete his Plan of Study. If, after having completed all such registrations, the student is not ready to submit his dissertation and take the final examination, he may meet the continuing registration by paying a special minimum fee for each semester. It being understood that no registration for the summer session is required unless the student is taking a degree at the end of that session. If a student fails to meet registration requirements, he may be readmitted to candidacy until he has submitted an application and been approved by his adviser, the departmental executive, and the Graduate Dean.

K. Dissertation for the doctoral degree. Two copies of the dissertation must be presented at the Office of the Graduate College not later than four weeks before the convocation at which the degree is to be conferred and deposited there in final form ten days before commencement.

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 ap-
The report of this final examination is due in the Graduate Office not later than forty-eight hours after the date of the examination. The final examination will be evaluated as satisfactory 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 for reexamination until the next semester. The examination may be repeated only once, at the option of the major department.

N. Examining committees. The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Dean upon recommendation of the major department, except that departments may request the Dean for permission to replace one of the five members of the graduate faculty by a recognized scholar of professorial rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major department is included in the comprehensive 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 Dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees, and at his discretion the Graduate Dean may add a member to the committee.

STAFF

Dean: Dunn C. Spathereichach
Dean of Admissions: Regan H. Reed
Associate Dean: James E. Hitchem, Charles M. Mason
Graduate Examinations: Rhoda H. Van Ness
Members of the Graduate Council: William C. Ames (Mechanics and Hydrodynamics); Eric B. Barlow (Law); Thomas W. Conway (Biochemistry); Lloyd J. File (Physics); Nicholas H. Holm (Astronomy); Albert W. Hovenden (Education); James C. Spalding (Religion); John C. Walske (Political Sciences); Darcy W. Wall (Mathematics)

Graduate Faculty: All members of the college faculties of the University in the ranks of assistant, associate, or full professor, and administrative officers who hold professorial rank.
The University of Iowa College of Law is one of twenty-seven charter members of the Association of American Law Schools, and has long been recognized and approved by the American Bar Association's Council of the Section of Legal Education and Admission to the Bar.

The College of Law recognizes that law, to be understood meaningfully, must be studied in the social, economic, and political context in which it functions. Technical legal competence is essential. With it, the law graduate is equipped to contribute effectively to developing the means of achieving society's goals. The program of the College of Law is aimed at helping the student to develop a broad understanding of society and the role that law and the legal process play in ordering that society.

As a graduate school as well as a professional school, the College of Law encourages the student to understand rather than learn by rote, to rely on his own initiative, to develop and execute his own independent research projects, and to work jointly with the faculty in making the school's educational program a success.

The degree of Juris Doctor (J.D.) is the normal degree conferred by the College of Law.

FACILITIES

The Law Building contains a library and air-conditioned classrooms. With its collection of approximately 175,500 bound volumes, the law library is an outstanding research facility. A broad open-stack policy makes the facility readily available to the students.

Agricultural Law Center. Created by the State Board of Education, the Center is nationally and internationally reputed. The Center conducts legal-economic research with Iowa State University, Ames, and the United States Department of Agriculture.

THE CURRICULUM

The program is distinctive in its first-year approach. There is a freshman seminar in which small groups of students have opportunities for more individual expression, closer faculty relationships, writing of several research papers, and a closer approach to graduate-level instruction.

Each first-year course has a specified substantive assignment in helping students develop analytical abilities and place the legal process in its social context. All first-year students are introduced to legal research through written assignments as well as instruction in legal method and in legal bibliography.

During the second year, all students are required to take torts and a course in appellate advocacy. Before they graduate, all must also take a second course in constitutional law, and a course in criminal procedure. All other second- and third-year courses are elective.

Students are encouraged to sign up for independent research with faculty members. Additionally, the College has instituted a second-year empirical research project.

Courses in other colleges. Students are encouraged to take courses in other colleges of the University. To receive credit for such courses, the student must obtain prior permission of the Dean of Law, and earn a grade of C or above.

Graduate Program

The joint program. In addition to its regular program leading to the Juris Doctor degree, the College offers a joint program leading to the J.D. degree and an advanced degree (M.A. or Ph.D.) from a participating department of The University of Iowa Graduate College.

Under this program, if a student takes a course which is relevant to both degrees, the course can, within limitations, perform "double duty" and be counted toward the semester-hour requirements of both degrees. The effect of this is to reduce the time required to obtain both degrees. In addition, it is hoped the student will be able to contribute to one discipline the insights which he has gained in the other.

Applicants must meet admission requirements of the Graduate College, in addition to those of the College of Law. (See the Graduate College section of the Catalog.)

Master of Comparative Law (M.C.L.). The degree of Master of Comparative Law may be granted to selected foreign law school graduates who complete a program of satisfactory study for two consecutive semesters and one summer session and who submit an acceptable thesis. Applicants must meet admission requirements of the Graduate College. In addition, the Admissions
Committee may require them to complete the Law School Admission Test.

Summer session. A six-week summer session, offering a limited number of courses, is available to students who have completed at least one year of law school at Iowa or elsewhere. The session runs from early June to mid-July. Students may enroll for up to six credit hours of coursework.

To be eligible to attend, an applicant from another school must submit a statement from the dean of that school, indicating an applicant is in good standing and eligible to continue there.

The Independent Study Unit is organized to permit qualified graduate students or law students to use University facilities for further study following the close of the summer session. Advance permission is required by the College of Law in order to undertake a project under independent study.

The Iowa Law Review. Published five times yearly and circulated to over 5,000 subscribers, the Review is managed and edited by College of Law students who write much of its material. Students with high grade averages are invited to write for it. Its editorial staff is selected from students showing exceptional ability in legal writing.

The Advocate. Written, edited, and published by law students, the Advocate provides a vehicle for College news, editorials, expressions of student opinion, and profiles of College faculty members and guests.

Community legal assistance. The College has arranged with several eastern Iowa agencies for clinical programs in which students have opportunities to relate their legal knowledge to actual problems by interviewing clients, drawing pleadings and other documents, conducting legal and other research, and in some instances, appearing in court. Students earn academic credit for some of these activities. Cooperating agencies include the Hawkeye Legal Services Society of Iowa City, the Cedar Rapids Legal Aid Society, hawes corpora and civil projects at the Men's Reformatory in Anamosa, a hawes corpora project at Fort Madison State Penitentiary, an Iowa Civil Liberties Union referral project, programs in several county prosecutors' offices and in the office of the United States Attorney, a program with the Iowa state police, and a law office which the College of Law has established in a disadvantaged area of Davenport, Iowa.

Student organizations. Law student organizations at Iowa include the Order of the Coif, national honorary whose membership is drawn from the top 10 per cent of the senior class; the Iowa Society of International and Comparative Law; Phi Delta Phi and Phi Alpha Delta, national law fraternities, Kappa Delta Phi, national law sorority; and the Black American Law Students Association. All students are members of the Iowa Student Bar Association which functions include placing students as voting members on faculty committees.

FEES AND EXPENSES

In addition to regular tuition and fees, books and supplies will average about $320 per year. Housing costs and personal expenses will vary with individual circumstances. (See Admission-Registration-Fees section of the Catalog.)

Financial aid. The College requires all students to enroll for a full schedule, and discourages their taking outside employment. It has developed a comprehensive financial aid program which enables most students to meet expenses without outside employment. In addition to the awards listed in Scholarships and Loans, the College offers research assistantships with substantial stipends. Assistantships are awarded to high-ranking third-year students who have demonstrated ability for research and scholarship. About one-third of the student body have scholarships.

Placement. A wide variety of placement opportunities is available upon graduation from the College of Law. These include opportunities to work in government, as clerks to judges, with corporations, and in the private practice of law, both in the very large law firms in the great economic areas of our country and in small firms throughout the country. There are many fine opportunities to practice law in Iowa, and in recent years approximately half of the graduating class have availed themselves of these opportunities. Each year, numerous law firms, corporations, and government agencies visit the University in order to recruit students from the College of Law.

ADMISSION

Prelaw studies. No prescribed program of undergraduate study is required for admission to the College of Law at Iowa. The student should pursue a program adapted to his own intellectual interests. However, the objectives of the program should include increased capacity for verbal comprehension and expression, increased understanding of human institutions and values, and increased facility of thought.

Admission requirements. Beginning students may enter the College of Law only in the fall semester.

Except for good cause shown, a student must file his application for admission by May 1 preceding the fall semester in which he wishes to enter. Applicants are responsible for seeing to it that, prior to the final date for submitting ap-
Applications, each college or university attended has
sent an official transcript to the University, or if
he has registered with, to the Law School Data
Assembly Service, Princeton, New Jersey.

An application fee of $10 must accompany ap-
plications from those who have not completed
their undergraduate work in residence at The
University of Iowa.

The applicant must present a baccalaureate degree from an approved college or university
prior to commencing work in the College of Law.

To be considered for admission, the applicant
should have attained a cumulative grade-point average of at least 3.3 on all college work under-
taken. The grade-point average is based on The
University of Iowa's 4-point marking system.

Each applicant for admission must complete
the Law School Admission Test administered by
the Educational Testing Service, Princeton, New
Jersey, and have his score forwarded to the
College of Law. Except upon a showing accept-
able to it, the Admissions Committee will not
consider applications from students who fail to
take the test prior to the June 1 preceding the
fall semester in which they wish to enter. Since
the test is given in October, December, February,
April, and July, an applicant who fails to take the
test by April of the year he intends to enroll
normally cannot have his application considered.

Fulfillment of the specific requirements for ad-
mission listed above does not insure admission to
the College of Law. From the applicants meeting the minimum requirements, the Admissions Com-
mitee of the College of Law will select those
who appear to be best qualified for the study and
practice of law. The Admissions Committee
may require personal interviews of applicants.

The College of Law participates in the Univer-
sity's Educational Opportunities Program and con-
siders applicants from disadvantaged backgrounds
on an individual basis.

Advanced standing. A transfer student may be
eligible for admission if he has attended a school
which is a member of the Association of Ameri-
can Law Schools, is in good standing at the time
of his withdrawal (evidenced by a letter from the
dean of the school from which he is transferring),
meets the admission requirements for entering
students at this school, and has done substantially
above-average work in the law school he at-
tended. No more than two semesters of residence
credit and no more than 30 semester hours may be
transferred from another school. Where an
applicant has completed more than one year of
law, advanced standing will be permitted only
in exceptional cases, and no more than one year's
credit can be transferred.

Accepted applicants are required to make an
advance nonrefundable deposit of $50 by April 1.
Those applicants who are accepted subsequent to
April 1 must make the deposit within two
weeks after being notified of favorable action on
their applications. For those who enroll, the de-
posit is credited toward the student's first Uni-
versity bill. An applicant who fails to make the
deposit within the time specified for his place
in the entering class. The $50 fee will be re-
funded if an applicant cannot enroll because of
any circumstance then existing which was not
known to the student. A student who is admitted but is
forced to give up his place in the class because of
a service obligation will automatically be re-
 admitted upon timely application at the conclu-
sion of his service.

Applicants who are accepted and who are new
to The University of Iowa must submit a satis-
factory physical examination report to the Uni-
versity Student Health Service.

GRADUATION REQUIREMENTS

To be eligible for a degree, a student must have
satisfied the residence requirements listed below,
received course credit for 90 semester hours, taken
and completed all required courses, achiev-
ed a weighted cumulative average of 65, and
received a passing grade in at least one 3-semes-
ter-hour research and writing project.

Residence requirements. To satisfy the resi-
dence requirements, a student must enroll for
a minimum of 26 semester hours of course credit
for each of three academic years, the academic
year being defined to exclude summer sessions.
Satisfaction of the residence requirements during
any single semester of the academic year requires
a student to enroll for at least 12 semester hours
of course credit. A student wishing to register
for less than 16 semester hours of credit during
any one semester must have special permission from the Dean.

Scholastic requirements. A numerical grade
shall be assigned to each student in each course.
This numerical grade shall be recorded in the
permanent records of the University as the grade
received in the course, and shall be shown, to-
gether with an average of all grades received in
the semester (weighted in accordance with the
number of semester hours in each course) on
the grade sheet given to the student.

The numerical grade may be translated into
letter grades for purposes of comparison as
follows:

A 95-100 B 85-94 C 75-84 D 65-74

A first-year student who fails to maintain a
cumulative weighted average of 65 after regis-
tering for 24 or more semester hours of work,
shall be ineligible to continue in the College of
Law. All other students must maintain a cumu-

lative weighted average of 65 to be eligible to
continue in the College.
Students whose cumulative weighted average is below 65 for the first two semesters, but whose weighted average is 65 or better during the second semester, will be readmitted on probation for the third semester. They must achieve a cumulative weighted average of 65 by the end of the third semester or they will be ineligible to continue further.

Any upperclass student whose weighted average is below 64 for the full academic year shall be dropped from the College of Law.

Graduation Honors

In recognition of superior scholarship, the J.D. degree may be granted with special honors as follows: With Highest Distinction—cumulative weighted average of 85 or more; With High Distinction—cumulative weighted average of 80-84; With Distinction—cumulative weighted average of 75-79.

STAFF

Dean: David H. Vernon.

Dean Emeritus: Mason Ladd.

Associate Dean: Charles W. Davidson, Paul M. Neuhauer.


Visiting Professors: James O. Freedman, Alan Schach.

Assistant Professors Emeriti: Percy Hardwell, C. M. Utep, Christopher A. Little.


Research Professor: Marshall Harrison.


Librarians: Richard R. Chappell, Assistant Librarian: James H. Gritton.

Foreign Law Librarian: Stephen A. Sasa.

Courses and Curriculum, First Year:

All Required

Note: One course each semester will be in seminar form. An additional semester hour of credit is given for each seminar.

91:116 Constitutional Law I

3.h.

Allocation of governmental powers according to the national constitution; judicial function in constitutional cases; relationships among the several branches of the national government; the federal system; powers delegated to the national government; powers reserved to the states. Role of the judicial process in structuring the limits within which our society operates. Institutional development of our legal system and the relationships among the several institutions within that system.

91:122 Property I

3.h.

Concept of ownership as one of the basic foundations of our society. Comparison of property systems based on cultural values and the uses and disposition of real and personal property. Emphasis on use and disposition with analysis of traditional common law and modern systems. Emphasis on personal and real property and problems of their distribution, as well as the asserted need for continuity and stability in property relationship. Historical development of the law.

91:124 Criminal Law I

3.h.

Problems of deviant behavior deemed so detrimental or dangerous to society as to be characterized as criminal. Actions which are criminal and why, steps that can be taken to deal most effectively with those whose behavior is deemed criminal, and the role of the law in deterring such behavior. Substantive law of homicide and theft; integration of the social sciences and law to maintain a socially valid legal system.

91:120 Contracts and Sales Transactions

6.h.

Purpose, development, and scope of the judicial protection accorded parties to contractual agreements, and the protection has been modified by legislation. Creation of contracts, their performance, construction, and interpretation, and remedies available upon breach, as well as the Sales Article of the Uniform Commercial Code as that Article relates to unsecured sales transactions. Demonstrates the interaction between judicial and legislative decisional processes.

91:104 Civil Procedure I

6.h.

Jurisdiction of persons, jurisdiction of subject matter, and jurisdiction of both federal and state courts; pleadings, complaint, answer, and reply; motion for judgment on pleadings and summary judgment in modern rule pleading and the devices available to the present-day practitioner. Orderly procedure fundamental to the preservation of our free society. Society's attempts to order the civil litigation process that the personal rights are protected and the process itself can proceed efficiently to do the job assigned to it by society.

91:136 International Law

3.h.

Past, present, and future role of law in promoting world public order among a broad spectrum of participants (nation-states, international governmental organizations, privately associated, and individual human beings) who are engaged in a wide variety of pursuits across national and other territorial boundaries. Problems of authority and notions of jurisdiction in a legal system which usually operates in the absence of a "police force" as commonly understood.

91:136 Resource Planning

3.h.

Analysis and legal issues associated with the allocation and regulation of land, air, and water resources. Zoning and other forms of use controls, rural land management programs, environmental quality controls, restrictions on the use of depletable mineral and other resources, and methods of allocating use rights to resources such as air and water resources. Other topics that may be covered at the discretion of the instructor. Relationship between law and other disciplines; administration of rules regulating the use of resources. Law used to achieve affirmative social goals.

91:116 Conflict Resolution

3.h.

Process of resolving disputes through consideration of conflict resulting from the interpersonal to the interorganizational to the international stage. Issues of the use and environment of the law in conflict resolution. The development of specific processes for conflicts other than those that are commonly understood, the application of these techniques in new contexts, the societal consequences which may be monitored as can result from the use of the options available.

91:116 Civil Procedure II

2.h.

Drastic changes available under the modern rule practice, including some for more definitive statement; motion to strike; use of pleadings and summary judgment; inspection of documents, things, and truth; physical and mental examinations; partial conferences. Scope of the controversy under modern practice, including peremptory joinder of parties and summary peremptory case, cross-claim, third-party claim, interpleader, interpleader, and other actions. Concept of the real party in interest and res judicata. Continuation of 91:104.

Second- and Third-Year Courses and Seminars* (All prerequisite courses, or their equivalents, must be taken before enrolling in a course or seminar requiring prerequisites.)
91.518 Civil Rights and Liberties
Seminar 2 a.h.
Selected problems in civil rights and liberties: race relations, church and state, freedom of expression and the sociology, right to vote and otherwise participate in the political process, freedom from physical abuse, women's rights, and student rights. Prerequisites. RL323.

91.514 Collective Bargaining
Seminar 3 a.h.
Legal and practical aspects of the collective bargaining process of organizing collective bargaining agreements; arbitration and other alternative means of labor dispute settlement in both private and public sectors of the economy.

91.520 Common Market Seminar
Seminar 2 a.h.
Institutional and legal structure of the Common Market, with emphasis on the power of community organs to make law which is binding in the national state and means for resolving conflicts between community law and national law. A major section will be devoted to the rapidly developing Common Market anti-trust law.

91.524 Comparative Regulatory Techniques
Seminar 2 a.h.
Comparative study of the techniques used by a modern industrial nation to direct and stimulate the economy in a desired direction with focus on one foreign country, France, including planning, direct price and product control, competition, taxation, and subsidies programs. The seminar is open to graduate students in economics and business administration and to senior students in law.

91.526 Corporate Control Seminar
Seminar cr.arr.
Advanced work in corporations through an examination of the newly emergent concept, corporate control. Fiduciary obligation of those persons at the absolute top of the policy-making hierarchy in the modern business corporation. Prerequisites. RL360 or 262.

91.527 Criminal Appeals—Habeas Corpus 3 a.h.
Significant problems of criminal law and procedure in the context of the presentation of such issues to appellate courts; presentation of oral and written arguments, oral and written briefs and appellate advocacy; substantive discussion of several major complex areas of criminal law, e.g., confessions, the insanity defense, suppression of evidence, and trial publicity. Presentation of criminal appeals to state and federal courts and habeas corpus with particular emphasis on the federal habeas corpus machinery, including federal habeas corpus, appeals before the United States Court of Appeals, and collateral procedure in the Supreme Court of the United States.

91.528 Democratic Control of Institutions
Seminar 2 a.h.
Legal issues involved in developing effective democratic control of large organizations and institutions through enforcement of individual rights, legislation, organization, and representation.

91.532 Economic Regulation of Business
Seminar 2 a.h.
Builds on the foundation laid in RL268. The specific problems of regulated industry, energy, and transportation are examined year to year and will be announced prior to registration.

91.538 Family Law Seminar 1 to 4 a.h.
Particular areas of family law focusing reform, and devised proposals leading to such reform. Empirical research. Prerequisites. RL238.

91.540 Federal Tax Policy Seminar 5 a.h.
Consideration, primarily through group discussion and in connection with primary source material, of the structure and implications of the federal tax system. Prerequisites. RL373.

91.544 International Law and Policy
Seminar 2 a.h.
Current problems of international law and policy. Conducted at two individual conferences and group study bases, with emphasis upon research and writing.

91.545 International Inheritance Controls
Seminar 2 a.h.
Monetary assets, their quantity and ownership, and their role in the balance of payments system, will be examined in considering international decisional problems in the monetary area.

91.548 Judicial Behavior Seminar 3 a.h.
Students will be trained in the techniques of social research in order to observe judges and the society in which they operate. Students will use research techniques employed in the social sciences in examining the role of courts in the political system, their decision-making techniques and the impact of their decisions on the political system.

91.552 Land-Use Planning Seminar 4 a.h.
Specific case studies in planning the use of land in an urban area. Traffic, utilities, zoning and variances, parks, and aesthetic values. Intergovernmental conflicts.

91.554 Law and Morality 3 a.h.
Relationship between morality and the law, with particular emphasis on the determination and enforcement of norms.

91.556 Law in a Changing Society Seminar cr.arr.
Law as an instrument of social order and as an influence on social change. How law responds to social change. Interaction between legal and social change.

91.558 Law, Science, and Policy 2 or 5 a.h.
Analyzes and applies the so-called "New Haven Approach" to law, i.e., the "comprehensive" and "policy-oriented" jurisprudence of Yale law Professors Harold D. Lasswell and Myres S. McDougal and their associates.

91.560 Legal History Seminar 3 a.h.
Major episodes which have had a significant influence in American legal thought. An inquiry into the origins of the Common Law, the royal courts, and the American system; the common law tradition; the influence of science, morality, and equity, and the 18th-century context for supremacy of the constitution. The development of the Supreme Court, the Constitution, and the role of the Supreme Court in the decision-making process of government. The role of legal development, the men involved, and the limitations encountered in the study of historical issues.

91.562 Legislation 4 a.h.
Legislative procedures, statutory construction, and legislative vetting. The legislative process in response to the identification of a problem to its solution by legislation. The techniques of drafting of new legislation and explanatory reports will be used.

91.564 Legal Problems of Public Education Seminar cr.arr.
Selected legal problems which have a significant impact upon public education. Tort and contract liability of school districts and school district employees; "collective bargaining" between teachers and school boards; constitutional claims of students, parents, and teachers relating to race, religion, speech, association, or other private activities; roles of local, state, and federal government in administering schools and determining educational policy. Influence of the law on the administration of school and individual programs and upon the influence of educational considerations in the development of educational policies.

91.655 Personal Injury Trials and Appeals 4 a.h.
Significant aspects of personal injury lawsuits, including jury selection, effective opening statements and closing arguments, and courtroom techniques in cross-examining medical witnesses from medical texts. Evidentiary guidelines
The University of Iowa is the only institution in Iowa offering the degree Doctor of Medicine. Its College of Medicine, which marked its centennial year in 1970, was one of the first university-based centers of medical education established in the Midwest. It has earned international recognition for its pioneering contributions to medical science, and for its general excellence.

The College of Medicine is accredited by the American Medical Association and the Association of American Medical Colleges.

The College 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.

Because the College is both physically and administratively an integral part of a major university, its students have opportunities to pursue a full range of academic and cultural interests. At the same time, the College contributes significantly to the strength of the University; for example, more than 1,500 non-medical students enroll each semester in basic science courses administered by the College of Medicine.

**DEGREE PROGRAMS**

The M.D. program. The Doctor of Medicine program which the College introduced in the fall of 1969 differs in several significant ways from the traditional format of medical education. Its two-year introductory phase comprises three semesters of basic medical science and one semester of progressive orientation in clinical medicine. The third year comprises a summer session and two semesters of clinical clerkships, in which the student participates in patient care under supervision of staff physicians. Except for a nine-week clerkship in four areas, the fourth year is devoted to an individual Intensive Study Program in which the student focuses on whatever facet of medical education best relates to his professional interests.

Combined M.D.-Graduate programs. Students who want to pursue the M.D. degree in combination with an M.A., M.S., or Ph.D. program may do so by gaining admission both to the Graduate College and to the College of Medicine, and by making detailed arrangements with the graduate department chairman and the Associate Dean for Medical Student Affairs of the College of Medicine. Graduate programs. Programs leading to graduate degrees through the Doctor of Philosophy are offered in anatomy, biochemistry, microbiology, nutrition, pharmacology (including toxicology), physiology and biophysics, preventive medicine and environmental health science (including health education, environmental health science, health laboratory science, public health, parasitology, industrial hygiene, comparative medicine and environmental toxicology), and in radiation biology. In addition, graduate degree programs leading to the Master of Science are offered in ophthalmology, orthopaedic surgery, otolaryngology, psychiatry, and in surgery.

**FACULTY**

All members of the medical faculty have full-time appointments: their work in practice and research is part of, not apart from, their work in teaching. Many have earned national and international honors. One-third are listed in Who's Who, half in American Men in Medicine.

**FACILITIES**

The College of Medicine is housed in the UI Health Center, which also includes the Colleges of Dentistry, Nursing, and Pharmacy. A $70 million expansion program begun in 1969 will make this one of the most advanced, comprehensive health science centers in the United States. Its present and projected facilities include:

- General Hospital.
- General Hospital provides facilities for teaching all major medical specialties, and for full programs of internship training and residency in all major specialties. It admits more than 30,000 in-patients and serves more than 110,000 out-patients annually.
- An addition scheduled for 1974 completion will increase its capacity from 910 to 1,200 beds, and will also house several clinics, an operating suite, and a diagnostic radiology laboratory.

- Children's Hospital.

- Children's Hospital houses orthopaedic surgery, physical medicine and dermatology; a rehabilitation center; and the University's physical therapy training unit. It has a 187-bed capacity.

- Psychiatric Hospital.

- With clinical and research laboratories in neuropsychology, biochem-
Including the permissible limits of advocacy and limitations on the use of demonstrative good and visual aids. The appellate phase will deal with effective record-making as well as techniques of brief preparation.

91:656 Poverty and the Law 3 s.h.
Urban environmental control, the concept of democracy in the planning process, various housing programs designed to meet the needs of the ghettos.

91:668 Problems of Doing Business Abroad Seminar 4 s.h.
Impact of government rules and regulations on the conduct of international commercial activities. Antitrust, shipping conferences, patent and trademark systems, the Reciprocal Trade Agreement, and GATT.

91:670 State Constitutional Revision 3 s.h.
Current efforts to revise state constitutions; selected state constitutions will be studied to develop suggested constitutional provisions. Methods of constitutional revision will also be reviewed.

91:672 Student Rights 4 s.h.
Selected legal problems involving the contemporary university with particular emphasis on student rights, such as due process and free speech.

91:673 Taxation: Corporate Reorganization 3 s.h.
Thorough analysis and study of the income tax consequences which flow from various kinds of corporate reorganizations including statutory mergers, asset acquisitions, and stock acquisitions.

91:674 Trade Regulation Seminar 2 s.h.

Special Course

91:650 Law in a Technological Society 2 s.h.
Provides perspective and understanding of the place of law in contemporary society for students in professional schools other than law including dentistry, pharmacy, and engineering. The role of law, court system, procedures, evidence, property, torts, crimes, contracts, and constitutional and administrative law with emphasis on the role of the various professions. Not open to law students. Offered second semester.
Hospitlany, and psychology. Psychopathic Hospital has facilities for complete study of patients. It has sixty beds for adults and twenty-five in its children's psychiatry unit. It annually admits 400 in-patients and sees more than 9,000 out-patients. Its electroencephalographic laboratories serve the entire hospital.

Hospital School. The Hospital School for Severely Handicapped Children is unique in its field, providing educational opportunities for sixty physically handicapped and educable mentally retarded children on both a residential and a day-school basis. Its interdisciplinary program involves professional personnel from medicine, psychology and educational psychology, social work, nursing, and therapy, to activate which combine patient care with research and professional training.

The Oakdale campus. The 552-acre Oakdale campus is located seven miles northwest of the Health Center. Its 388-bed hospital houses the state tuberculosis treatment center, an alcoholism treatment unit, medical technology training laboratories and classrooms, and toxicology laboratories. Also on the Oakdale campus are pediatrics research laboratories, the offices and laboratories of the Institute of Agricultural Medicine's accident prevention section, and Health Center research animal care facilities.

The Veterans Administration Hospital. The 440-bed Iowa City Veterans Administration Hospital is an integral part of the Health Center. Interns, residents, and medical students may receive much of their clinical training here. Several notable major facilities of the Health Center are based in the VA Hospital, including laboratories for the transplantation program, highly specialized laboratories in nuclear medicine, and special units for the study of metabolic and gastro-intestinal diseases. The VA Hospital also offers unique training opportunities in the fields of clinical pharmacology, gastroenterology, cardiology, nephrology, and applied immunology.

The Health Sciences Library. Scheduled for 1971 completion, the new Health Sciences Library Building will permit consolidation of the basic collections of all four of the University's health science colleges. Architecturally innovative, the new building will include a 24-hour study area and group study areas. New numbering approximately 85,000 volumes, the College of Medicine collection covers microbiology and pathology, history, physiology, preventive medicine and hygiene, ophthalmology and otolaryngology, obstetrics and gynecology, anatomy, pediatrics, psychiatry, radiology, surgery, neurosurgery, and other fields of medical science. In addition the College receives more than 1,200 periodicals.

Other facilities. Scheduled for 1971 completion, the New Basic Science Building will house five departments of the College of Medicine. Other teaching facilities are located in the Medical Research Center, which also houses the College's administrative offices, and in the Medical Laboratories Building, which also houses the State Bacteriological Laboratory and a radiation research laboratory.

ADMISSION

Applications will be received beginning July 1 of the year preceding the beginning of the class for which application is being made. Students are urged to apply as early as possible since this will give the Admissions Committee more time to devote to each application. The closing date for receiving applications is January 1.

A fee of $10 must accompany the applications of all applicants who have not completed work in residence at The University of Iowa. This is not refundable except to residents of Iowa who are denied admission.

Applications from those who are more than thirty years of age will be considered for acceptance only in exceptional cases.

Completion of the specific requirements for admission listed below does not insure admission to the College of Medicine. From the applicants meeting the specific requirements, the Admissions Committee of the College of Medicine will select the applicants who appear to be best qualified for the study and practice of medicine.

Prior to entrance each applicant must:

1. Have completed the baccalaureate degree or
2. Have completed three years of a combined baccalaureate-medicine curriculum which qualifies him to receive the baccalaureate degree on completion of the first year in medicine; or
3. Have completed three years of a baccalaureate program which includes the general graduation requirements of the College of Liberal Arts of The University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the Office of the Director of Admissions the completed application form and an official transcript from each college attended.

The college work outlined below will suffice to meet minimum academic requirements for admission to the College of Medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years before seeking admission to this College of Medicine will be considered by the Admissions Committee only under exceptional conditions.

The college curriculum must include at least three years (96 semester hours) including the following specific courses or subject areas with appropriate laboratory:

1. Physics: a complete introductory course.

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Mathematics: college algebra and trigonometry or advanced college mathematics where college algebra and trigonometry were completed in high school.

3. Chemistry: as a minimum, a complete introductory course in organic chemistry which would ordinarily follow a complete introductory course in modern general chemical principles.

4. Biological science: a complete introductory course in the principles of animal biology, or zoology and botany (but not botany alone), and one advanced to at least biology.

General college work is required in addition to prerequisite sciences because a well-rounded education is of special importance to those entering the medical profession. Students are urged to take courses in as much depth as possible in history, psychology, economics, philosophy, anthro-

pology, sociology, the fine arts, and foreign languages.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 (C+) for all college work undertaken. As the quality of work in premedical science is basic to access in medicine, special attention will be given by the Admissions Committee to grades in science. The grade-point average is based upon The University of Iowa's 4-point marking system. Where the college offers an option to take courses on a graded or pass-fail basis, it is expected that applicants will take the required science courses on a graded basis.

Preference will be given to applicants with high scholastic standing who are residents of Iowa, but consideration will also be given to out-

standing nonresidents. Applicants for admission are required to take the Medical College Admis-
sion Test which is administered by the Associa-
tion of American Medical Colleges. Applicants are requested to complete this test in May or October of the year preceding that for which they are applying for admission. Students may make arrangements for this examination through the University's Evaluation and Examination Services.

Personal interviews may be required. Applica-
ts will be contacted for the appointment for

required interviews.

Accepted applicants must make a deposit within two weeks after notification of favorable action on the application. This deposit will not be re-

funded but is credited toward the first fee pay-

ment.

Applicants accepted for admission are required to submit a satisfactory physical examination re-

port to the University Student Health Service within two weeks following notification of accep-
tance. Applicants must also complete, through Student Health Service, an X-ray film of the

chest and successful vaccination against smallpox prior to registration.

Admission to advanced standing. If their work preparatory to entering a college of medicine would have met entrance requirements of this college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions:

Only applicants of high scholastic standing will be considered.

They must present certificates showing that they have satisfactorily completed course equivalent to those already pursued by the class they wish to enter.

The Admissions Committee will decide in each case whether examinations in the various subjects will be required.

The application will be considered only upon receipt of a statement from the dean or reg-
inistrator of the college from which the applicant comes, showing the actual amount of time the student has spent in the study of medicine, the courses taken, and the grades received, to-

gether with a statement of the work prepara-
tory to entering the course in medicine.

No advanced standing will be granted to

students from other than approved medical schools. Students will be granted subject credit upon recommendation of the head of the department concerned for work taken in other than medical schools.

Unclassified students. Applicants for admission to the College of Medicine who are not degree candidates but want to register for special sub-

jects will be admitted to any lecture or labora-
tory course only upon complying with all the regular requirements for admission to such a course, or by action of the faculty upon recom-
mendation of the professor in charge of the course.

For Iowa State Board of Registration approved ad-

mission requirements, see Appendix in Catalog.

SCHOLARSHIP REQUIREMENTS

Promotions committee appointed by the Dean and consisting of designated members of the faculty under whom the courses have been taken will, at the close of the academic year, review the accomplishments of the students and determine their eligibility for advancement. In making their decisions the committee will consider the attainment of the student as evidenced by the grade received in each subject (which should reflect the consensus of the departmental staff), his seriousness of purpose, his conduct, and general fitness for entering the medical profession.

GRADUATION REQUIREMENTS

The Doctor of Medicine degree candidate's time of study must include attendance during at least four years of instruction, at least the last year of
which must be taken at The University of Iowa.
The time of study in each of the four years must be no less than thirty-six weeks. A passing grade in each of the branches of the curriculum must have been attained, and all other requirements of the College satisfied.

FINANCIAL AID

The College of Medicine currently awards approximately $141,000 in full resident tuition scholarships to approximately 175 students each year. These scholarships are usually distributed equally among the four College classes. Most are awarded on the basis of need, although in accord with the donors' wishes, some are awarded on the basis of merit. These scholarships vary in value from $500 to $5,000.

Annual summer research fellowships are awarded on the recommendation of the sponsoring faculty members.

Loans are available to medical students on the basis of their need, and to the extent that loan funds are available. Most of these loans come from the United States Public Health Service's Health Professions Student Loan Program, as do most of the need-based scholarships. Smaller and shorter-term loans are usually available through the office of the College of Medicine.

The College is firmly committed to the Educational Opportunity Programs, both academically and in terms of financial aid.

ADMINISTRATIVE STAFF

Dean: John W. Roberts.
Associate Deans: Howard W. Merriam, Paul M. Seymour.
Associate Dean, Community Programs: John C. MacQueen.
Assistant Dean, Student Affairs: George L. Baker.
Assistant Dean, Veterans Hospital Affairs: Richard D. Edman.

DEPARTMENTS AND COURSES

Each course is designated by a code or department number and a course number. Odd or department numbers assigned to courses described in this section of the Catalog:
- 00: General Medical Sciences
- 01: Medical History
- 02: Oral Surgery
- 03: Biochemistry
- 04: Physical Therapy
- 05: Gross Anatomy
- 06: Histology
- 07: General Physiology
- 08: Gross Anatomy
- 09: Histology
- 10: General Physiology
- 11: Dermatology and Pathology
- 12: Preventive Medicine and Environmental Health
- 13: Highway Medicine
- 14: Nutrition
- 15: Obstetrics and Gynecology
- 16: Ophthalmology
- 17: Otolaryngology and Maxillofacial Surgery
- 18: Pathology
- 19: Pediatrics
- 20: Pharmacology
- 21: Psychology
- 22: Psychiatry
- 23: Radiology
- 24: Surgery on the Nervous System
- 25: Surgery on the Respiratory System
- 26: Surgery on the Cardiovascular System
- 27: Surgery on the Genito-Urinary System
- 28: Surgery on the Gastrointestinal System
- 29: Radiation Research Laboratory
- 30: General Medicine
- 31: Urology

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COURSE DESCRIPTIONS

00: Genetics for Medical Students
1 s.h.
Introduction to medical genetics and case descriptions for first-year medical students. A seminar taken from that which has been offered in biochemistry and microbiology. The student will be expected to construct a pedigree as a kind of laboratory exercise. The course will meet for two lectures per week during the last eight weeks of the second semester of the freshman year.

02: Endocrinology for Medical Students
1 s.h.
A core course for medical students in their second semester. Given in the first half of the spring semester.

03: Scientific Methods and Biostatistics
3 s.h.
This combined course for second-year medical students presents introductory material in biostatistics and provides opportunities for dealing with the formulation of hypotheses, the subsequent testing of hypotheses, and the resulting acceptance or modification of the hypotheses within the framework of both the basic medical sciences and clinical sciences. The course will comprise two one-hour lectures per week for the first eight weeks of the first semester of the second year. The remainder of the course will provide a variety of flexible opportunities for the student to become acquainted with the scientific method.

04: Introduction to Clinical Medicine
16 s.h.
A full semester course devoted to correlating and integrating the basic science care of information with the clinical experiences of the junior and senior years. Included will be pertinent information and development of skills in history taking, physical diagnosis, laboratory diagnosis, and related material which will prepare the student for his junior clerkships.

05: Neurology and Behavior
5 s.h.
Interdisciplinary study of the elements, organization, and functions of the central nervous system. Lectures, discussions, laboratories, and demonstrations.

ANATOMY

Head of Department, William O. Rieke
Office, 337 Medical Laboratories Building

STAFF

Associate Professors: Ulf L. Karlsson, James R. Scatton.
Instructors: Richard H. Kloth, Lynn A. Nuska.
Assistant in Instruction: Norel F. Metcalfe.

Wor k leading to an advanced degree in anatomy to the Graduate College may be taken by properly qualified students. For admission procedures, see Graduate College.

COURSE DESCRIPTIONS

60: Elementary Human Anatomy
4 s.h.
Principally for students of nursing and dental hygiene.

62: Elementary Human Histology
3 or 4 s.h.
Principally for students of dental hygiene.
60:101 Human Gross Anatomy for Dental Students 6 s.h.
Regional dissection of entire body with major emphasis on head and neck. Includes neuroanatomy. Open to graduate students with consent of instructor.

60:102 Microscopic Anatomy for Dental Students 6 s.h.
Cell, primary tissues, and organs. Emphasis on tooth and related structures. Includes embryology. Graduate students must have consent of instructor.

60:103 Gross Human Anatomy for 4 s.h.
Regional dissection, demonstrations, lectures, and conferences. For graduate students. Prerequisite, consent of instructor. First semester.

60:105 Microscopic Anatomy for Medical Students 7 s.h.
The cell and fundamental tissues and microscopic study of the organ systems. For medical students, first and second years. Prerequisites for graduate students, consent of instructor. First semester.

60:107 Neurobiology and Behavior 5 s.h.
Interdisciplinary study of the elements, organization, and functions of the central nervous system. Lectures, conferences, laboratories, and demonstrations. Required of graduate students in anatomy. Consent of instructor required for other graduate students taking the course.

60:108 Special Microscopic Anatomy cr. 6, 8 or 9 s.h.
Studies of microscopic structure of organs. Prerequisites, biology including histology or equivalent and consent of department head.

60:109 Human Anatomy 4 or 5 s.h.
Conferences and laboratory study of human anatomy with emphasis on areas important to physical therapy. Registration limited.

60:110 Human Anatomy and Neuroanatomy 2 or 4 s.h.
Continuation of 60:10, which is prerequisite.

60:115 Human Development cr. 6, 7, or 8 s.h.
Lectures and laboratory including the experimental bases for understanding morphogenesis. Offered upon sufficient demand. Prerequisite, consent of instructor.

60:201 Advanced Human Medical Students 7 s.h.
Specialized aspects of gross or microscopic anatomy. Prerequisite, consent of department head.

60:209 Research cr. 6, 7, or 8 s.h.
Open to graduate students with suitable background. Prerequisite, consent of department head.

60:203 The Endocrine Glinds cr. 6, 7, or 8 s.h.
Discussion of selected topics. Open to graduate, postgraduate, and medical students. Prerequisites, 60:100, Physiology 7321, biochemistry major course or equivalent, consent of instructor. Will not be offered in 1970-71.

60:205 Teaching Workshop in Anatomy 2 s.h.
The practical application of educational psychology to the teaching of anatomy. Course objectives, teaching methodology, and test construction and evaluation will be discussed. First semester.

60:206 Problems cr. 6, 7, or 8 s.h.
Prerequisite, consent of department head.

60:207 The Visceral Nervous System cr. 6, 7, or 8 s.h.
Autonomic system as to components, structural relationships, and functions, including central mechanisms. Prerequisite for medical graduates. Offered upon sufficient demand.

60:208 Review of Anatomical Neurology cr. 6, 7, or 8 s.h.
Important elements of the central nervous system with emphasis on functional relationships. Offered only upon sufficient demand.

60:210 Anatomical Research Techniques cr. 6, 7, or 8 s.h.
Techniques commonly used in investigative work. Histology, tissue culture, tissue morphology, phase-contrast light, X-ray, and electron microscopy. Offered annually. Second semester.

60:217 Cellular Immunology 3 s.h.
The biology and chemistry of cells of the immunologic tissues. Offered spring semester of alternate years; taught in 1971. Prerequisite, consent of instructor.

60:218 Electron Microscopy—Theory and Technique cr. 6, 7, or 8 s.h.
Lecture and laboratory course offered each fall semester for no more than 10 students. Prerequisite, consent of instructor.

60:219 Human and Experimental Teratology 3 s.h.
Readings, demonstrations, and group discussions of general principles and underlying mechanisms of developmental anomalies in experimental animals and man. Offered alternate years; offered spring 1971. Consent of instructor required.

60:220 History of Anatomy 1 s.h.
Readings and seminar discussions of noteworthy medical-anatomical events with accounts of the individuals responsible from ancient civilizations to the present. Offered alternate years; offered spring 1971. Consent of instructor required.

60:221 Microscopic Anatomy for Graduate Students 5 s.h.
Light microscopy and fine structure of the cell, tissues, and organs. Taught the same semester as 60:105. Consent of instructor required.

ANESTHESIA
Head of Department, Jack Movers Office, C612 General Hospital

STAFF
Professor: Jack Movers
Assistant Professor: Leo J. Delbaker, Arny A. Beutler, Martin D. Bokell, Samir D. Georgat, M. M. Gassett, John L. Boyd, R. B. Ursula

BIOCHEMISTRY
Head of Department, Carl S. Vestling Office, 276 Medical Research Center

Graduate Study
Both the M.S. and Ph.D. degrees are offered, and financial support is available to all students who qualify and are selected for the Ph.D. program. Minimum entrance requirements include an undergraduate grade-point average of 3.0 with a 3.5 average in science courses, and a score of 2200 on the combined verbal and quantitative parts of the Graduate Record Examination Aptitude Test. In addition, there are prerequisites of college-level courses in mathematics through calculus, physics, biology, and physical chemistry. During the first year of graduate study, all biochemistry graduate students take 90:326 and 90:361 in the first semester and 90:356, 90:358, and 90:382 in the second semester. After consultation with the student, a new student is assigned to a research laboratory for 90:381. Ordinarily, no more than two students are assigned to the same lab.
COLLEGE OF MEDICINE

metic. An advisory committee consisting of the 99:061 instructor and two other faculty members assists the new student in planning his course of study and evaluates his progress periodically during the first two years.

Current focus is on the physical biochemistry, effects of configuration on conformation and the influence of physical properties of the carbohydrates, hormonal control mechanisms, structure and function of nucleic acids, biochemistry of glycogen, triosephosphate, and carbohydrate-protein complexes, mechanisms and control of protein synthesis, biochemistry of proteins, characterization of liver enzymes, clinical biochemistry, trace elements, lipid metabolism during adaption and starvation, and alimentary and histologic investigation of gyno-estrous animals, and analysis of enzyme systems utilizing coenzymes and co-factors and co-enzymes.

In addition to fulfilling the general degree requirements outlined in the Graduate College section of this Catalog, a candidate will enroll in the teaching of biochemistry during two or three semesters as part of his graduate training.

STAFF


Assistant Professors: Arthur A. Sportor, Lewis D. Siegel.

COURSE DESCRIPTIONS

The Professional Course

All students in the dental, pharmacy (99:121), and medical (99:143) professions participate in a two-part biochemistry course. The first part is offered to the combined medical, dental, and pharmacy classes as a lecture course on the basic biochemical core of information needed by any professional student. The second part is presented to small subgroups of each professional class and includes a lab component in the physical chemistry of the protein of the particular group. These small-group conferences are directed by a faculty member.

99:161 Biochemistry 5 a.h.

Primarily for dentistry and pharmacy students; others by permission. Stress on stoichiometry and reactions of constituents of living material. Metabolism and control mechanisms in whole organisms, organs, cells and subcellular systems. The basic principles of biochemistry are presented in a core course that is supplemented by discussions in small conference groups and laboratory demonstrations pertinent to the disciplines of dentistry and pharmacy. First semester. Prerequisites: Chemistry 4:4 or 6:4 and 6:125 or equivalent.

99:163 Biochemistry 5 a.h.

Primarily for medical students; others by consent of staff. Chemistry and reactions of constituents of living matter. Metabolism and control mechanisms in whole organisms, organs, cells and subcellular systems. The basic principles of biochemistry are presented in a core course that is supplemented by discussions in small conference groups and laboratory demonstrations pertinent to the disciplines of dentistry and pharmacy. First semester. Prerequisites: Chemistry 4:4 or 6:4 and 6:125 or equivalent.

99:165 General Biochemistry 4 a.h.

For graduate students and advanced undergraduates in other sciences. Chemistry and reactions of constituents of living matter. Metabolism and control mechanisms in whole organisms, organs, cells, and subcellular systems. Four lectures, conference, and assigned readings. Presentations of laboratory data in the classroom and written papers. Bachelor of science or consent of instructor; course in physical chemistry and biology recommended.

99:167 Experimental Biochemistry 3 a.h.

For graduate students and advanced undergraduates in other sciences. Quantitative experiments on identification, separation, and properties of constituents of biochemical systems. Two laboratory periods, conferences, and assigned readings. Second semester. Prerequisite, credit or registration in 99:165 or consent of instructor.

99:261 Research Techniques 6 a.h.

For graduate students in biochemistry only. Tutorial instruction in the application of the principles of research to biochemical problems in the laboratory of a staff member. First and second semesters.

99:262 Physical Biochemistry 3 a.h.

Applications of basic biochemical knowledge to problems in the biochemistry of disease. A comparison of normal function and processes with abnormal is stressed. First semester.

99:263 Biochemistry 4 a.h.

For graduate students in biochemistry only. Provides, together with 99:266, an intensive and integrated picture of present knowledge concerning chemical structure, and function of cellular components from the viewpoint of their control mechanisms. Four lectures, discussions, and assigned readings. First semester.

99:266 Biochemistry 4 a.h.

For graduate students in biochemistry only. Continuation of 99:263, which is prerequisite. Four lectures, discussions, and assigned readings. Second semester.

99:267 Special Topics 1 to 3 a.h.

Lectures or discussions in special areas of current importance. Typical topics are: structure and function of nucleic acids; molecular identification techniques; cellular and subcellular mechanics, metabolic regulation, conformational analysis, and structure of cellular components. 1970-71, biochemistry mechanisms. Prerequisite: 99:165 or consent of instructor.

99:268 Neurochemistry 3 a.h.


99:282 Seminar: Biochemistry 1 a.h.

Selected graduate students in biochemistry. Weekly discussions by visiting and local speakers. For credit, students participate in small student-faculty groups to be arranged.

99:283 Research: Biochemistry 0 a.h.

DERMATOLOGY AND SYMPHILIOLOGY

Head of Department, Robert G. Carney

Office, S160 Children's Hospital

STAFF


Assistant Professor: William C. Frisch.

COURSE DESCRIPTIONS

62:1 Dermatology 1 a.h.

An introductory course. Sophomore year. Lectures, laboratory, and clinic.

62:5 Dermatology Clerkships 1 a.h.

Each senior student spends two weeks full time in dermatology clerkship.
78:134 Medical Clinic 1 s.h.
Weekly presentation of patients from medical service by the resident staff for open discussion by senior staff, residents, interns, and senior students.

78:135 Cardiovascular Research Seminar cr.arr.
3 hrs. Discussion of instrumentation research and clinical cases pertaining to cardiovascular physiology and disease. Presentations by staff, research and clinical fellows, and junior students.

78:136 Allergy, Infectious Disease, Pulmonary Disease Seminar cr.arr.
One hour per week. Presentation of patients with special problems in the areas of allergy, infectious, or pulmonary disease.

78:137 Resident Rounds no cr.
Teaching rounds four hours a week by staff and residents.

78:138 Research Symposia no cr.
Each staff member in rotation discusses some current aspect of his research with all staff members, residents, interns, and junior and senior students assigned to internal medicine. One hour a week.

78:139 Cardiovascular Disease Rounds no cr.
Daily morning teaching rounds at University and Veterans Hospitals.

78:130 Research Problems in Medicine cr.arr.
Open to a limited number of students of high scholastic standing.

78:151 Gastroenterology Pathology Conference cr.arr.

78:152 Gastroenterology Rounds no cr.

78:153 Gastroenterology Research Seminar cr.arr.

78:155 Cardiac Pathology Conference cr.arr.

78:156 Infectious Disease Rounds no cr.

78:157 Hematology-Oncology Clinic (UH) cr.arr.
Four hours per week. Instruction of fellows, residents, interns, and junior medical students.

78:158 Basic Mechanisms in Internal Medicine Lecture Series cr.arr.

78:159 Infectious Disease Seminar cr.arr.

78:160 Lymphoma Conference cr.arr.
Continuing coverage of treatment of lymphomas. One hour per week.

78:161 Hematology-Oncology Clinic (VAH) cr.arr.
Three hours per week.

78:162 Hematology In-Patient Service (VAH) cr.arr.
Daily.

78:163 Hematology Research cr.arr.
For medical students, interns, fellows, residents, by arrangement.

78:164 Hematology General Out-Patient Clinic cr.arr.
Four hours per week.

78:145 Pulmonary Disease Elective for Senior Students 1 or 2 s.h.
An intensive survey of pulmonary disease for 3 or 4 weeks. Students participate in the diagnosis and management of in-patients and out-patients, learn pulmonary function testing, and other special diagnostic and therapeutic procedures related to diseases of the lungs.

78:146 Research in Pulmonary Disease cr.arr.
A 2-month period in pulmonary disease research for freshman, sophomore, junior, or senior students. Open to a limited number of students of high scholastic standing.

78:147 Seminar on Pulmonary Function cr.arr.
One hour per month. Presentation of patients with pulmonary disease. Discussion of the pulmonary function test and how they aid in the diagnosis and management of these patients.

78:148 Medical-Surgical Pulmonary Disease Conference cr.arr.
One hour per week. Presentation of patients with pulmonary disease. A discussion of the diagnosis, differential diagnosis, therapy, microbiology, pathology, and physiology of lung disorders of interest to both surgeons and internists.

78:149 Pulmonary Disease-Radiology Conference cr.arr.
One hour per week. Presentation of interesting radiographs from patients with pulmonary disease. Emphasis on the radiologic diagnosis and evaluation of patients with lung disease.

78:150 Nephrology Seminar cr.arr.

78:151 Electrocardiography (UH and VAH) no cr.
A two-week elective for senior students in electrocardiographic interpretation.

78:152 Cardiology Clinic (UH and VAH) no cr.
A two-week elective for senior students in the care of patients with heart disease.

78:153 Cardiology Conference no cr.
A series of four weekly one-hour conferences are held covering clinical, laboratory, emphasized, and surgical aspects of heart disease in adults. Available to junior and senior medical students, house staff, and fellows.

78:154 Coronary Care Training no cr.
Four to six courses of one-week duration are held annually for physicians for training in the specialized procedures of modern coronary care units. Registration is by advance arrangement.

MEDICAL HISTORY

COARSE DESCRIPTIONS

08:150 History of Medicine 2 s.h.
Medical ideas and practices from prehistoric times to the 17th century. Freshman year, second semester.

08:150 History of Medicine 3 s.h.
Medical development from 1700 to the present, including specialization, socialized medicine, and medical cult. Senior year, second semester.

MICROBIOLOGY

Head of Department, J. R. Porter.
Office, 156 Medical Laboratories Building

STAFF

Professor: J. R. Porter.
Visiting Professor: Edward S. Mead.
Associate Professor: Robert C. McClellan, Jr.
Associate Professor: John C. C. Keats, O. G. Hoff- man, Allen J. Martin, J. L. Richardson, Robert W. Sin, John S. Scriver.
Assistant Professor: George E. Becker, William Jonee, John E. MacRae, Donald P. Stahlby, Donald R. Walker.
The Graduate student will be expected to fulfill the requirements given above for undergraduate majors in microbiology. This includes the electives or their equivalents as determined by the department. Usually there is no language requirement for an advanced degree. Substitutions may be made in the case of students who have completed their work for a professional (M.D., D.D.S.) degree and wish to continue in the study of a particular phase of microbiology. The grade-point average for all work must be 2.7 or better. All candidates for advanced degrees will be expected to assist in teaching in the department during their course of study. (See Graduate College for satisfactory details.)

Students are admitted as Ph.D. candidates only. As such they are expected to demonstrate a broad and thorough knowledge of microbiology. All candidates must show capacity for doing independent research and writing a satisfactory doctoral dissertation.

The M.S. degree (with thesis) may be awarded after completion of part of the requirements for the Ph.D. degree. It is intended for students desiring either to continue their graduate work or to take up other professional work for which training in research is needed. A thesis based on the candidate's own research is required for the master's degree, and the student will be expected to pass an oral examination on the thesis. In no case will the M.S. degree be granted to a candidate with less than 45 semester hours of graduate credit (includes research credit).

Suggested elective courses include the following:

**Botany**

2101 Introduction to Botany 3 s.h.

**Ecology**

2713 Principles of Animal Biology 5 s.h.

**Chemistry**

411 and 441 Principles of Chemistry I and II 4 s.h.

**Microbiology**

plus 480 481 Experimental Chemistry Laboratory 3 s.h.

4211 Quantitative Analysis 4 s.h.

4121 Organic Chemistry I 3 s.h.

4122 Organic Chemistry II 3 s.h.

4911 Intermediate Chemistry Laboratory I 1 s.h.

4912 Intermediate Chemistry Laboratory II 1 s.h.

**Biochemistry**

2816 General Biochemistry 4 s.h.

2916 Experimental Biochemistry 4 s.h.

**Physics**

2111 College Physics 4 s.h.

2211 College Physics 4 s.h.

**Mathematics**

2213 Mathematical Techniques II 3 s.h.

Electives sufficient to meet the degree requirements from the following:

**Mathematics**

2213 Analytic Geometry 3 s.h.

2217 Calculus 4 s.h.

2201 Mathematics 4 s.h.

Botany 2101 Mycology 4 s.h.

Chemistry 4111 Physical Chemistry I 3 s.h.

2112 Physical Chemistry II 3 s.h.

2142 Intermediate Chemistry Laboratory I 2 s.h.

2150 Fundamentals Genetics 2 or 4 s.h.

2151 Human Genetics 2 or 4 s.h.

2153 Genetics Seminar cr.arr.

Honors in Microbiology

An Honors program is available to superior students majoring in microbiology for the bachelor's degree. Prerequisites for admission to the Honors program are upper standing and a grade point of 3.0 (overall), and 3.5 in microbiology.

The Honors program consists of:

1. Introduction to the art and science of the practice of original research in microbiology. Each participant in the program carries out directed readings, attends the departmental seminar, and undertakes the laboratory prosecution of a special problem chosen in consultation with a member of the staff.

2. An examination is given over the area of microbiology covered by the activities of the student.

3. Each participant submits to the department a report covering his project.

4. The work is covered in 8 semester hours during the senior year.

**Advanced Degrees**

Two advanced degrees are offered in microbiology, the Master of Science and the Doctor of Philosophy. In general, the graduate student will be expected to fulfill the requirements given above for undergraduate majors in microbiology. This includes the electives or their equivalents as determined by the department. Usually there is no language requirement for an advanced degree. Substitutions may be made in the case of students who have completed their work for a professional (M.D., D.D.S.) degree and wish to continue in the study of a particular phase of microbiology. The grade-point average for all work must be 2.7 or better. All candidates for advanced degrees will be expected to assist in teaching in the department during their course of study. (See Graduate College for satisfactory details.)

Students are admitted as Ph.D. candidates only. As such they are expected to demonstrate a broad and thorough knowledge of microbiology. All candidates must show capacity for doing independent research and writing a satisfactory doctoral dissertation.

The M.S. degree (with thesis) may be awarded after completion of part of the requirements for the Ph.D. degree. It is intended for students desiring either to continue their graduate work or to take up other professional work for which training in research is needed. A thesis based on the candidate's own research is required for the master's degree, and the student will be expected to pass an oral examination on the thesis. In no case will the M.S. degree be granted to a candidate with less than 45 semester hours of graduate credit (includes research credit).

Suggested elective courses include the following:

**Botany**

2107 Mycology 4 s.h.

2208 Experimental Mycology 4 s.h.

**Biochemistry**

2826 Physical Biochemistry 3 s.h.

2926 Clinical Biochemistry 5 s.h.

2927 Special Topics 1 to 5 s.h.

**Chemistry**

4125 Introduction to Organic Research 3 to 5 s.h.

4125 Qualitative Organic Analysis 2 to 5 s.h.

4131 Physical Chemistry I 5 s.h.

4132 Physical Chemistry II 5 s.h.

4141 Instrumental Methods of Analysis 2 to 4 s.h.

**Preventive Medicine**

6211 Principles of Epidemiology 3 s.h.

6215 Biostatistics 2 or 3 s.h.

**Biology**

2718 Parasitology 4 s.h.

2726 Immunology 4 s.h.

2731 Genetics Seminar cr.arr.

**Computer Science**

2202 Introduction to Computers and Programming I 3 s.h.

2203 Computers and Programming II 3 s.h.

2204 Computers and Programming III 3 s.h.

2205 Introduction to Mathematical Statistics II 3 s.h.

**Statistics**

2258 Introduction to Mathematical Statistics II 3 s.h.

2258 Introduction to Mathematical Statistics II 3 s.h.

**Course Descriptions**

61103 Medical Microbiology 3 to 6 s.h.

Principles and methods essential to study of microorganisms, their isolation and identification. Microorganisms involved in infectious diseases. Clinical virological problems and current concepts of immunology. Sophomore year, first semester. Prerequisite: Students not enrolled in the College of Medicine, second-year medicine or second-year graduate students.

61157 General Microbiology 4 s.h.

Lecture, radiation, and laboratory. The more important bacterial techniques and the fundamental principles governing microbial actions in natural systems, processes in industrial chemistry, and in biologics. Open to liberal arts and graduate students. First semester. 306
A fundamental course designed primarily for undergraduate students and graduates majors in microbiology. Open to students with adequate background from other scientific disciplines on consent of department. Three lectures and two laboratory hours weekly. Prerequisites: 61:138. Section 5. 3 s.h.

61:159 Microbiology 5 s.h.

61:262 Dental Microbiology 5 s.h.

61:263 Seminar: Microbiology 1 s.h.

61:264 Microbiology 4 s.h.

61:265 Bacterial Taxonomy 1 s.h.

61:266 Diagnostic Microbiology 5 s.h.

61:267 Experimental Immunology 3 s.h.

61:138 Cellular Immunology 3 s.h.

61:230 Advanced Microbial Physiology 3 s.h.

61:261 Research: Microbiology 1 s.h.

Neurology

Head of Department, Adolph L. Saks

Office, CA12 General Hospital

STAFF


Associate Professor: William Bell (Pediatrics and Neurology). Richard W. Fincham

Assistant Professor: Richard A. Calhoun. Hrosva Larhec (Neurology and Psychology). Danalde Nibbikir

Resident Associate Professor: James A. Shepherd.

Clinical Associate Professor: Edward W. Sybil

Instructor: Robert Rodynick

Course Descriptions

64:1 Neurology 1 s.h.

64:3 Interdepartmental Correlated Clinic 3 s.h.

64:5 Lectures to Nurses 2 s.h.

64:6 Neurology Outpatient Clinic 2 s.h.

64:9 Physical Diagnosis 1 s.h.

64:11 Clinical Neurology for Junior Medical Students 2 s.h.

64:15 Lectures to Occupational Therapists 1 s.h.

64:181 Psychology of Occupational Therapy 3 s.h.
COLLEGE OF MEDICINE

64:301 Advanced Basic Neurology 1 s.h.
Special lectures and demonstrations in basic neurology, particularly neuroanatomy and neuropathology. For resident staff and limited number of senior students.

64:105 Pathology of the Nervous System 1 s.h.
Gross and microscopic demonstrations from recent autopsy material. Departments of Neurology and Pathology.

64:107 Neurology-Neurosurgery
Conference 1 s.h.
Review of patients presenting diagnostic problems common to both departments.

64:112 Principles of Neurology 2 s.h.
Lectures, demonstrations, and case presentation of neurologic disorders usually treated by therapists. Anatomy of nervous system, examples, and methods of electrical testing of nerve injuries demonstrated.

64:201 Research: Neurology 3 crv.
Facilities available for limited number of senior students of high scholastic standing for investigation under supervision of member of staff.

64:203 The Affective Disorders 2 s.h.
Analysis of symptomatology, classification, and clinico-pathological correlation.

64:205 Clinical Neuropsychology 3 s.h.
Conceptions of brain-behavior relationships in man; analysis of behavioral disturbances associated with central abnormality; current application of psychological test methods for inferring central status.

64:207 Neurology Seminar 1 s.h.
Presentation of original papers and review topics by residents and staff.

NUTRITION
Faculty in Charge
Administrator: R. E. Hodges
Office, C306 General Hospital
Head of Dietetics: Ann M. Crowley
Office, CI47 General Hospital
Advisory Committees: Thomas A. Anderson, Ann M. Crowley, L. J. Filer, R. E. Hodges, Margaret Osborn, Eileen Sanders

STAFF
Professors: W. R. Bannister, R. G. Caron, R. E. Hodges, D. B. Stone (Internal Medicine); L. J. Filer, C. H. Reed (Pediatrics); R. D. Goyer (Biochemistry); Elizabeth Clin- man (Home Economics); D. R. Sheriff (Labor and Manage- ments)

Associate Professors: Ann M. Crowley (Internal Medicine); Margaret Osborn (Home Economics); T. A. Anderson (Pediatrics)

Assistant Professors: Eileen Sanders, A. A. Specter (Internal Medicine); A. Reedy, T. D. Black (Pediatrics)

Instructor: J. Hood (Internal Medicine)

Affiliations
Affiliated activities with the Hospital Staff, Iowa City Visiting Nurse Association, Iowa Services for Crippled Children, and the National Health Service, Iowa Regional Medical Program, Iowa Diabetic Association provide opportunity for training in teaching and patient care skills.

The Dietetic Internship
The dietetic internship is a program of the Graduate College and the College of Medicine. It is designed to prepare the student for membership in The American Dietetic Association, to establish a basis for continued study toward the Master of Science or Doctor of Philosophy degrees, and to encourage cultural interests. Twelve to fifteen rotating internships are offered, beginning in September. Application is made to the Dietetic Internship Director (Mrs. Eileen Sanders) by those who have met the requirements of both The American Dietetic Association* and the Graduate College." The intern is not required to be a student in the Graduate College, and earns a minimum of 25 semester hours of graduate credit in nutrition, clinical nutrition, and hospital dietary administration. As a student and apprentice dietary staff member, opportunities are readily available for personal individual interests in clinical, metabolic, and administrative research and study.

Interns are paid a stipend by the University Hospitals which partly covers registration fees and living expenses.

*Send information for The American Dietetic Association, 12 S. Des Moines, Chicago, Illinois.

**Information and forms sent by Internship Director.

The Master of Science Degree
The plan for Master of Science degree is directed by the Nutrition Advisory Committee of the College of Medicine. The student participates in the Graduate College. A minimum of 25 semester hours of planned graduate credit (including a thesis) and satisfactory completion of both an oral and a written comprehensive examination are required. Under exceptional circumstances, a student may qualify for a degree without a thesis and 38 semester hours. Graduate College credits earned at this University during the dietetic internship within the last ten years are applicable toward the M.S. degree when approved by the Nutrition Advisory Committee. Similarly, a maximum of six semester hours of graduate credits from other universities are transferable.

The basic core of 16-18 semester hours is determined by the student's major but must include an approved major, practical experience, and participation in meetings of The American Institute of Nutrition. For admission, research paper may be required. The Master of Science degree includes practical experience, study of dietetics, and self-study of selected topics. The student must pass the comprehensive examination given either in June or November, and two semesters of physics are also highly desirable. Internship and professional experience is prerequisite for the M.S. in administrative dietetics.

The Doctor of Philosophy in Human Nutrition
The graduate program leading to the Ph.D. degree may be undertaken by students who have completed the Master's degree or who will combine the Ph.D. program with the M.D. or D.D.S. requirements. The exceptional student may be allowed to conduct work for the Ph.D. and bypass the Master's degree. The program usually requires three years to complete and is designed to prepare the student for careers primarily in research and teaching. It is directed by the Nutrition Advisory Committee of the Graduate College.

Requirements include mathematics through calculus, physics, organic chemistry, analytical chemistry, physical chemistry, biochemistry, and a fundamental knowledge of nutrition and microbiology are highly desirable. Each student must select a particular major area and his program of research. Areas of research may be selected from the basic sciences, both animal and human; nutrition in health and disease; food consumption patterns. The individual field of specialization may relate to any of a wide variety of subjects including molecular biology, physiology, pharmacology, psychology, bacteriology, microbiology, medicine, toxicology, and nutrition.
OBSTETRICS AND GYNECOLOGY
Head of Department, W. C. Keetel
Office, Waits General Hospital

STAFF


The courses in obstetrics and gynecology are designed as an integral part of a comprehensive survey of the specialty. The courses are offered in the first and second years of the medical school. The junior and senior years are then spent entirely in obstetrics and gynecology. The courses are designed to acquaint the student with the problems of obstetrics and gynecology and to prepare him for a career in these fields.

COURSE DESCRIPTIONS

65:201 Nutrition Seminar 1 s.h.
65:202 Nutrition Seminar 1 s.h.
65:203 Clinical Nutrition 2 to 4 s.h.
65:204 Clinical Nutrition 2 to 4 s.h.
65:205 Projects in Nutrition cr.arr.
65:206 Projects in Nutrition cr.arr.
65:207 Nutrition Research cr.arr.
65:208 Hospital Dietery Administration 2 to 4 s.h.
65:211 Nutrition of the Child 2 s.h.
65:213 Methods in Nutrition Research 1 or 2 s.h.
65:214 Evaluation of Nutritional Status 1 or 2 s.h.
65:215 Comparative Nutritions 2 s.h.
65:216 Analysis of Food Service Systems 2 s.h.
65:217 Recent Advances in Nutrition and Clinical Nutrition 2 s.h.

Note: The following courses are essentially postgraduate in nature, and are open to students who have completed the basic studies in obstetrics and gynecology.

65:221 Research: Endocrinology cr.arr.
65:225 Tumor Conference cr.arr.
65:226 Gynecologic Pathology cr.arr.
65:227 Psychosomatic Gynecology cr.arr.
65:228 Obstetrical and Gynecological Research Laboratory cr.arr.

65:229 Grand Rounds Obstetrics and gynecology

311
66:331 Department Seminar cr.arr.

OPHTHALMOLOGY

Head of Department, Frederick C. Bliod Office, CM40-1 General Hospital

STAFF

Professor: Frederick C. Bliod, Paul Bender, Hermann M. Burman, Ethel Ann S. P. C. Walsh.
Associate Professor: H. J. Kelder, R. E. Harvey.
Assistant Professors: Charlotte Burman, H. Stanley Thompson.
Research Associate: R. Lee Allen.
Instructors: T. C. Burton, D. Greek.

COURSE DESCRIPTIONS

67:3 Ophthalmology 1 cr.arr.
A didactic course in diagnosis and treatment of the common diseases of the eye and the relation of ophthalmology to general medicine. Sophomore year, third term.

67:5 Ophthalmology cr.arr.
A clinical course in ophthalmologic diagnosis in medical and neurological cases and in diseases of the eye and adnexa. Junior year, first and second terms.

67:3 Ophthalmology cr.arr.
Clinical work in sections throughout the senior year.

67:301 Graduate Course in Advanced

Ophthalmology cr.arr.

Intensive course in the basic and clinical sciences of ophthalmology, limited to the resident physicians who have completed at least a half year of general internships and have been accepted for residency by the permanent staff of this department. Didactic lectures, laboratory work, and research. The lectures are given in the late afternoon every day during the academic year. In addition there are seminars each Thursday and a journal club on Tuesday noon. The laboratory work is done in the ophthalmic pathology laboratory and in the laboratory of physiologic optics. Each resident spends six months half-time in the pathology laboratory and two to three months in the laboratory of physiologic optics. The clinical training connected with this graduate course is in keeping with the requirements of the American Board of Ophthalmology.


All physicians taking course 67:301 are required to spend at least six months full-time research. The area of research may be chosen by the resident or may be assigned. During this time the resident is expected to set up a project which can be followed up while he is in his clinical residency. This research project may lead to a Master of Science degree, provided the requirements of the College of Medicine are met. The areas of requirements of the thesis which have to be defended before a committee including members of other departments. During the first year the resident is required to take a course in certain kinds of research such as statistics, electronics, animal care, etc.

ORAL SURGERY

Head of Department, Merle L. Hale Office, 2200 General Hospital

STAFF

Professor: Merle L. Hale.
Associate Professor: John C. Montgomery.
Assistant Professors: Leslie H. Ilgus, James W. Thatcher.

61:301 Hospital Procedures 1 cr.arr.
Hospital rules and regulations, patient and department records, and general information related to hospitalized patients.

61:302 Basic Science Review 4 cr.arr.
Includes head and neck anatomy with dissection. Bacteriology, pathology, etc. Special lectures by medical and dental staff.

Basic surgical principles in detail. To include instrumentation, classifications and techniques, flap design, suturing, etc.

61:304 Clinical Oral Surgery cr.arr.
Clinical practice on assigned patients problems.

61:305 Pathology cr.arr.
General pathology for two trimesters.

61:306 Tumor Conference cr.arr.
A review of tumors of the head and neck and all current clinical specimens.

61:307 Surgical Anatomy cr.arr.
A study of the head and neck structures found in major oral surgery procedures. Special emphasis on maxillofacial problems and surgical emergencies. May include animal surgery.

61:308 Maxillofacial Rehabilitation cr.arr.
A review of cleft lip and palate and facial deformities.

61:309 Principles of Anesthesia cr.arr.
A review of the literature on general anesthesia with a study of the agents used and their effects on the respiratory and cardiovascular systems.

61:310 Advanced Oral Surgery Seminars cr.arr.
Includes seminar participation on assigned subjects.

61:311 Literature Seminars and Journal Club cr.arr.
Special attention to material covered in assigned journals.

61:312 Surgical Case Reports cr.arr.
Case reports of selected surgical problems.

61:313 Research: Thesis Project cr.arr.
Satisfactory evidence must be provided for the oral surgery staff to evaluate a successful project in consultation.

61:314 Roentgen Interpretation 2 cr.arr.
A review of theory and technique with laboratory assignment.

61:315 Physical Diagnosis cr.arr.
A review of principles of physical diagnosis. Second semester.

61:316 Principles of Surgery cr.arr.
Surgical principles of diseases, lesions, and surgical techniques.

61:317 Bone Pathology Seminar cr.arr.
A weekly seminar for the study of bone lesions from surgical and medical specimens. Same as 71:101.

61:318 Oral Pathology Conference cr.arr.
Review and discussion conference of recent clinical specimens.

61:319 Teaching Project cr.arr.
Special assignments by the staff.

For Graduates

61:301 Hospital Procedures 1 cr.arr.
Hospital rules and regulations, patient and department records, and general information related to hospitalized patients.

61:302 Basic Science Review 4 cr.arr.
Includes head and neck anatomy with dissection. Bacteriology, pathology, etc. Special lectures by medical and dental staff.

Basic surgical principles in detail. To include instrumentation, classifications and techniques, flap design, suturing, etc.

61:304 Clinical Oral Surgery cr.arr.
Clinical practice on assigned patients problems.

61:305 Pathology cr.arr.
General pathology for two trimesters.

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A review of principles of physical diagnosis. Second semester.

61:316 Principles of Surgery cr.arr.
Surgical principles of diseases, lesions, and surgical techniques.

61:317 Bone Pathology Seminar cr.arr.
A weekly seminar for the study of bone lesions from surgical and medical specimens. Same as 71:101.

61:318 Oral Pathology Conference cr.arr.
Review and discussion conference of recent clinical specimens.

61:319 Teaching Project cr.arr.
Special assignments by the staff.
ORTHOPAEDIC SURGERY

Head of Department, Carroll B. Larson
Office, 1111 Children's Hospital.

STAFF

Professor: Michael B. Steinberg, M.D., F.A.A.O.P.
Professor Emeritus: William S. Green, M.D., F.A.A.O.P.
Assistant Professor: Donald R. Cooper, M.D.
Resident: Robert L. Cooper

Research Associates: John McKee, M.D., Elizabeth Pedrigi.

COURSE DESCRIPTIONS

76:1 Principles of Orthopedic Surgery 1.0 s.h.

For junior medical students through the year.

76:2 Clinical Orthopedics for Junior Medical Students 2.0 s.h.

For senior medical students. Two weeks' assignment for
clinical experience in orthopedic surgery.

76:101 Fundamentals of Orthopedics 2.0 s.h.

For allied health science students only. Prior approval of
instructor required. Lectures, demonstrations, and case
presentations of orthopedic disorders from the
standing points of etiology, clinical signs and symptoms, treatment, and prognosis.

76:210 Postgraduate Course in Orthopedic Surgery 2.0 s.h.

Observation of all phases of clinical orthopaedic, clinic,
ward care, operations, seminars, and basic science con-
ferences. Arranged individually for periods of 3, 6, or 12
months. Write Director of Postgraduate Medical Studies,
College of Medicine, Iowa City 52242.

Program for Graduate Training in Orthopedic Surgery

Graduate training in orthopedic surgery is available to
a limited number of applicants. The course provides
training to keeping with the requirements of the Ameri-
can Board of Orthopedic Surgery and satisfies the re-
quirements of the Graduate College toward the advanced
degree of Master of Science. Candidates recommended by
the department head should obtain an application form
from the office of the Director of Admissions of the Uni-
versity of Iowa. Applications should be received by Jan-
uary 15th of the year for which admission is sought.

A thesis is required, and the final exam must be approved
by the department head and the Graduate College.

76:205 Kinesiology 2.0 s.h.
The kinesiology of normal and pathological motion.

76:206 Advanced Principles of Orthopedics 2.0 s.h.

Didactic lectures and demonstrations concerning problems of
orthopedic care.

76:211 Postoperative Conference 2.0 s.h.

A weekly conference to review and discuss all cases
operated upon in the preceding week. Registration is held
regularly for residents from each case under his supervision.

76:212 Induction Conference 2.0 s.h.

For 1 to 3 hours, five times weekly, problem cases are
presented for discussion of treatment, both operative and
nonoperative.

COLLEGE OF MEDICINE

76:214 Bone Pathology Seminar 2.0 s.h.

A weekly seminar for the study of bone lesions from surgical and necropsy specimens. The combined staffs from the Departments of Pathology, Ortho-
paedics, and Surgery participate.

76:215 Clinical Experiences in Patient Care 2.0 s.h.

Course is divided into services of approximately three
weeks' assignment each. Assignment arranged by de-
partment head. Registrant is given responsibility for
24-hour care of patients in the assigned area under close
supervision of staff. Course is required and continues a
full academic year to meet the purpose of continuity.

Outpatients 0.0 s.h.

General wards 2.0 s.h.

Operating room 3.0 s.h.

76:218 Anatomy of the Extremities and Spine 2.0 s.h.

A weekly laboratory course with material available for
detailed dissection and for anatomic study of surgical
approaches.

76:221 Advanced Orthopaedic Pathology 2.0 s.h.

A weekly seminar for the systematic study of problems
of orthopaedic pathology. Registrant is responsible for
presentation and discussion of specific problems.

76:250 Thesis 2.0 s.h.

Note: This program also includes the following courses in
other departments: Pathology 69:202, Graduate Instruc-
tion in Pathology; Physiology 72:202, Advanced Physiol-
ogy of Exercise.

OTOLARYNGOLOGY AND MAXILLOFACIAL SURGERY

Head of Department, Brian F. McCabe
Office, 250 Hospital.

STAFF

Professor: Brian F. McCabe, Barlow J. Anson, Leslie
J. Dye, Robert L. Sibley, Donald H. Dillman, Charles C.
H. Eppley, Richard G. Goodenough

Associate Professor: Robert W. Reimann, Charles H.
Krauss, Howard R. Haffert, James R. Smith, Ernest B.
Van Denburg

Assistant Professor: Maxwell Abramson, Patrick J.
Cohen, Lee A. Harker, Charles J. Krause, Richard J.
Yoder

Research Associate: Jack R. Tobin, Sekhtsian, Rosamond F. Theiler.

COURSE DESCRIPTIONS

68:1 Otolaryngology 1.0 s.h.

A didactic course in diseases of the ear, nose, throat,
and jaw. Junior year.

68:3 Clinical Otolaryngology for Junior Medical Students 2.0 s.h.

Junior class in sections throughout year.

Graduate Course in Otolaryngology

The postgraduate training program in otolaryngology,
which is in accordance with the requirements of the Ameri-
can Board of Otolaryngology, is comprised of a
four-year course. The total course consists of two phases:
basic science and clinical science groups. The basic
science group consists of a series of didactic lectures and
laboratory studies preparatory to the actual clinical work.
It is conducted during the first three and one-half months of residence, usually July 1 to October 15 of each year. 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 other phases of otorhinolaryngology and its related fields. A limited number of residents' positions can be accepted each year. Applicants must be graduates of recognized Class A medical schools and must have completed an internship of one year and one year of general surgical training in an approved program. Upon successful completion of the four-year course, which must include an acceptable thesis, candidates will be awarded the degree Master of Science. To complete the requirements, a minimum of 30 semester hours must be earned, one-third of which must come from the basic science group.

Elective courses of study to broaden the individual's cultural knowledge may be taken by those students capable of additional work in the second year of graduate school.

For general requirements for the master's degree and admission procedures, see Graduate College.

Certain residents may be invited to remain for a fifth year. In addition to serving as senior residents, these students are given opportunity for advanced work (endoscopic surgery, advanced tumor surgery, and maxillofacial surgery).

68:300 Basic Otolaryngologic Science 4 s.h.
A preceptor course with special reference to the head and neck, upper gastrointestinal tract, respiratory tract, and ears, including lectures on descriptive anatomy and physiology, surgical anatomy of the head and neck, en- tology, otology, rhinology, laryngology, pharyngology, maxillofacial surgery, oral surgery, radiology, clinical pathology, and the instrumentation of biologic measurements. Laboratory work includes head and neck dissection, histology of the ear, and temporal bone surgery.

68:301 Research Techniques in Otolaryngology 3 s.h.
A laboratory course designed to familiarize the student with research philosophy, equipment, and procedures. Students are required to spend two months, on a full-time basis, working in departmental research laboratories under the supervision of the resident in surgery, thyroidology, head and neck surgery, oral surgery, radiology, and pathology of the temporal bone, and the instrumentation of biologic measurements. Laboratory assignments are supplemented with assigned readings and projects.

68:310 Clinical Conference in Otolaryngology, Rhinology, and Maxillofacial Surgery 1 s.h.
Presentation of the diagnostic methods and outline of management for adult patients. May be repeated.

68:311 Clinical Otolaryngology, Rhinology, and Maxillofacial Surgery 3 s.h.
Clinical course involving diagnosis and treatment of patients in the areas of rhinology, laryngology, otology, and maxillofacial surgery. A systematic review and refinement of ENT examination techniques including endoscopy. May be repeated.

68:315 Histopathology 1 s.h.
Same as Pathology 39.12. May be repeated.

68:320 Basic Clinical Audiology 2 s.h.
Clinical techniques of pure tone air conduction and bone conduction, including masking. Consideration of the relationships between various auditory pathologies and events and configuration of hearing loss.

68:221 Advanced Clinical Audiology 2 s.h.
Special clinical tests of hearing such as Bekesy Audiometry, PDR, Delayed Feedback, BSR Test, SRL Test, tests of loudness recruitment, and other developments in audiology.

68:250 Seminar: Otolaryngology and Related Fields 1 s.h.
A critical and systematic review of current literature in otorhinolaryngology and related fields. May be repeated.

68:300 Research: Otolaryngology 2 s.h.
Research completed in conjunction with the thesis requirements for the M.S. degree involving the preparation of a prospectus which must be approved by the faculty advisor and the Departmental Research Committee. May be repeated.

68:400 Dental Treatment of Maxillofacial Deformities 1 s.h.
Clinical orthodontics for patients with maxillofacial deformities. Limited to graduate students in dentistry.

68:401 Seminar in Maxillofacial Rehabilitation 1 s.h.
Weekly seminar discussing the various types of facial deformities. Limited to medical and dental graduate students.

68:430 Maxillofacial Prosthesis 1 s.h.
Clinical prosthetic treatment for patients requiring intra- or extra-oral prostheses including facial and body prostheses.

PATHOLOGY
Head of Department, Emory D. Warner, Office 133 Medical Laboratories Building

STAFF
Associate Professors: Thomas H. Kent, Kent F. Ross.
Assistant Professors: Robert L. Oiler, Michael S. Korov, Donald F. Nicholson, Sidney B. Schachter, Jr.
Affiliated Staff: David Barson, Jr., Kenneth R. Cross, Alton K. Fisher, William H. Taked

COURSE DESCRIPTIONS
Note: All courses by consent of instructor.

68:01 General and Systemic Pathology 4 s.h.
Lectures, conferences, demonstrations, and laboratory. Use of current autopsy and biopsy material. Sophomore year medical students. May be repeated once for credit, second semester.

68:02 General and Systemic Pathology 4 s.h.
Lectures, conferences, demonstrations, and laboratory. Use of current autopsy and biopsy material. Freshman year medical students.

68:03 Introduction to Medical Technology 1 s.h.
Lectures, demonstrations, and laboratory. Use of current autopsy and biopsy material. Pathology.

68:11 General and Systemic Pathology 2 s.h.
Lectures, conferences, demonstrations, and laboratory. Use of current autopsy and biopsy material. Freshman year medical students.

68:101 Pathology of the Nervous System 1 s.h.
Same as Neurology 64.09. May be repeated once for credit, second semester.

68:201 Graduate Instruction in Pathology 2 s.h.
May be repeated once for credit, second semester.
69:103 Research in Pathology cr.arr.
May be repeated once for credit, second semester.
69:105 Bone Pathology Seminar 2 cr.
Same as Orthopaedics Surgery 18:214. May be repeated once for credit, second semester.
69:207 Histopathology 1 cr or 2 cr.
Same as Ophthalmology 68:312. May be repeated once for credit, second semester.

PEDIATRICS
Chairman of Department, Donald Dumpy
Office, C132 General Hospital

STAFF
Clinical Professor: Lee Forest W. Reality
Research Professor: Vincent V. Naesschman
Associate Professors: Thomas A. Anderson, William E. Bell, James C. Hardy (Speech Pathology)
Assistant Professors: Gordon R. Aitken, Jane E. Anderson, George R. Baker, Robert E. Denison, Dorothy A. Duske, Ronald J. Frieden (Psychology), Alfred Healy, Charles L. Johnson, Sidney W. Smith, Joseph D. Raymond, Donald K. Rothb, Albert C. Saha (Radiology); David L. Silver, Lewis D. Stephen (Biochemistry); James Shilohav (Psychology); James T. Kronin
Consultant in Contiguous Disease: Franklin H. Toth
Affiliations with Division of Material and Child Health, Iowa State Department of Health, State Services for Physically Challenged Children, Hospital School, and Institute of Child Behavior and Development provide internship opportunities for general and specialized training in child welfare and pediatrics.

COURSE DESCRIPTIONS
70:1 Introduction to Pediatrics 1 cr. Lectures and demonstrations presenting fundamental bases for examination and care of infants and children, including nutrition, appraisal of growth and development, otorhinolaryngology, history, and physical signs. Second semester.
70:7 Clinical Pediatrics for Seniors 4 cr.
An out-patient experience in care of patients and instruction in clinical and ward work. Four weeks.
70:103 Pediatric Research cr.arr.
Laboratory or clinical investigation.
70:105 Pediatric Clinic cr.
Preclinical students are not eligible. Patients in hospital for diagnosis, treatment, discussion.
70:106 Pediatric Pathy cr.
70:107 Convulsive Disorders cr.
70:108 Diabetes cr.
70:109 Pediatric Endocrinology cr.
70:110 Infant Nutrition cr.

70:111 Pediatric Neurology cr.arr.
70:112 Pediatric Rheumatology cr.arr.
70:113 Mental Retardation cr.arr.
70:114 Pediatric Cardiology cr.arr.
70:115 Pediatric Hematology cr.arr.

PHARMACOLOGY
Head of Department, L. A. Woods
Office, 311 Medical Laboratory Building

STAFF
Professor: M. J. D. Long, Jr., C. L. Mitchell
Assistant Professor: David A. Gant, James L. Hutt, William J. Szabo, Harold R. Walsman
Assistant Professor: Vincent S. Aklu, Lawrence J. Pichler, Louis S. Var. Overson
Assistant Research Pharmacologists: S. Y. Yeh, J. J. Rios, Robert J. Roberts

Graduate Study
Graduate training in pharmacology leading to the M.S. and Ph.D. degrees is available for a qualified student with an undergraduate degree. Requirements for graduate study include undergraduate background in chemistry, biology, and mathematics. Research areas of interest in the department include atomic pharmacology, neuropharmacology, cardiovascular pharmacology, renal pharmacology, biophysical pharmacology, drug metabolism, biochemical toxicology, and neurology. Required courses for the M.S. degree include Physiological 210:10, Biophysical 210:10, Pharmacology 71:101, 201, 205, 230, 235, 240, 245, 250, 255, 271, 272, 281, 282, 285, 286, 287, 288, 289, 290, 291, 292 or acceptable equivalent. These requirements and the research for the thesis can be completed in two or three years. The degree will be awarded only in those cases where complete written and oral final examinations and comprehensive written and oral final examinations and comprehensive written

Required courses for the Ph.D. degree include all those required for the M.S. degree. In addition, completion of two or more courses in areas related to the student's interests, as approved by the advisor, is required. There is no departmental foreign language requirement. However, individual faculty advisors may have such a requirement for their students. Satisfactory performance is written and oral comprehensive examinations, usually taken one year prior to expected graduation, is also required. These requirements and the dissertation research can be usually completed within four years of graduate work. The Ph.D. degree will be awarded upon acceptance of a dissertation and satisfactory performance in the thesis examination.

COURSE DESCRIPTIONS
71:5 Medical Pharmacology 4 cr.
Lecture-laboratory course covering pharmaco- genic action and therapeutic uses of drugs. Does not include drugs acting on the central nervous system. First semester, sophomore year.
71:11 Pharmacology for Dental Students 6 cr.
Lecture-conference-laboratory course correlating the pharmacology of drugs that affect the oral cavity with emphasis on those of special interest to dentistry. Second semester, sophomore year.
71:00 Introduction to Pharmacology 1 cr.
Philosophical and experimental approaches to drug research will be discussed. Emphasis will be directed toward the concepts and goals of biological research. In-
11:214 Renal Pharmacology 1 cr.
Deductions of the mechanisms of action of drugs affecting renal transport systems. Prerequisites: Introductory courses in physiology and pharmacology; consent of instructor. First semester; alternate years, offered 1971-72.

PHYSIOLOGY AND BIOPHYSICS
Head of Department, C. Adrian M. Hugheb.
Office, 240 Medical Laboratories Building
STAFF
Visiting Professor: J. Clódalogy-Thompson.
Customer: Professor: Marshall A. Corbett, Jr.
Assistant: Assistant Professor: R. Aiken, Kirk, Hroovev Lankow, M. lan Phillips, Margaret Wester.
Instructors: F. Diane Ingbom, G. Michael Morley.

Graduate Study
Graduate training in physiology and biophysics usually prepares the Ph.D. degree. Qualified students are accepted who have baccalaureate degrees in biological, chemical, physical, or mathematical sciences. Prerequisites for graduate study include a year each of biology, physics, organic chemistry, physical chemistry, and calculus. Students who are otherwise qualified may be accepted, but their subsequent program would include early completion of necessary prerequisites. Complete admission procedure, apply to the Chairman, Graduate Studies Committee, Department of Physiology and Biophysics.

In preparatory work for the comprehensive examinations, students are introduced to the major areas of physiology and biophysics, including the basic concepts of membranes, shock wave, and wave propagation. Additional coursework may be taken in one or two of the several areas such as biochemistry, pharmacology, physics, chemistry, sociology, engineering, medical electronics, or radiation research. Most students may anticipate taking their comprehensive examination by the end of their second year of graduate study.

11:103 Pharmacology 5 cr.
Lecture-laboratory course dealing with general principles. Open to students in pharmacy and qualified graduate students. Prerequisites: biology and organic chemistry. Second semester.

11:103 Pharmacology and Toxicology 3 cr.
Continuation of 11:103. Lecture-conference-laboratory course, with emphasis on topics of special interest to pharmaceutists. Open to students in pharmacy. First semester.

11:120 Drugs: Their Nature, Action, and Use 2 cr.
Lecture-discussion course covering principles of drug action and drug toxicity. Specific classes of drugs to be covered include antibiotics, oral contraceptives, sedatives, stimulants, hallucinogens, narcotics, and others. Open to all students. The course material is geared to students not having a strong background in science. No prerequisites. First semester.

11:201 General Pharmacology 4 cr.
Same as 115.

11:203 Pharmacology Research cr.arr.

11:204 Pharmacology Seminar 1 cr.
Consult head of department for permission to register.

11:205 Cardiovascular Pharmacology 1 cr.
Discussions on pathopharmacology of cardiovascular diseases and mechanisms of action of cardiovascular drugs. Prerequisites: consent of instructor. First semester; alternate years; offered 1971-72.

11:206 Biochemical Pharmacology 2 cr.
Lectures on the biochemical and molecular basis for drug absorption, distribution, excretion, metabolism, re- ception, interaction, and enzyme induction. Prerequisite: 11:206 or consent of instructor. Second semester.

11:207 Introductory Neurobiology cr.arr.
Similar the same as 20:59, but arranged to meet the needs of graduate students in pharmacology. Lectures, laboratories, demonstrations, and conferences on the nervous system. The course presents materials from anatomy, physiology, pharmacology, psychology, and the medical clinics in an integrated fashion. Graduate students in pharmacology, and others who desire, will participate in a seminar in neuropharmacology, in which review articles and important current research papers are discussed critically. Prerequisite: consent of instructor. First semester.

11:208 Biometrics and Bioassay 3 cr.
The purpose of the course is to teach the application of statistical techniques to the design of experiments and the interpretation of biological data. Lectures include: Student's t-test, analysis of variance, linear regression, Chi square, Fisher's exact probability, Mann-Whitney U test. Emphasis on principles of bias, and experimental design. Laboratory exercises consist of practice in all of the above. Open to chemistry and biology majors and graduate students. Consent of instructor. May be taken by first year graduate students with proper background. First semester.

11:210 Special Topics in Pharmacology credit.
A course for pharmacology majors and other interested students, to be offered on a topic of current interest in pharmacology. Will be presented with special emphasis on drug-induced injury, mechanisms of toxicity, present and potential toxicity, and drug safety evaluation. Forestal and envi- ronmental aspects of drugs will be covered in this course. Prerequisite: 11:2. Second semester.

11:212 Toxicology 1 cr.
A course for pharmacology majors and other interested students. Specific topics in pharmacology toxicology will be presented with special emphasis on drug-induced injury, mechanisms of toxicity, present and potential toxicity, and drug safety evaluation. Forestal and envi- ronmental aspects will be included. First semester.
72.110 Neurobiology and Behavior cr.arr.
Same as 09110 except with additional seminars and reading assignments. Prerequisites, consent of instructor. Second semester, alternate years. Offered 1970-71.

72.143 Analytical Study of Physiology 3 s.h.
Open to students with an adequate background in physics, chemistry, mathematics, and English. Lectures and laboratory. Prerequisites: two years of chemistry and a year of biology, two years of physics, one year of organic chemistry, or equivalent. Consent of instructor. Second semester, alternate years. Offered 1971-72.

72.151 Mammalian Physiology 6 s.h.
Lectures and laboratory dealing with the principles of physiology and selected topics of organ systems and cell types. Required of dental and pharmacy students. Open to graduate and senior undergraduate students having prerequisites of a year of biology or zoology, a year of physics, two years of chemistry, and one semester of biochemistry or consent of instructor. First semester.

72.198 Research in Physiology and Biophysics cr.arr.
For graduate students who are not master's or doctoral candidates of the Department of Physiology and Biophysics. Prerequisite, consent of the head of the department.

72.201 Medical Physics 3 s.h.
Physical interpretation of biological observations. Such topics as biostatistics, biometrics, and flow and diffusion in living systems will be discussed. Recommended prerequisites: a year each of biology, physics, calculus, and consent of instructor. Two lectures and one three-hour laboratory per week. First semester, alternate years. Offered 1970-71.

72.202 Advanced Physiological Exercise 3 s.h.
Prerequisites, 72.211 and Biochemistry 60.115 and 60.117. Student reports of immediate and long-term effects of exercise to biological systems. Includes lectures, laboratory. Second semester, alternate years. Offered 1971-72.

72.203 The Endocrine Glands 2 s.h.
Same as Anatomy 60.203. Lectures and readings on structure and function of the organs of internal secretion. Prerequisite, consent of instructor.

72.213 Advanced Physiology 3 s.h.
Required of freshman medical students and open to graduate students with adequate preparation in biological and physical sciences. Prerequisite, consent of instructor. Second semester.

72.221 Advanced Systematic Physiology 2 or 3 s.h.
Courses 72.221 and 72.222 involve detailed didactic and laboratory study of the function of biological systems. Each semester, a particular area such as respiration, renal physiology, metabolism, or central neurophysiology, will be designated for review. Prerequisites, Biochemistry 60.211 or 60.117, 72.212, and consent of instructor. First semester.

72.222 Advanced Systematic Physiology 3 or 8 s.h.
Continuation of 72.221. Second semester.

72.231 Advanced Renal Physiology 2 or 3 s.h.
Investigation in depth of the evidence used to develop the principles of renal physiology. Two lectures and one three-hour laboratory. Prerequisites, 72.222 or equivalent, and consent of instructor. First semester, alternate years. Offered 1970-71.

72.241 Membrane Transport 2 s.h.
Will concentrate on active transport as it relates to cell homeostasis and upon passive transport and electrolyte balance. Prerequisites, 72.212 and consent of instructor. First semester, alternate years. Offered 1971-72.

72.353 Advanced Gastrointestinal Physiology 3 s.h.
Lectures, conferences, and laboratory work. Prerequisites, Introduction to experimental physiology or equivalent, and consent of instructor. First semester, alternate years. Offered 1970-71.

72.362 Environmental Physiology 3 s.h.
Lectures, reports, and research work. The physiological adaptive mechanisms of man and his mammalian relatives are considered in detail, in relation to both the physical and the socioeconomic environment. Responses to heat, cold, light, and high and low pressures are analyzed; various lectures from departments of anthropology and geography are considered. First semester, alternate years. Offered 1971-72.

72.371 Advanced Cardiovascular Physiology 3 s.h.
Recent developments. Open to graduate and postgraduate students with prerequisites of 72.212 or equivalent and consent of instructor. First semester, alternate years. Offered 1971-72.

72.381 Advanced Neurophysiology (Muscles) 3 s.h.
Part of a two-year sequence. Open to graduate and postgraduate students. Examination of electrical, mechanical, biochemical, and thermal phenomena at the cellular level in contracting skeletal muscle. Prerequisites, adequate background in biological and physical sciences and consent of instructor. First semester, alternate years. Offered 1970-71.

72.382 Advanced Neurophysiology (Biophysics of Excitable Membranes) 3 s.h.
Part of a two-year sequence. Open to graduate and postgraduate students. Foundation for an understanding of the generation of activity, the propagation of electrical impulses and the control of excitation as it relates to the central nervous system. Prerequisites, adequate background in biological and physical sciences and consent of instructor. Second semester, alternate years. Offered 1970-71.

72.383 Advanced Neurophysiology (Sensory Physiology) 3 s.h.
Part of a two-year sequence. Open to graduate and postgraduate students. Examination of the responses of the major peripheral sensory mechanisms governing olfaction and vision. Prerequisites, neuroanatomy and neurophysiology courses and consent of instructor. Second semester, alternate years. Offered 1971-72.

72.384 Advanced Neurophysiology (CNS, Control of Locomotion and Posture) 3 s.h.
Part of a two-year sequence. Open to graduate and postgraduate students. Objective is deep discussion of the major central nervous mechanisms governing olfaction and vision. Prerequisites, neuroanatomy and neurophysiology courses and consent of instructor. Second semester, alternate years. Offered 1971-72.

72.391 Research: Physiology cr.arr.
First semester.

72.392 Research: Physiology cr.arr.
Second semester.

72.393 Special Topics cr.arr.
Reports and discussions of selected topics. First semester.

72.394 Special Topics cr.arr.
Second semester.

72.395 Seminar: Physiology cr.arr.
First semester.

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COLLEGE OF MEDICINE

72:342 Seminar: Physiology
72:401 Thesis
72:402 Thesis

PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH

Head of Department, Franklin H. Top, Sr.
Office, 106 Medical Laboratories Building

STAFF


Associate Professors: W. J. Haasler, Jr., R. Y. Hei, Paul R. Leaverton, Kenneth MacDonald, Dan McDonald, Robert Morris, Marcus Powell.


Associate: William McCormall.

Instructors: Gutowsky Backlund, Dean P. Bonderman, Leon F. Burmeister, Josephine Cerry, Melvin Daniel Rockwell.

Visiting Lecturers: Titus Event (Radiation Research Laboratory), Henry R. Hamilton (Department of Internal Medicine), Isaac Horowitz (Department of Internal Medicine, VA).

Advanced Degree Potentials or Requirements

Graduate courses and credits are offered in preventive medicine and environmental health. Programs leading to the M.S. and Ph.D. degrees are available for qualified students. The following areas of study provide programs which are designed to equip them for specialty careers. (See Graduate College and College of Engineering sections of the Catalog).

Health education. Designed primarily for students who seek to teach hygiene and environmental health in secondary and junior high schools, or who wish to become public health educators. A broad background in chemistry and the biological sciences is desirable. (M.S. and Ph.D.)

Environmental health science. Designed to prepare students for employment by federal, state, and local governmental agencies, voluntary agencies, and industry. Persons employed are involved in sanitation, industrial hygiene, safety, and quality control programs. (M.S. and Ph.D.)

Health education science. A graduate program for students who seek to work professionally in a facility providing health education type services. Areas of specialization include health education, evaluation, health education, nutrition, and health science. (M.S. and Ph.D.)

Public health parasitology. A curriculum for students who expect to specialize in teaching and research in the parasitic diseases common to man. A background in biology and medical parasitology (departmental requirement) are required. (M.S. and Ph.D.)

Industrial hygiene. Designed for the individual student based upon the background of the student and the area in which he plans to work. Candidates must be unusually well motivated and possess a baccalaureate degree in chemistry, engineering, or the biological sciences. Summer field work, for credit, is a part of the program. Ph.D. test requirements are biostatistics and epidemiology.

Comparative medicine. A graduate program is offered in the area of disease conditions common to man and animals. Specific students in epidemiology and/or employment. Students are required to have considerable experience in animal studies and the ability to deal with public health problems associated with farm animals. Prerequisites: two years of college, and previous background in a basic science, or clinical science are given preference. (M.S. and Ph.D.)

Environmental toxicology. An opportunity is provided for students to study the epidemiology of environmental toxicants particularly pesticides. Staff and facilities are available to provide depth and insight in characterizing the cause-and-effect relationships of organic pollutants and other substances to human health. Students desiring work in this area should possess a strong background in general chemistry, biochemistry, biological science, or medicine. (Ph.D. only)

DEPARTMENT OF INTERNAL MEDICINE

73:101 Health Science I
73:102 Health Science II

Environmental Biology

Course for sanitary engineers and other persons who, in addition to a knowledge of basic bacteriology, require an understanding of the practical aspects of the microbiology of specific environments. Same as Civil Engineering 58:125.

73:103 Health Science III

Environmental Control

Course for sanitary engineers and other persons who, in addition to a knowledge of basic bacteriology, require an understanding of the practical aspects of the microbiology of specific environments. Same as Civil Engineering 58:125.

Course DESCRIPTIONS

73:101 Health Science I

Factors which determine personal health. Methods of preventing diseases in the individual and community. Lectures, demonstrations, readings. Open to juniors and seniors.

73:102 Health Science II

73:103 Health Science III

ENROLLMENT LIMITS

73:104 Health Education Workshop

73:120 Public Health Parasitology

73:122 Public Health Entomology

73:133 Mills and Food Sanitation

73:160 Fundamentals of Parasitism

73:152 Preventive Medicine and Public Health

73:124 Preventive Medicine and Public Health

Principles involved, methods, and official organization
63:155 Sanitary and Health Surveys cr.arr
Student surveys and reports on a community. Field work emphasizing vacation periods. May be taken by prior permission with consent of instructor. Both semesters.

63:156 Fundamentals of Community Health cr.arr
Lecture and laboratory. Junior only.

63:158 Principles of Epidemiology 3 s.h.
Historical background and development; factors underlying host-parasite-environment relationship in infectious and non-infectious diseases; epidemiological methods in the study of diseases. Lectures and seminar. Prerequisite: Microbiology 63:180 or equivalent. Given in summer session in even years. Minimum of 8 students. Consent of instructor required to register.

63:159 Readings in Epidemiology cr.arr
Prerequisite: 63:158 or equivalent. Consent of instructor required to register.

63:160 Biostatistics 2 or 3 s.h.
An elementary course in statistical methods primarily for students engaged in research in medical and related subjects. May be taken by qualified individuals interested in research in biological fields. Same as Statistics 226:182.

63:181 Elementary Statistical Inference in Medicine 2 s.h.
Same as Statistics 226:180. First and second semester.

63:182 Introduction to the Design of Sample Surveys 3 s.h.
Techniques of constructing and analyzing sample surveys including general methods of estimation, properties of estimators, simple random sampling, stratified sampling, and ratio and regression estimation, systematic sampling, quota sampling, and nonprobability sampling. Prerequisites: Statistics 226:225, 226:45, or equivalent. Same as Biometrics 226:139.

63:184 Problems in Pathobiology cr.arr
63:171 Problems in Preventive Medicine cr.arr
63:175 Problems in Health Education cr.arr
63:180 Environmental Health Science I 3 s.h.
Lectures covering the application of general, analytical, organic, and inorganic chemistry, bacteriology, and virology relevant to the control of our environment. Same as Civil Engineering 226:134.

63:182 Environmental Health Science II 3 s.h.
Laboratory study of the more usual chemical and bacteriological methods for examination of water and wastewater, and the application of these analytical methods to control of water and wastewater treatment operations. Prerequisites, 63:180 or equivalent. Same as Civil Engineering 226:134.

63:184 Environmental Health Science III 3 s.h.
Lectures covering the major problems confronting environmental health control in the modern world. Governmental regulation of food and drugs, air pollution, water and waste disposal, chemical, heavy, occupational; environmental laws, common hazards in the home, food, and industry. Prerequisites, 63:180 or equivalent. Same as Civil Engineering 226:134.

63:186 Environmental Health Science IV 3 s.h.
Lectures covering water and wastewater treatment, monitoring of pollution control, and control of water and stream pollution. Prerequisites, 63:180 or equivalent. Same as Civil Engineering 226:134.

63:188 Environmental Health Science—Special Studies cr.arr
Study in laboratory and/or field of some special problem related to environmental control. Students may register either semester or summer. May be repeated. Note: Registration in courses 63:180 through 63:186 is limited to students majoring in hygiene.

63:191 Industrial Hygiene 3 s.h.
Lectures, discussions, demonstrations, and field trips dealing with health and safety factors in the industrial environment.

63:193 Industrial Hygiene: Methods of Detecting Hazards 3 s.h.
Lectures and laboratory. Detection and evaluation of specific occupational health hazards. Second semester.

63:197 Industrial Hygiene Field Course cr.arr
63:303 Research: Preventive Medicine and Public Health cr.arr
63:305 Research: Health Education cr.arr
63:310 Seminar 0 or 1 s.h.
63:321 Environmental Health Science—Research cr.arr
Students may register either semester or summer. May be repeated. 63:330 Environmental Health Science V 2 s.h.
Lectures and laboratory dealing with more sophisticated instrumental methods of analyzing waters and wastewaters. Prerequisites, 63:180, 63:185, and 63:186 or equivalent.

63:260 Environmental Toxicology cr.arr
Consent of instructor required to register.

63:370 Occupational Medicine cr.arr
Consent of instructor required to register. Independent study.

63:391 Public Health Administration cr.arr
Organization of official health agencies to meet health needs of citizens, counties, and states. Health laws and regulations and their enforcement. Prerequisites, permission of instructor.

63:390 Thesis cr.arr

PSYCHIATRY
Head of Department, Paul R. Euston Office, 1-118 Psychopathic Hospital

STAFF
Associate Professors: Hunter R. Conly, Eugene V. Gasson, Herbert L. Nelson.

Clinical Assistant Professors: Sidney L. Saada, Instructor: David R. Bueler, Jean Louise Ehrenhaft, Lila R. Stockman, Richard Vorderbrueck

COURSE DESCRIPTIONS
73:5 Clinical Psychiatry 4 s.h.
The class is in the Psychopathic Hospital and consists of ward rounds and staff meetings, and some bedside patient in the Psychopathic Hospital through a four week period. Inter- view, mental examination, and interviewing. Second year.

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73:101 Psychiatry for Related Professions 1 or 2 hr.
Basic concepts and clinical syndromes for students of psychology, social work, nursing, occupational therapy, recreation, physical therapy, speech pathology, etc. Prerequisite: permission of head of professional program in which student is enrolled.

73:105 Research: Psychiatry cr.arr.
Medical students, graduate students, and physicians who have had training in clinical methodology admitted for special investigations in problems, biological or psychological, related to psychiatry.

73:106 Research: Psychiatry cr.arr.
Continuation of 73:105, but may be taken as an independent unit.

Graduate Course in Psychiatry

The postgraduate psychiatric training program is designed to fulfill two objectives: to train physicians broadly for the practice of psychiatry as a specialty, and to train teaching and research workers in the field of psychiatry. A plan of supervised clinical experience and of didactic instruction is outlined to attain these ends. Ordinarily the training covers a period of three years. An applicant must be a graduate of a recognized class A or B medical school and must have completed an internship of one year. Physicians with previous psychiatric experience or academic training of a suitable character may apply for advanced standing. Those who desire shorter training periods, either to begin their psychiatric experience at a lower level or as a preparation for the practice of general medicine, pediatrics, surgery, obstetrics, or other fields, may arrange residencies of less than three years. Candidates who successfully complete the course of clinical experience, of lectures, conferences, and seminars, and who write acceptable theses, are awarded a degree of Master of Science. To complete these requirements, a total of 30 semester hours must be earned. The qualifying course in psychiatry is restricted to physicians; individual courses are open to qualified students in allied areas with permission of the instructor. A certificate of proficiency in psychiatry is issued to accompany the degree when such proficiency has been demonstrated to the satisfaction of the department. Students are registered in the Graduate College. (See Graduate catalog for admission procedures and degree requirements).

Basic Group of Courses

73:202 Advanced Clinical Psychiatry I 2 hr.
Following instruction. Patients under active treatment used to illustrate psychopathology. Mechanisms of adjustment and maladjustment, and application of psychotherapy to technique. Two times a week throughout the year.

73:203 Advanced Clinical Psychiatry II 2 hr.
Lectures on and conferences concerning psychiatric symptoms, psychoanalytic, psychobiologic, sociologic, and etiology, and treatment of major mental disorders; problems of addiction. 79:046 Clinical Conferences 3 cr.
Admission and discharge case presentations by residents or house officers. Contributions from various professors with psychiatry considered as applied to diagnosis, treatment, and mental health care of patients. Five times a week throughout the year.

73:05 Seminar: Advanced Psychopathology 2 hr.
Symptomatology, the various psychiatric syndromes, epidemiology, etiopathogenesis, and depth psychology. Schools of psychiatric thought.

73:206 Seminar: Psychotherapy 2 hr.
Techniques and theories of dynamic psychotherapy as applied to various psychiatric syndromes and interviewing patients.

73:207 Seminar: Biology of Behavior 2 hr.
Biological basis of behavior general, transplant, assessment, psychobiologic, biochemical, pathologic, and pharmacologic properties related to normal and abnormal behavior and the relation of these factors to therapy.

73:06 Psychophysiologic Relations 2 hr.
Psychophysiology in the production of physical signs and symptoms, interactions of physical disease and malad-

73:209 Out-patient Clinic Psychiatry 2 hr.
Individual and conference instruction with case material from the out-patient clinic. Three times a week throughout the year.

73:210 Child Psychiatry I 2 hr.
Lectures, case demonstrations, and discussions concerning the dynamics of personality development. Diagnosis and treatment of the common behavioral disturbances of infancy and childhood.

73:211 Child Psychiatry II 2 hr.
Supervised experience in practical problems of diagnosis and treatment of children's behavioral disorders. Diagnostic interviews with parents and children. Supervised experience in interview and play therapy techniques. Group and individual discussions on specific problems of therapy. Three times weekly throughout the year.

73:212 Seminar: Administration Medical-Legal Psychiatry 1 hr.
Public health laws relating to commitment, care, and treatment of mentally ill persons; organization and administration of state hospitals, private sanitarium, psychopathic hospitals, psychiatric units in general hospitals; medical-legal problems involving psychiatric patients.

73:216 Theory and Methods of Psychological Examination in Clinical Psychiatry 2 hr.
Evolution of the subject, psychological and personal differences in intelligence to present concepts which describe present and future development of personality char-

73:218 Readings in Psychiatry 1 hr.

73:219 Journal Club 1 hr.

73:320 Special Topics Seminar 1 or 2 hr.

73:223 Electroencephalography 2 hr.
Electroencephalographic diagnosis, electroencephalographic technique and clinical application. Emphasis on training and quantitative research. Prerequisite, consent of instructor.

73:225 Thesis 4 hr.

73:232 Law and Psychiatry 1 hr.
A clinic open to seniors in Colleges of Law and Medicine. Mental disease considered from a medical-legal point of view by means of clinics and test study. Some as Law 843.

The Basic Group also includes: Anatomy 34:307, the Visceral Nervous System, and 35:208 Review of Anatom-

73:330 Research in Psychiatry cr.arr.

73:211 Problems in Psychiatry cr.arr.
The Elective Group also includes courses in other de-

Elective Group of Courses

The University, taken with permission of the Department of Psychiatry, that meet as individual's special needs or interests, such as in anthropology, soci-

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RADIATION RESEARCH LABORATORY
(RADIATION BIOLOGY)

Head of Department, Titus C. Evans
Office, 14 Medical Laboratories Building

STAFF

Assistant Professors: Kenneth L. Coop, Brian S. Whitman.
Research Associate: Dorothy D. Schottelius.
Instructor: Donald T. Scott.

Advanced Degrees

Students enrolled in the Graduate College may earn Master of Science or Doctor of Philosophy degrees with a major in radiation biology. A candidate must satisfy all applicable requirements of the Graduate College. Students with no more than a bachelor’s degree are advised to earn one advanced degree in one of the closely related fields.

Specific requirements for the M.S. degree include 15 semester hours of credit in radiation biology plus a thesis. Other science courses to meet the minimum requirement of 30 semester hours will be selected on an individual basis.

Ph.D. candidates must satisfy the requirements of the Graduate College and the following specific requirements. At least 20 of 60 required semester hours of graduate credit should be earned in radiation biology. Other graduate science courses to improve a background of knowledge in a related science of French and German, or a science acceptable to the staff, is required. A candidate must demonstrate an adequate knowledge of the field during a comprehensive examination, and an ability to do independent research by successfully defending a thesis.

A limited number of part-time appointments may be available. These provide some teaching and some research experience as well as some financial assistance.

COURSE DESCRIPTIONS

77:203 Introductory Radiation Biology 4 s.h.
Characterization and biological effects of ionizing radiations, properties and uses of radiocapesea, medical applications, and the biological basis of protection practice. Laboratory provides experience in the use of radiation detectors, measuring devices, radiological techniques, and demonstrates radiation effects. Prerequisite, consent of instructor.

77:205 Radiological Safety and Health Physics 3 s.h.
Lectures, discussions, and laboratory dealing with radiation hazards, control regulations, problems of design and use of radiation facilities in medical, academic, and industrial situations, and the biological basis of protection practice. Laboratory provides experience in the use of radiation detectors, measuring devices, radiological techniques, and demonstrates radiation effects. Prerequisite, consent of instructor.

77:207 Seminar 1 s.h.

77:211 Physics of Radiobiology 4 s.h.

77:218 Physics of Radiobiology II 4 s.h.
Continuation of 77:211. Radiation detection devices, instrumentation and techniques for radiobiological research and for clinical procedures. Prerequisite, 77:211.

77:220 Mammmalian Radiobiology 4 s.h.
Further development of the mammalian radiobiology portion of 77:205. Lectures and laboratory exercises dealing with radiation effects on organ systems in mammals. Topics include spleen and bone marrow transplantation, irradiation of selected organ systems, and use of agents which modify the radiation response. Prerequisites, 77:205 and consent of instructor.

77:223 Cellular Radiobiology 4 s.h.
Lectures and laboratory; influence of radiation on cell growth, mutagenesis, differentiation, and function. Modulation of radiobiological effects by alteration of radiation of environmental factors. Prerequisites, 77:205 or consent of instructor.

77:224 Radiocapesea in Biological Research 4 s.h.
Further development of the radiocapesea portion of 77:205. Lectures and laboratory exercises on the use of isotopes in biology and medicine. Application of radiocapesea to biological research. The isotopes studied include K-43, Fe-51, Cr-51, Pd-103, Cl-36, Co-60, Cs-137, N-15, Rb-85, and K-42. Counting equipment and techniques include liquid scintillation counting, gas flow counting, and use of pulse height analyzers. Prerequisite, 77:203 and consent of instructor.

77:225 Radiocapesea in Clinical Investigations 4 s.h.
Lectures and laboratory exercises dealing with properties and uses of radioactive tracers (including I-131, Cl-35, Fe-51, Co-60, Au-198, P-32, Na-24, Rb-85, and labeled compounds) in clinical investigations. Prerequisite, 77:210 or consent of instructor.

77:303 Research: Radiobiology cr.arr.

77:306 Research: Radiobiology cr.arr.

77:307 Special Topics cr.arr.

77:308 Special Topics cr.arr.

77:310 Thesis cr.arr.

RADIOLOGY

Head of Department, James H. Christie
Office, C125 General Hospital

STAFF


Professor Emeritus: R. Darby Kerry.


Associate: Tapan K. Chauhuri, Petronio Leonc, Alfred C. Rice.

Assistant: Tetsuichi Suzuki.

Instructor: Glenn A. Scudder, Donna Beeky.

COURSE DESCRIPTION

74:1 Forecasts Interpretation 1 s.h.
Diagnosis lectures covering certain aspects of reoent interpretation and radiation therapy.

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SURGERY
Acting Head of Department, S. E. Ziffren,
Office, 1238 General Hospital

STAFF
Clinical Associate Professors: L. R. Daagio, D. J. Liu, W. S. Sharps, D. D. Shih.
Clinical Assistant Professor: N. P. Suhama.

COURSE DESCRIPTIONS
75:5 Clinical Surgery for Junior Medical Students 8 h.
Each fifth of the junior class serves on the surgical serve-
tice in the junior clerkship for a period of two months. A junior clerk examines and follows two or more new patients each week assigned from the surgical wards and from the affiliated Iowa City VA Surgical Service. The clerk participates in various aspects of the patients’ care and takes part in informal teaching exercises conducted by the surgical staff members of the ward unit to which the clerk is assigned. Daily one-hour lecture demonstra-
tion conferences are held six days per week with senior staff members. Each clerk is assigned for four weeks at a time to a senior staff member who, through personal conferences and case work-up, assists in the stu-
dent’s progress. Regularly scheduled exercises in surgical craftsmanship and in the animal laboratories are held during the clerkship.
75:31 Surgical Clerkships for Seniors 4 h.
Each senior student is assigned for one month to the surgical service to examine patients and participate in various phases of the patients’ care in the Surgical Out-
patient and Emergency Rooms. Visits to the wards or operating rooms of the University Hospitals or the Iowa City Veter-
ans Administration Hospital. One week is spent in full-
time activity in the Department of Anesthesiology.
75:150 Principles of Surgery cr.arr.
Listed under Physical Therapy.

Program for Graduate Training in Surgery
Graduate training in surgery is available to a limited number of applicants. The course satisfies the require-
ments of the Graduate College for the degree Master of Science and is included in the training required for certification by the American Board of Surgery. Ordin-
arily, graduate registrants rotate in the same clinical services and participate in the clinical experience in the same manner and degree as various grades of surgical residency. They may concurrently serve in one of the various grades of the residency as an Fellow in Surgery.
Admission requirements. For admission the applicant must have the passage of the departmental board and approval of the Director of Admissions. In general, the requirements consist of four years of college training, two years of study in a premedical course, and the equivalent of at least one year’s experience as a medical student. The applicant must have a thorough knowledge of the basic sciences. Applicants who have been accepted by the Director of Admissions will be required to adopt a program for their which must be approved by the department head and the Dean of the Graduate College. It must be
filed with the Graduate College in appropriate manner prior to the start of the degree. A certificate of proficiency in surgery will be issued by the College of Medicine to accomm. the Master of Science degree when such evi-
dence of proficiency exists to the satisfaction of the de-
partment. A program of studies for the degree must be completed and filed in the Graduate College Office. The program should include work in courses outside the major depart-
ment. The Graduate College for admission procedures and degree requirements).
60:201 Graduate Instruction in Pathology cr.arr.
Either six- or twelve-month course in autopsy and sur-
gical pathology, and student is attached to Department of Pathology for full-time work equivalent to resident training.
60:200 Review of Anatomical Neurology cr.arr.
Important elements of the central nervous system with emphasis on functional relationships. Offered only upon sufficient demand.
75:201 Surgical Anatomy 1 h.
A weekly exercise. Cadever dissection and demonstra-
tions. Systematic review of the field of gross anatomy with emphasis on surgical application. Anatomy of the extraneuraxis, first anterior; anatomy of trunks, pelves, and perineum, second semester; anatomy of mechanisms, neck, head, spinal traverse.
75:203 Mortality and Morbidity Conference 1 h.
A weekly conference. Cadever dissection and demonstra-
tions. Systematic review of the field of gross anatomy with emphasis on surgical application. Anatomy of the extraneuraxis, first semester; anatomy of trunks, pelves, and perineum, second semester; anatomy of mechanisms, neck, head, spinal traverse.
75:205 Daily Surgical Conference 3 h.
One-hour session five days each week for presentation of surgical problems with emphasis on diagnostic and oper-
ativemethods. Limited to residents and graduate student groups. May be repeated.
75:200 Surgical Conference 3 h.
One-hour session five days each week for presentation of surgical problems with emphasis on diagnostic and opera-

tive methods. Limited to residents and graduate student groups. May be repeated.
75:300 Surgical Anatomy 1 h.
Continuation of 75:201.
75:330 Breast Clinic no cr.
75:331 Oncology Clinic no cr.
75:332 Neurosurgical Conference 2 h.
Weekly two-hour conference primarily for graduate stu-
dents in neurology, neurosurgery, and radiology. Cor-
relation between neurosurgical diagnostic tests and pa-

tients surgical diagnosis.
75:233 Surgery Seminar 1 h.
Non-repetitive (over four years) review of basic science and clinical material of value in practice of general sur-

75:234 Radiology and Clinical Case Conference 1 h.
Weekly conference for students, residents, and staff where interesting cases and radiologic findings are presented.
75:235 Research Seminar no cr.
Presentation of current research by members of the staff.
75:230 Interdepartmental Clinical Conference no cr.
Participation in case presentations by graduate regist-

75:232 Research Seminar no cr.
Carefully selected seniors carry out individual research programs and attend seminars. The following four courses are required and are sched-

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are of approximately equal length. Rotation is made at
monthly intervals, and is scheduled by the head of the
department. Increasing responsibility in patient care
under close staff supervision is provided. Each may be
repeated.
73:215 Outpatient Clinical Experience 3 s.h.
73:216 Surgical Ward and Operating
Room Clinical Experience 3 s.h.
73:217 Surgical Rotation Clinical
Experience 3 s.h.
73:230 Thesis cr.arr.

UROLOGY

Head of Department, Rubin H. Flocks
Office, E406-II General Hospital

STAFF

Professors: Raymond G. Bunge, David A. Colp, Rubin
H. Flocks.
Assistant Professors: W. Bonney, C. H. Hawrey, J. D.
Schmidt.

COLLEGE OF MEDICINE

COURSE DESCRIPTIONS

79:1 Didactic Urology 1 s.h.
Twelve hours in sophomore year.

79:103 Clinical Urology 1 s.h.
One hour every other week throughout year for junior
and senior.

79:104 Clinical Clerkships in Urology 2 s.h.
Each junior student is required to spend two weeks full
time in urological clerkship.

79:105 Urological X-Ray Interpretation 1 s.h.
One hour every week.

79:106 Urology Grand Rounds 1 s.h.
One hour weekly throughout year.

79:107 Urologic Seminar 1 s.h.
Two hours every week throughout year.
Education for the practice of nursing was recog-nnized as a responsibility of The University of Iowa as far back as 1856 when a School for Nurses was established. The nursing program was given the status of an independent unit and, by this act, it became the tenth college of The Uni-iversity of Iowa in 1949. This independence places education for the practice of nursing in a favored position at Iowa because the faculty is entitled to determine curriculum, to decide the types of programs it will offer, and to be responsible for the quality of the degrees it awards.

With the Colleges of Medicine, Dentistry, and Pharmacy, the College of Nursing is an integral part of the University Health Center, and thus shares in and contributes to teaching, research, and patient-care resources which have earned international recognition. This provides an unusually fine setting for college preparation for nursing because the educational and clinical re-sources which are needed for this type of pro-fessional education are available on or near the campus. This makes it possible for the faculty and students to be full participants in university life and to contribute their time, interest, and abilities to the many general and special activities of a major and modern university.

The baccalaureate program which prepares for licensure as a registered nurse is fully approved by the state licensing agency, the Iowa Board of Nursing. In addition, both the baccalaureate and the graduate programs are accredited by the De-partment of Baccalaureate and Higher Degree Programs, National League for Nursing, which is the professional accrediting agency for college and university programs of nursing education.

Graduates of the College of Nursing are pre- pared for the practice of professional nursing in hospitals, public health agencies, and other health services, and they are qualified for beginning positions requiring managerial skills. This under-graduate education in nursing forms the base for graduate study to prepare for teaching, super-vision, administration, research, or clinical special-ization.

PROGRAMS

The College of Nursing offers a baccalaureate program leading to the degree Bachelor of Science in Nursing for high school graduates and regis-tered nurses seeking college preparation for the practice of nursing; graduate programs leading to the degree Master of Arts, for graduates of college programs who wish to specialize in specific areas of nursing practice as preparation for the leadership positions of teaching, supervision, and administration; and a program of continuing edu-cation offered without college credit for nurses already in practice.

Baccalaureate Program. The curriculum for the bachelor’s degree in nursing at Iowa comprises coursework in the following areas: communi-car-skill; the social, biological, and physical sciences which provide an essential background of knowledge for the professional nursing courses; and the various aspects of the nursing major.

In the regular program, nursing students enter the College of Nursing as sophomores after com-pleting the freshman year of a required sequence of courses in the College of Liberal Arts at Iowa or in another regionally accredited institution. A student may also enroll after two years of a prescribed sequence of general education and science courses in the College of Liberal Arts or in a cooperating junior or senior college in Iowa and, upon admission to the College of Nursing, begins nursing courses in an eight-week summer session.

Registered nurses, by completing prescribed coursework and meeting all other requirements, may qualify for the baccalaureate degree.

Graduate Programs. The College of Nursing offers a program of study leading to the Master of Arts degree in three clinical areas—medical-surgical nursing, pediatric nursing, and psychiatric nursing—and in nursing service administration. Graduate students in nursing register in the Grad-uate College and the M.A. degrees are conferred by that College. (For admission requirements, see Master of Arts in Nursing, below.)

Continuing Education. The program offers non-credit units of instruction to meet needs of groups of registered nurse practitioners for the purpose of maintaining and enlarging nursing abilities. (For information contact Continuing Education, College of Nursing.)

SPECIAL PROGRAMS

The Cooperative Plan. Anticipating the pro-vision for an increased enrollment in nursing at
Iowa (see Facilities), the College faculty de-
veloped a plan for cooperative involvement of
other selected Iowa institutions in the Univer-
sity's undergraduate program in nursing. The
plan is designed to better meet students' needs
and to better utilize the general education and
science course resources of Iowa colleges and uni-
versities not offering degree programs in nursing.

The plan permits the student to complete the
first two years of study at any cooperating institu-
tion by enrolling in a carefully designed sequence
of courses. After successful completion of the
 sophomore year at a cooperating institution, the
student will be accepted for transfer into the
baccalaureate program in nursing at Iowa pro-
vided the student has completed all courses in
the prescribed transfer sequence and meets all
the general requirements and provisions for ad-
mission to the College of Nursing. (See Admis-
sion Requirements.) A maximum of 66 semester
hours (or the equivalent) will be accepted for
credit from a junior college.

Under the cooperative plan, students enter the
College of Nursing in the summer session after
the sophomore year to take the nursing courses
scheduled in the sophomore year of the regular
program.

Institutions participating in the cooperative
plan include Iowa State University, Ames; the
University of Northern Iowa, Cedar Falls; Upper
Iowa College, Fayette; Briar Cliff College, Sioux
City; Morningside College, Sioux City; Iowa Cen-
tral Community College, Fort Dodge; North Iowa
Community College, Mason City; and Area VI
Community College, Marshalltown.

Anticipated participants include Kirkwood
Community College, Cedar Rapids; Eastern Iowa
Community College, Muscatine; Luther College,
Decorah; and Clarke College, Dubuque.

Prospective nursing students who want more
information about the cooperative plan should
consult the cooperating institution of their choice.

THE PROGRAM FOR REGISTERED NURSES

Registered nurses are required to meet the
liberal arts and science requirements of the bac-
calaureate program and an additional elective
course in anthropology, psychology, or sociology.

Upon completion of all but 8 to 12 semester hours
of the liberal arts courses, the following nursing
courses are scheduled for the last two semesters
and a summer session of work: 96:40 Nursing
of Adults and Children, 96:41 Practicum—Nurs-
ing of Adults and Children, 96:84 Public Health
Nursing, 96:86 Practicum—Public Health Nurs-
ing, 93:160 Fundamentals of Community Health,
96:94 Nursing in the Social Order, 96:96 Senior
Nursing, 96:97 Practicum—Senior Nursing.

Challenge examinations may be taken in medi-
cal-surgical nursing, maternal-child health nurs-
ing, and psychiatric nursing to validate the
nursing abilities for a total of 35 semester hours
of credit. Credit for these examinations is
awarded after successful completion of the first
year of the program (96:40 and 96:41).

Registered nurses interested in the baccala-
ureate program should write to the College of
Nursing for advisement before enrolling at The
University of Iowa.

FACULTY

All three programs share in the teaching re-
sources of all the faculty. Senior faculty members
teach undergraduates as well as graduate students
while less experienced faculty contribute special-
ized knowledge to graduate student instruction.
The College of Nursing also draws upon the
resources of the other Colleges of the University
for experts to teach subject matter related to the
study of nursing.

FACILITIES

A new College of Nursing building, scheduled
for completion in 1971, will provide specialized
facilities for nursing education, and will provide
space for significantly increased enrollments in
both the undergraduate and graduate programs.
Credit for the building will be 80 million Health Center expansion
program. Other phases of the program which will
will benefit nine students include construction
of new Basic Science and Health Sciences Library
Buildings, also scheduled for 1971 completion.
The College of Nursing utilizes the many and
varied health agencies and facilities in the Iowa
City-Cedar Rapids areas. These include the Uni-
vity Hospitals, a community hospital, the local
Veterans Administration hospital, extended-care
facilities, and a number of Public Health Nursing
Agencies.

ADMISSION REQUIREMENTS

Students may be admitted to the College of
Nursing upon completion of a minimum of 30
semester hours (preferably 32) in general liberal
arts courses in the College of Liberal Arts of The
University of Iowa or in another regionally ac-
credited institution, including satisfactory com-
pletion of the following requirements:

Rhetoric. The University of Iowa transfer ap-
plicants must have satisfied the rhetoric require-
ments of the College of Liberal Arts at The Uni-
versity of Iowa. Applicants from other institu-
tions may qualify by presenting 6 semester hours
of credit in English composition and 2 semester
hours of credit in speech.

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Mathematics. Students are advised to have a minimum of 2½ units of high school mathematics. Otherwise, a college course in mathematics comparable to or higher than 22M:1 Basic Mathematical Techniques must be completed for which no credit is given toward the hours earned for graduation. A satisfactory score on the mathematics battery of the American College Test will satisfy this requirement.

Chemistry. Students must have completed 4 semester hours of college credit in inorganic chemistry. St. Aarts from The University of Iowa College of Liberal Arts should also complete the course in organic chemistry and biochemistry. Students who transfer from other accredited colleges may, if necessary, complete the organic chemistry and biochemistry requirements after admission to the College of Nursing.

Text. All applicants are required to complete the American College Test. Applicants who are graduates of associate degree or diploma programs of nursing also must have successfully passed the examination for registered nurse licensure before admission to nursing courses. To be considered for admission, an applicant should have obtained a cumulative grade-point average of at least 2.2 on all college work undertaken. The grade-point average is based on the marking system of The University of Iowa in which a grade of A is equivalent to 4 points. Other marking systems will be evaluated by the Office of Admissions.

Fulfillment of the specific requirements for admission listed above does not ensure admission to the College of Nursing. From the applicants meeting the minimum requirements, the Admissions Committee of the College of Nursing will select those applicants who, in their judgment, appear to be best qualified.

The Nursing Admissions Committee may require personal interviews of applicants.

Address all inquiries regarding admission to the Director of Admissions The University of Iowa, Iowa City 52240. Applicants in the regular one-year transfer program may be considered for admission for the fall semester only, and may apply for admission to the College of Nursing between July 1 and April 15 of the year preceding their expected enrollment. The closing date for receiving applications for the two-year co-operative program is November 15 for the following summer session. For applicants who are registered nurses the deadline date is November 15 for the spring semester and summer session and April 15 for the fall semester.

Counseling. At the time of admission to the University, each nursing student is assigned a College of Nursing faculty adviser who works with the student until graduation in developing individualized educational and professional plans.

Registered nurses and prospective one year transfer students are urged to consult a College of Nursing adviser for assistance in planning for undergraduate studies in nursing at Iowa.

The College of Nursing may request permission to reregister, if they were in good academic standing at the time of withdrawal, and if they show that the reasons for withdrawal no longer exist. Requests for permission to reregister should be addressed to the Dean of Nursing.

The faculty reserves the right to request withdrawal of any student whose health, performance, or conduct demonstrates unfitness to continue preparation for nursing.

GRADUATION REQUIREMENTS

The student must complete at least 108 semester hours of the required program in general education and nursing courses; must achieve at least a 2.00 (C grade-point average in each of these two areas and in all work undertaken at The University of Iowa; and must complete at least the last 30 or 45 of the last 60 semester hours at The University of Iowa.

EXPENSES

Students pay the usual University fees throughout the program. Expenses for board and room depend on where the student chooses to live. See Admissions-Registration-Fees and Housing sections of the Catalog, or consult the University Housing Office, Jessup Hall.

The initial cost of a student's uniform which includes three uniforms, two caps, and a sweater is approximately $53. This amount is payable when ordered at the end of the freshman year. The student will need to purchase white shoes, bandage scissors, and a watch with a sweep second hand. Senior students are expected to provide their own means of transportation for Public Health Nursing.

Financial aids. For information about financial aid available to nursing students, see the All-University and Nursing lists in the Scholarships and Loans section of the Catalog, or consult the Office of Student Financial Aids, Old Dental Building.

Student organizations. College of Nursing students have their own Association of Nursing Students and are also eligible for membership in the State and National Association of Nursing Students.
1. A Bachelor of Science degree in nursing which included Public Health Nursing theory and practice (applicants not meeting this condition will meet individually designated course requirements);
2. Evidence of the fulfillment of the legal requirements for the practice of nursing (licensure in Iowa not required);
3. Grade-point average of 2.70 in the baccalaureate program or demonstrated ability in graduate courses as stipulated by the Graduate College (conditional status admission to the nursing major may be granted to applicants with a grade-point average of at least 2.50; and, for the purpose of taking any nursing course, applicants with grade-point averages of not less than 2.50).

Program requirements. Registration for elective requirements is possible in any term but initial enrollment in advanced nursing courses, which are offered sequentially, is limited to the fall semester. Curricula in the clinical majors are designed to be completed in three semesters and nursing service administration in two semesters and a summer session.

All regulations of the Graduate College pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. Transfer credit applicable to the degree is limited to 6 semester hours and must be approved by the Dean and adviser. A thesis is required of students in the medical-surgical nursing major and may be selected by others. A field study or other major project is included in the final course in all other majors for nonthesis students.

In addition to the degree requirements listed below for each major, written comprehensive examinations are required of both thesis and nonthesis students.

Degree Requirements

1. Medical-Surgical Nursing—30 semester hours

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Medical-Surgical Nursing</td>
<td>9 h.</td>
</tr>
<tr>
<td>Research Methodology</td>
<td>3 h.</td>
</tr>
<tr>
<td>Research in Nursing</td>
<td>3 h.</td>
</tr>
<tr>
<td>Thesis</td>
<td>6 h.</td>
</tr>
<tr>
<td>Statistical Analysis</td>
<td>3 h.</td>
</tr>
<tr>
<td>Electives from one related area (physical or behavioral sciences)</td>
<td>8 h.</td>
</tr>
</tbody>
</table>

2. Nursing of Children—32 semester hours

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Nursing of Children 14 h.</td>
<td>12 h.</td>
</tr>
<tr>
<td>Introduction to Methods of Nursing</td>
<td>3 h.</td>
</tr>
<tr>
<td>Research in Nursing</td>
<td>3 h.</td>
</tr>
<tr>
<td>Electives (from relevant areas)</td>
<td>3 h.</td>
</tr>
<tr>
<td>Thesis</td>
<td>6 h.</td>
</tr>
<tr>
<td>Electives (from relevant areas)</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

(A classroom course in statistics is required prior to admission or in the first semester.)

Outline of Undergraduate Curriculum

Semester Hours

Freshman Year

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Chemistry, I, and Laboratory</td>
<td>8</td>
</tr>
<tr>
<td>French</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate Algebra</td>
<td>3</td>
</tr>
<tr>
<td>History-Cultural Core Course</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Master of Arts in Nursing</td>
<td>3</td>
</tr>
</tbody>
</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Elementary Human Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Foundations of Nursing</td>
<td>3</td>
</tr>
<tr>
<td>Foundations of Nursing</td>
<td>3</td>
</tr>
<tr>
<td>Human Development and Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Literature Core Course</td>
<td>3</td>
</tr>
<tr>
<td>Medical-Surgical Nursing</td>
<td>3</td>
</tr>
<tr>
<td>Maturity Nursing</td>
<td>3</td>
</tr>
<tr>
<td>Pediatric Maturity Nursing</td>
<td>3</td>
</tr>
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Junior Year

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<td>Psychiatric Nursing</td>
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Senior Year

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</table>

Master of Arts in Nursing

The faculty of the College of Nursing believe that graduate education in nursing is built up upon a sound undergraduate base of general and professional education. Advanced clinical preparation furthers understanding of nursing theories and skill in their application and occurs through a formal program of study at the postbaccalaureate level. Graduate education in nursing includes the accretion of knowledge from diverse areas of human learning, the study of concepts and principles underlying functions executed in leadership roles, and systematic investigation of clinical problems.

This graduate program which is accredited by the National League for Nursing offers majors in medical-surgical nursing, nursing of children, psychiatric nursing, and nursing service administration. Registration is provided for positions in nursing as clinical specialists, teachers, supervisors, or administrators.

Admission requirements. Graduate students in nursing register in the Graduate College, and degrees are conferred by that College. The general requirements of the Graduate College relating to admission (see Graduate College) apply with the following special requirements of the College of Nursing:
3. Psychiatric Nursing—32 semester hours
   nonthesis thesis
   96:333, 334, 335, 336
   Advanced Psychiatric Nursing 18 s.h.
   96:120 Introduction to Methods of
   Nursing Research 2 s.h.
   96:220 Research in Nursing 2 s.h.
   96:121 Research in Nursing 2 s.h.
   Electives from a related field 7 s.h.
   Thesis (An elementary course in statistics is
   required prior to admission or in the
   first semester.)

4. Nursing Service Administration—
   32 semester hours
   96:360, 361, 362
   Nursing Service Administration 12 s.h.
   96:258, 359 Clinical Nursing 6 s.h.
   96:120 Orientation to Methods of
   Nursing Research 2 s.h.
   96:220 Research in Nursing 2 s.h.
   96:128 Issues in Nursing 2 s.h.
   Electives (An elementary course in statistics
   is required prior to admission or in the
   first semester.)

Financial Aid

The College of Nursing participates in the Professional Nurse Traineeship Program as administered by the Division of Nursing, U.S. Public Health Service, and in the National Institutes of Mental Health training program. Grants made to the University under these programs provide a limited number of traineeships for students who are preparing for positions as nurse specialists, teachers in schools of nursing, and supervisors and administrators in nursing services. Awards are made after the student has been accepted for full-time study, but a preliminary application may be filed when the application for admission is submitted. This assistance is restricted to citizens of the United States. Forms may be obtained from the Graduate Program Office, College of Nursing, The University of Iowa.

STAFF
Professor and Dean: Laura C. Dusman.
Professor: Myron A. Reid.
Professor Emeritus: Gladys Best.
Associate Professor: Eva Erickson, Ada Yocom, Nancy Jerdten, Marjorie Lyford, Anna Overgaard, Elza Rasmussen, Hope Solonkki, June Triebel, Anna Whitman.
Assistant Professor: Joelle Ainslie, Hazel Buehman, Gloria Balchuk, Gertrude Bass, Carolyn Crowell, Marjorie Curtis, Betty Davis, Carolyn Eldridge, Mildred Fravel, Ursula Glick, Marjorie Guild, Harriett Heick, Sister Stella Lyte, Merledean Matt, Betty Martin, Marilyn Matheney, Margaret Moore, Patricia Omnes, Mary Rek, Ruth Rogers, Annette Bfoell, Adrian Schnepper, Shirley Seyfried, Marion Sherwood, Dorothy Hewett, Karen Steele, Patrilai Zimlich.
Instructor: Lydia Alcantara, Sally Brooks, Sister Agnes Marie Creach, A. Blancha Deignerty, Myrtle Franck, Kar- lena Kerfoot, Joan Lasko, Sandra Miller, Sister Patricia J. Miller, Sandra Powell, Marjorie Price, Dixie Reed, Joan Reas, Lorraine Redifer, Shirley Sanders, Sandra Sensenig, Pascal Stepp, Frances Schmitt, Frances Van Boyo, Shirly Veith, Dorothy West.
Lecturer: Grace Theresa Gould.

Undergraduate Courses

3 h. Basic concepts and skills related to health, disease, and nursing care. Lectures and seminars. Anatomy and Physiology 1213 must be taken prior to or concurrently with 96:24 and 96:25.

26:25 Practicum: Foundations of Nursing 2 s.h. Laboratory, discussion, and selected nursing practice experiences. 96:24 and 96:25 must be taken concurrently.

26:26 Foundations of Nursing 3 s.h. Identification and management of nursing care problems. Lectures and seminars. Prerequisites: 96:24 and 96:25 or equivalent, and Anatomy and Physiology 1213.

26:27 Practicum: Foundations of Nursing 2 s.h. Laboratory, discussion, and selected nursing practice experiences. 96:24 and 96:25 must be taken concurrently. Prerequisites: 96:24 and 96:25 or equivalent.

26:28 Foundations of Nursing 4 s.h. Basic concepts and skills related to health, disease, and identification and management of nursing care problems. Lectures and seminars. Consult College of Nursing for prerequisites.

26:29 Practicum: Foundations of Nursing 4 s.h. Laboratory, discussion, and selected nursing practice experiences. 96:28 and 96:29 must be taken concurrently. Consult College of Nursing for prerequisites.

26:30 Human Development and Behavior 4 s.h. Developmental stages of human growth from conception through senescence. Physiological, psychological, emotional and social factors. Open to freshmen with consent of instructor.

3 h. Medical-Surgical Nursing

6 h. Emphasis on understanding alterations of normal body functions and their effect upon the individual. A rationale for nursing care evolves while factors affecting the student's responses to illness or therapy are identified. Nursing care plans are planned and the student action is determined. Prerequisites: junior standing.

3:37 Practicum: Medical-Surgical Nursing

5 h. Guidance in the application of 96:23 in the care of the medical or surgical patient. Prerequisites: junior standing.

46:40 Nursing of Adults and Children 3 s.h. Physical and behavioral sciences, mental health, and public health concepts and patient teaching integrated into nursing care skills. Registered nurse students.

46:41 Practicum: Nursing of Adults and

Children 3 h. Application of nursing principles to care of adults and children, and validation of nursing skills obtained through study in diploma or associate degree programs. Registered nurse students.

46:42 Maternity Nursing 3 h. Application of study in diploma or associate degree programs. Prerequisites: junior standing.

46:44 Practicum: Maternity Nursing

3 h. Application of maternal and newborn infant care. Prerequisites: junior standing.

46:46 Nursing Care of Children 3 h. Principles of child care, common abnormalities and diseases of children, family and community aspects of illness, promotion of health, and prevention of disease. Prerequisites: junior standing.

46:48 Practicum: Nursing Care of

Children 3 s.h. Application of nursing principles to care of children. Prerequisites: junior standing.
Pharmacy students at Iowa share the opportunities and enjoy the privileges of a major modern university.

With the Colleges of Medicine, Nursing, and Dentistry, the College is an integral part of the University Health Center, whose teaching, research, and patient-care programs have earned international recognition.

The Colleges 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, and law; the College of Pharmacy provides laboratory and manufacturing services to other colleges and departments of the University, particularly to the University Hospitals.

The College of Pharmacy is not departmentalized, but has the following areas of specialization:

Pharmacy
Physical Pharmacy, Professional Practice, Industrial Pharmacy, Biopharmaceutics
Institutional Pharmacy
Clinical Pharmacy, Hospital Pharmacy
Administrative Pharmacy
Medicinal Chemistry
Inorganic Medicinals, Organic Medicinals, Analytical
Pharmacy
Pharmacology (see Department of Pharmacology, College of Medicine)

The College offers programs leading to the Bachelor of Science, Master of Science, and Doctor of Philosophy degrees, and provides year-around continuing education programs for practicing pharmacists.

The College is accredited by the American Council on Pharmaceutical Education, and is a member of the American Association of Colleges of Pharmacy.

THE UNDERGRADUATE PROGRAM

Basically, the Bachelor of Science program in pharmacy comprises one year of prepharmacy studies, taken in the College of Liberal Arts at Iowa or in any accredited community or liberal arts college, and four years of pharmacy studies.

The professional curriculum includes a minimum of 18 semester hours of electives. Through his choice of electives, the student may focus on such special areas as hospital pharmacy, industrial pharmacy, or graduate study.

Scholastic Standards. Graduation from an undergraduate program in pharmacy requires at least a 2.0 (C) cumulative grade-point average. Any student whose cumulative average falls below 2.0 is placed on academic probation; a student on academic probation is limited to 12 semester hours of coursework. A student on academic probation for the third time is subject to review by the College's scholarship and admissions committee.

Pass-Fail Courses. Pharmacy students are permitted to enroll in a maximum of 12 semester hours of coursework on a pass-fail basis, provided such coursework is limited to one course in any semester, that it is limited to elective courses outside the College of Pharmacy, and that it is approved by the student's advisor. A student may lower his cumulative grade-point average by receiving an F in a course taken on a pass-fail basis, but cannot raise his average with a passing grade.

Registration and Reinstatement. An applicant for licensure to practice pharmacy in Iowa must present evidence of graduation from an accredited college of pharmacy, and must have completed one year of practical experience, as specified by Iowa law, before receiving his registration certificate. Registration in Iowa permits reciprocal registration in nearly all other states.

Placement. Members of the College of Pharmacy faculty endeavor in every way to assist graduates of the College in securing good positions. Because the demand for well-qualified pharmacists is usually greater than the supply, this effort is successful for virtually all graduates.

GRADUATE PROGRAMS

Master of Science and Doctor of Philosophy degrees are available in administrative pharmacy, hospital pharmacy, physical pharmacy, medicinal chemistry, pharmacognosy, and industrial pharmacy. A special bulletin on these programs may be obtained from the Dean of the College of Pharmacy. Prospective graduate students in pharmacy should refer to the Graduate
FACILITIES AND SPECIAL RESOURCES

The College of Pharmacy Building is centrally located on the University's main campus, in close proximity to the College of Medicine, University Hospitals, and other units of the Health Center. Of direct interest to pharmacy students in the current $70 million Health Center expansion program are a Basic Science Building and a Health Sciences Library, both scheduled for 1971 completion.

Completed in 1963, the Pharmacy Building is a five-story structure especially designed to provide the most advanced facilities for a comprehensive program of pharmacy education. In addition to classrooms, an auditorium, and the pharmacy library, the building houses well-equipped separate laboratories and a greenhouse for instruction at the undergraduate and graduate levels in the various areas of specialization.

The Pharmacy Library comprises approximately 6,500 volumes, including not only comprehensive selections of books and periodicals on pharmacy, but an extensive collection of books and periodicals in the basic sciences and in the medical sciences. Additionally, the unusually complete and comprehensive holdings of the medical and chemistry-botany libraries are available to undergraduate and graduate students in pharmacy.

The Division of Pharmaceutical Services is maintained for the purpose of purchasing, manufacturing, and distributing all drugs, medicines, and special products to the Hospital Pharmacy and the various colleges and departments of the University.

The Industrial Pharmacy Laboratory serves as a teaching unit as well as a service division of the College. Here undergraduate and graduate students learn methods of large-scale pharmaceutical product development.

The Hospital Pharmacy in the University Hospitals is a teaching unit of the College of Pharmacy. From it, all medicines and related necessities are supplied to the General, Children's, and Psychopathic Hospitals. Senior students are given practical experience in dispensing under the supervision of Hospital Pharmacy staff members, all of whom are registered pharmacists. Approximately one-quarter-million ward orders and prescription labels are filled annually, which affords a diversified experience of great value to the graduate.

The Iowa Veteran Druggists' Museum was established at Iowa in 1951, when the Iowa Veteran Druggists' Association voted to make the College of Pharmacy the repository of historical material relating to pharmacy. The U of I student branch of the American Pharmaceutical Association-Iowa Pharmaceutical Association is one of the forces to promote the scholastic and social interests of its members, and to further the objectives of the parent organizations.

RESEARCH

The research activities of the faculty contribute to good teaching at both the undergraduate and graduate levels. They have led to the development of new drugs, improved dosage forms, advances in cancer chemotherapy, and have contributed to new College of Pharmacy educational programs, such as the clinical pharmacy program and the Drug Information Service.

EXPENSES AND FINANCIAL AID

For information about expenses, see the Admissions and Housing sections of the Catalog. For information about financial aid available to University students generally, and to College of Pharmacy students only, see the Scholarships and Loans section of the Catalog, or consult the Office of Student Financial Affairs, Old Dental Building.

ADMISSION

For general University admission requirements and procedures, see the Admission or Graduate College sections of the Catalog.

Undergraduates. The college work outlined below meets the minimum academic requirements for admission to the College of Pharmacy.

Total: 28 to 32 semester hours in preparatory coursework.

Rhetoric: Satisfaction of the College of Liberal Arts requirement.

Inorganic Chemistry and Quantitative Analysis: 8 semester hours.

College Algebra and Trigonometry: 6 to 8 semester hours.

Physics: 8 semester hours or principles of animal biology: 5 semester hours. Students from other institutions may substitute comparable coursework in biology or zoology.

Students who present minor deficiencies in meeting the above requirements may be admitted to the College of Pharmacy upon recommendation of the Director of Admissions and the College of Pharmacy.

To be considered for admission to the College of Pharmacy, the applicant must have earned at least a 2.0 (C) cumulative grade-point average on all college coursework attempted.
COLLEGE OF PHARMACY

Entering transfer students. Students who transfer into the College of Pharmacy 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, physics, and animal biology. Students who plan to remain in a community college for two years before transferring into the College of Pharmacy should consult the Dean of the College of Pharmacy concerning course requirements. A maximum of 68 semester hours (or the equivalent) will be accepted from a junior college toward the Bachelor of Science in pharmacy degree.

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 of residence in The University of Iowa College of Pharmacy is required for the degree.

Students transferring from nonpharmacy colleges receive credit for work required in the Bachelor of Science curriculum in pharmacy, but are still subject to the baccalaureate requirement of at least three years in an accredited college of pharmacy.

A minimum grade of C is required for work applied by transfer toward the pharmacy degree.

Graduate students. All entering graduate students in the College of Pharmacy must meet general Graduate College requirements, and in addition are required to take proficiency examinations in pharmacy, chemistry, and the biological sciences, based on undergraduate training in these areas. Entering students who hold the master's degree may petition to be excused from these three examinations.

All correspondence concerning admission should be directed to the Director of Admissions, 1 Jessup Hall, The University of Iowa, Iowa City 52240.

For the Iowa Board of Regents' formal statement of requirements for admission to the College of Pharmacy, see the Appendix of this Catalog.

STAFF

Dean: Louis C. Zapp

Dean Emeritus: Randolph A. Kowser

Professors: Seymour M. Beng, Joseph G. Cassis, David P. Cawer, John L. Lach, Louis C. Zapp


Assistant Professors: Larry B. Bigley, Harold J. Black, Lawrence P. Horn, Joseph R. O'Sullivan, John P. Romani, Robert V. Smith

Instructors: Thomas A. Cawer, David R. Carroll, Larry G. Coppedge, Robert W. Dick, Larry K. Fry, Joe P. B.

Gallardon, C. Douglas Hulper, Martin Will Hill, Duane E. Khan

Director, Pharmaceutical Services: William W. Tsey

Associate Director, Pharmaceutical Services: Duane E. Khan

Coordinator, Hospital Pharmacy Services: Wende L. Kerr

Coordinator, Hospital Pharmacy Education Services: Wenda L. Kerr

Director, Hospital Pharmacy Services: Harold J. Black


Lecturer: Thomas W. Blazer

COURSE DESCRIPTIONS

Each course is designated by a code or department number, a course number, and a title. For Pharmacy, 40 is the code number. Following the code is the course number.

Courses numbered from 40.100 to 40.199 are open to both graduate and undergraduate students. These numbered 40.200 or above, unless otherwise specified, are for graduate students who hold the degree Bachelor of Science in pharmacy from a college of pharmacy accredited by the American Council on Pharmaceutical Education, or the equivalent.

The Professional Curriculum

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322
### College of Pharmacy

#### Second Semester

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#### Second Semester

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#### Undergraduate Courses

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<td>46:33</td>
<td>Pharmacy: Polypathic and Plastic Systems</td>
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<td>46:42</td>
<td>Pharmacy: Agricultural</td>
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<td>46:43</td>
<td>Pharmacy: Professional Practice</td>
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<td>Industrial Pharmacy</td>
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<td>46:107</td>
<td>Hospital Pharmacy</td>
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<tr>
<td>46:135</td>
<td>Pharmaceutical Chemistry: Drug Analysis</td>
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#### Pharmacology

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<td>91:150</td>
<td>Law in a Technological Society</td>
<td>2</td>
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</table>

### Course Descriptions

#### 46:13 Pharmacology: Calculations

3 cr.

System of weights and measures used in the United States and their relationships. Calculations involve addition, subtraction, multiplication or division, dilution, dilution, and chemical reactions. Problems based on such commercial calculations as profit and loss, salaries, operating expenses, and taxes.

#### 46:14 Pharmacology: Orientation

3 cr.

Ethics, organization, and development of the science and profession of pharmacy.

#### 46:33 Pharmacy: Polypathic and Plastic Systems

3 cr.

Application of physical and chemical laws to the formulation and preparation of polypathic and plastic dosage forms. Prerequisite: 46:28.

#### 46:42 Pharmacy: Agricultural

2 cr.

A two-hour lecture course acquaints the student with the therapeutic agents used in the prevention and treatment of animal diseases. Insecticides, fungicides, rodenticides, and herbicides for farm and home use. Prerequisites: 46:120, physiology, and pharmacology.

#### 46:43 Pharmacy: Professional Practice

3 cr.


#### 46:44 Pharmacy: Professional Practice

3 cr.

Continuation of 46:43. Two lecture hours, three laboratory hours. Emphasis on prescriptions requiring special compounding techniques, such as opthalmics, nasal, and ointment solutions, and aerosols. Discussion of drug stability, preservation of solutions, and diagnostic aids.

### Graduating Classes

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
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<tr>
<td>46:103</td>
<td>Pharmacy: Physical</td>
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</tbody>
</table>

#### 46:102 Pharmacy: Physical

Two lecture hours and one demonstration hour a week. Surface and interfacial phenomena, adsorption, and stabilization in pharmaceutical systems.

#### 46:104 Pharmacy: Biopharmaceutics

2 cr.

Mechanism of drug absorption and the interrelationship of the properties of pharmaceuticals, their dosage forms, and their pharmacodynamics. Effects of the environment, the presence of food and the state of nutrition on the absorption and distribution of drugs.

#### 46:202 Pharmacy: Physical

2 cr.

Application of physical principles involved in separation by liquid-liquid extraction and problems involved in preservation and stabilization of pharmaceuticals.

#### 46:206 Pharmacy: Stability of Pharmaceuticals

3 cr.


#### 46:321 Pharmacy: Quality Control

3 cr.

Lecture and laboratory. Instrumental analysis as applied to pharmaceutical quality control. Theory and applications for spectrophotometer, Karl Fischer titrations, densitometry, and polarimetric titrations, etc.

#### 46:329 Pharmacy: Advanced Biopharmaceutics

2 cr.

The effect of physical-chemical properties and pharmaceutical manipulations on drug availability are considered with emphasis on the rate of release from various dosage forms and formulations. Prerequisites: Mathematics 222, Chemistry 412, and 413.

#### 46:221 Pharmacy: Seminar

0 or 1 cr.

Assigned readings and reports on the latest advances in research in pharmaceutical sciences. Required of all students doing advanced work. May be repeated.
46:215 Medicinal Chemistry: Selected Topics 3 s.h.

Discussions, from current literature, of applications of modern theoretical organic chemistry to the study and understanding of biological phenomena. Chemical and stereochemical aspects of the autonomy and cooperation of chemical agents influencing it. Prerequisite: 46:322, Pharmacology 423, or consent of instructor.

46:211 Medicinal Chemistry: Research 4 s.h.

46:218 Medicinal Chemistry: Research 4 s.h.

46:277 Medicinal Chemistry: Seminar 4 or 1 s.h.

Assignments and reports are made as advances in research in medicinal chemistry. All students doing graduate work in medicinal chemistry. May be repeated.

46:228 Medicinal Chemistry: Seminar 4 or 1 s.h.

Pharmacognosy Undergraduate Courses

46:256 Pharmacognosy 4 s.h.

Lectures and laboratory on the chemistry and biochemistry of medically important natural products from plants, animals, and microorganisms. Prerequisites: Chemistry 4:128, Biochemistry 4:161.

46:41 Pharmacognosy 4 s.h.

Continuation of 46:256.

Graduate Courses

46:219 Pharmacognosy: Methods 3 s.h.

The occurrence, distribution, and isolation of primary and secondary natural products, and techniques of handling and storing biological materials are discussed. Emphasis is placed on methods of isolation including biological and physicochemical screening, mp manipulation, distillation, crystallization, and chromatography. Methods for the isolation of specific, groups of substances such as alkaloids, glycosides, flavonoids, and steroids are covered. Lecture and laboratory. Prerequisite, consent of instructor.

46:220 Pharmacognosy: Antibiotics 2 s.h.

The most commonly employed antibiotics are discussed. Topics covered include history, production, methods of isolation and purification, physical and chemical proper-

46:222 Pharmacognosy: Biogenesis of Natural Products 3 s.h.

Discussion of the basic biogenetic pathways involved in the formation of alkaloids, sterols, glycosides, antibiotics, and aromatic compounds, and aspects of their degra-
dvation in living systems. General methods employed in studying biosynthetic processes are also discussed. Emphasis is placed on the aspects of biochemical reactions that lead to the production of secondary plant products will be covered, in exchange for consent of instructor.

46:220 Pharmacognosy: Special Topics 1 s.h.

Assignment of research reports on recent advances in the field of natural products. Prerequisite, consent of instructor.

46:229 Pharmacognosy: Research 4 s.h.

46:340 Pharmacognosy: Research 4 s.h.

46:351 Pharmacognosy: Advanced 2 s.h.

Discussion of topics pertinent to natural products obtained from medicinal plants and invertebrates. Laboratory discussions include such topics as microscopy, drug plant identification, chemotaxonomy, pharmacognosy education, recent literature, and selected laboratory experiments. Prerequisite, consent of instructor.

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College of Pharmacy

Graduate Courses

46:105 Industrial Pharmacy: Survey 3 s.h.
Organization, challenge, and unit operations in the problem of pharmacy and therapeutics. Prerequisite: 46:93.

46:223 Industrial Pharmacy 2 to 4 s.h.
Experimental laboratory work, library reading, lectures, and conferences. Problems include the formulation of pharmaceutical preparations on an industrial scale. A comprehensive paper on the results of the work. One lecture, three to nine laboratory hours per week. 46:234 Industrial Pharmacy 2 to 4 s.h.
Continuation of 46:223.

46:235 Industrial Pharmacy: Product Development 3 s.h.
Application of physicochemical and physiological principles to the formulation and design of pharmaceutical dosage forms. Two lectures and one laboratory a week. 46:236 Industrial Pharmacy: Research cr.arr.
46:238 Industrial Pharmacy: Research cr.arr.

Clinical Pharmacy—Hospital Pharmacy

Graduate Courses

46:26 Pharmacy: Institutional Practice 2 s.h.
Lectures devoted to the role of the pharmacist in the institutional setting (small hospital, extended-care facility, and nursing home) primarily from the viewpoint of the community practitioner. Subject materials include standards of practice, institutional organization, laws and regulations, federal and state health programs, drug distribution and control, pharmacy and therapeutics committees, pharmacy, drug information services, and educational programs. Prerequisite: P2 standing.

46:109 Clinical Pharmacy: Case Study and Laboratory 2 s.h.
Introduction to pharmaceutical aspects of patient care; use of preceptor-care process, reference sources, terminology, use of clinical literature, and the functions of the pharmacist in the clinical setting. Clinical conferences and supervised practice in the decentralized pharmacy and the decentralized pharmacy. Prerequisites: Pharmacy II, II, or equivalent; P2 standing. Prerequisites or corequisites: 46:132, 46:134, 46:108.

46:110 Clinical Pharmacy: Case Study and Laboratory 2 s.h.
Continuation of 46:109.

46:111 Clinical Pharmacy: Laboratory 2 s.h.
Application of basic sciences to pharmacy practice through clinical conferences and supervised practice in the decentralized pharmacy and the central pharmacy. Laboratory conferences by arrangement. Prerequisites: 46:100, 46:112 Clinical Pharmacy: Laboratory 2 s.h.
Continuation of 46:111.

Undergraduate Courses

46:45 Pharmacy: Administration 3 s.h.
Consideration of the social and economic factors affecting the pharmaceutical environment. Specific application of principles of business, management, promoting, marketing, and the management of the practice of pharmacy as discussed. Prerequisites: 6:152, Economics 46:41.

46:45 Pharmacy: Administration 3 s.h.
Continuation of 46:45.

46:52 Pharmacy: Seminar 1 s.h.
Current problems relevant to the practice of pharmacy. Prerequisites, senior standing.

Graduate Courses

46:111 Pharmacy Administration: Drug Development and Marketing 3 s.h.
Problems inherent in developing a new pharmaceutical product are discussed. Lectures are focused on new product generation from the source of the idea through the placement of the product on the market. Coordination between research and management is emphasized. Prerequisites, consent of instructor.

46:122 Pharmacy Administration: Pharmaceutical Economics and Marketing 4 s.h.
The economic and marketing environment of the pharmaceutical industry is analyzed. Concentration rates, elasticity of demand, risk, and prescriber motivation and other factors influencing pharmaceutical economics and marketing will be discussed. Frequently references will be made to the governmental investigations of the industry. Prerequisites, consent of instructor.

46:251 Pharmacy Administration: Research cr.arr.

46:253 Pharmacy Administration: Research Methods 3 s.h.
Scientific approaches to the solution of problems in pharmacy administration are discussed. The research problem, the design, and the relation between the two are emphasized. Prerequisite: Statistics 326:43 or equivalent; corequisite: Education 77:342 or Economics 46:122.

46:254 Pharmacy Administration: Health Economics 3 s.h.
Analysis of supply and demand of health resources and the influence of third party payment on medical care utilization are discussed. Cost-effectiveness analysis of health programs and manpower considerations in the health sciences are emphasized. Pharmacy is considered in its relationship to the health care system.

Industrial Pharmacy

46:41 Industrial Field Trip 0-0 cr.
One three-day trip annually to pharmaceutical plants to study industrial methods of production, quality control, and marketing. Prerequisite, senior standing.

46:106 Industrial Pharmacy 3 s.h.
Lectures, principles and processes of pharmaceutical manufacturing, purification, and production equipment. Laboratory: processing on a pilot-plant scale. Open to undergraduates for elective credit. Prerequisite, 46:32.

Pharmaceutical Administration

Undergraduate Courses

46:45 Pharmacy: Administration 3 s.h.
Consideration of the social and economic factors affecting the pharmaceutical environment. Specific application of principles of business, management, promoting, marketing, and the management of the practice of pharmacy as discussed. Prerequisites: 6:152, Economics 46:41.

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46:251 Pharmacy Administration: Research cr.arr.

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<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>46:113</td>
<td>Hospital Pharmacy: Special Topics</td>
<td>2 a.h.</td>
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<tr>
<td>46:204</td>
<td>Hospital Pharmacy: Parenterals</td>
<td>2 a.h.</td>
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<tr>
<td>46:243</td>
<td>Hospital Pharmacy: Research</td>
<td>or.arr.</td>
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<tr>
<td>46:244</td>
<td>Hospital Pharmacy: Research</td>
<td>or.arr.</td>
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<tr>
<td>46:245</td>
<td>Hospital Pharmacy: Seminar</td>
<td>0 or 1 a.h.</td>
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<tr>
<td>46:246</td>
<td>Hospital Pharmacy: Seminar</td>
<td>0 or 1 a.h.</td>
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<tr>
<td>46:247</td>
<td>Hospital Pharmacy: Administrative Problems</td>
<td>3 a.h.</td>
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</tbody>
</table>

Application of basic organizational and administrative theory to practical problems in hospital pharmacy administration: materials and personnel management, budgeting and forecasting, systems and physical plant design. Prerequisites: 46:296, Microbiology 41:181 or equivalent.

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<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>4.11</td>
<td>Elementary Quantitative Analysis</td>
<td>4 a.h.</td>
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<tr>
<td>4.21</td>
<td>Organic Chemistry I</td>
<td>3 a.h.</td>
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<tr>
<td>4.22</td>
<td>Organic Chemistry II</td>
<td>2 a.h.</td>
</tr>
<tr>
<td>4.141</td>
<td>Intermediate Chemistry Laboratory I</td>
<td>2 a.h.</td>
</tr>
<tr>
<td>65.1</td>
<td>Principles of Economics</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>6A.1</td>
<td>Principles of Accounting</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>29.1</td>
<td>College Physics</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>29.2</td>
<td>College Physics</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>37.3</td>
<td>Principles of Animal Biology</td>
<td>5 a.h.</td>
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<tr>
<td>61.157</td>
<td>General Microbiology</td>
<td>4 a.h.</td>
</tr>
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<td>71.101</td>
<td>Pharmacology</td>
<td>5 a.h.</td>
</tr>
<tr>
<td>71.102</td>
<td>Pharmacology and Toxicology</td>
<td>5 a.h.</td>
</tr>
<tr>
<td>77.151</td>
<td>Mammalian Physiology</td>
<td>5 a.h.</td>
</tr>
<tr>
<td>91.150</td>
<td>Law in a Technological Society</td>
<td>2 a.h.</td>
</tr>
<tr>
<td>99.211</td>
<td>Biochemistry</td>
<td>5 a.h.</td>
</tr>
</tbody>
</table>
AFRO-AMERICAN STUDIES
Chairman of Program, Charles T. Davis
Office, 110 Old Capitol

Vigorous efforts are being made to develop a satisfactory curriculum and attract adequate faculty to portray the experiences of the black people in America. This program is concerned with the history and culture of black people in Africa and the Caribbean. It also focuses on the contemporary racial crisis with a commitment to the excision of prejudices and stereotypes. The curriculum is designed to place the black experience in its historical context. It recognizes the need for both black and white participation, and it will provide training in a field that has been ignored for too many years. The ultimate objective is to provide university students with an understanding of the black man's contribution to American civilization—past and present.

AFRO-AMERICAN Studies have been organized to further research and teaching in the area of black culture. The student wishing to specialize in AFRO-American Studies will satisfy these areas in his graduate coursework, offer it as an examination field at the time of comprehensive examinations, and write an interdisciplinary dissertation on some aspect of AFRO-American culture.

Current plans call for a four-stage development combining present courses with new courses. The curriculum is being developed in four phases for the purpose of enabling the students and faculty to systematically add and delete courses. Certain courses are considered essential to the curriculum; therefore, they have been designated core courses. They are courses 45:10, 45:21, 45:23, 45:25, 45:31, 45:33, 45:39, 45:105, 45:115, 45:195, 115:125. The support courses have those that are directly related to the complete curriculum. They are courses 45:10, 45:31, 45:33, 45:39, 45:105, 45:115, 45:195, 115:125. The related courses are those that are tangentially related to the core program and they are 115:134, 115:105, 715:104, 915:105, 715:109, 65:230. The Committee on AFRO-American Studies also sponsors the AFRO-American Cultural Center.

Among faculty members participating in the AFRO-American Studies Program are Professors Bolden (Edu- cation), Elison (African Culture), Evans (Religious History), Kosters (African Civilization), Amstutz (Religious History), Kosters (American Civilization), Elison (Religious History), Kosters (Business Administration), Huffman (History), Huber (Education), Shaw (American Civilization), Carter (Anthropology), Doby (African History), Roberts (Geography), Seth (Religious History), Greene (African History).

COURSE DESCRIPTIONS

Courses primarily concerned with the AFRO-American Experience American Civilization

45:10 The Black Revolution and Its Leadership 3 s.h.

45:11 The Contemporary Black Experience 3 s.h.

American Civilization. Specific emphasis will be placed on racism in all of the manifestations.

45:115 Afro-American Literature I 3 s.h.

45:116 Afro-American Literature II 3 s.h.

45:210 The Culture of Black America: An Interdisciplinary Approach 3 s.h.

An overview of the social, economic, political, and religious experiences which have influenced the black American.

45:211 Seminar: Research in Afro-American Culture c.r.a.r. Students will be afforded an opportunity to explore and analyze social and historical distortions which perpetuate and intensify patterns of racial discrimination.

Anthropology

115:114 Spanish Speaking Peoples of the United States 3 s.h.

115:118 Social Anthropology of the Caribbean 3 s.h.

115:119 Urban Anthropology 3 s.h.

115:120 Peoples of Africa 3 s.h.

115:124 Peoples and Cultures of North Africa and the Middle East 3 s.h.

Art

115:103 Primate Art; Africans 3 s.h.

Business Administration

63:150 Individual Rights in an Industrial Society 2 s.h.

63:205 Business and Society 2 s.h.

63:255 Employment Relations and Public Policy 3 s.h.

Economics

53:137 Economics of Urban Problems 3 s.h.

Education

7F:104 Education in Newly Developed Countries 2 or 3 s.h.

7F:130 Educational Sociology 2 or 3 s.h.

7F:380 Seminar: Value Problems in the Administration of American Education 3 s.h.

7F:109 Social Development of the School Age Child 2 or 3 s.h.

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INTERDISCIPLINARY PROGRAMS

Teaching the Educationally

Dreaded 3 a.h.

Geography

44:161 Africa 3 a.h.

History

16:61 Survey of American History, 1492-1877 3 or 4 a.h.

16:62 Survey of American History, 1877 to Present 3 or 4 a.h.

Sociology

34:115 Race and Ethnic Relations 3 a.h.

31:178 African Social Structure and Change 3 a.h.

Urban and Regional Planning

102:101 Urban Politics 3 a.h.

102:204 Planning of Metropolitan Areas 4 a.h.

GENETICS

Chairman of Program, George E. Brouseau, Jr., Office, 227 Zoology Building

The interdisciplinary program in genetics brings together teaching and research activities in genetics. The program is administered by the Genetics Curriculum Committee. This committee encourages and coordinates activities in genetics and emphasizes the unifying aspects of this approach to biology. It is especially appropriate because genetics cuts across traditional divisions in biology. The genetics program is centered in the Department of Botany, Microbiology, and Zoology. More detailed descriptions of the courses in genetics may be found in the listings of these departments.

The University does not offer degrees in genetics. (A Ph.D. in genetics is being considered. Persons interested in this program should direct inquiries to the chairman of the genetics program.) Undergraduates wishing to prepare themselves for graduate work in genetics may do so by earning the B.A. degree in botany or zoology. In addition they should include a year of calculus in their program. A suitable program can also be developed under the major in general science. Students wishing to exercise this option should consult with one of the members of the genetics staff in order to plan an adequate program.

Genetics Curriculum Committee: Professors Wayne Carlsen, Erich Hie, George E. Brouseau, Jr., chairman. The faculty members participating in the genetics program are:

Professor: Brouseau (Zoology), Milliken (Zoology), Mohler (Zoology), Associate Professor: Six (Microbiology), Assistant Professor: Carlsen (Botany), Guest (Zoology), Haggman (Zoology), Walker (Microbiology).

COURSE DESCRIPTIONS

Botany

2103 Genetics 2 or 4 a.h.

Same as Zoology 37:103.

2104 Cytogenetics 4 a.h.

Microbiology

61:175 Topics in Microbial Genetics 3 a.h.

61:270 Molecular Mechanisms in Heredity 3 a.h.

Zoology

37:101 Principles of Human Genetics 3 a.h.

37:109 Genetics 3 or 4 a.h.

Same as Botany 2103.

37:150 Fundamental Genetics 3 or 4 a.h.

Same as Botany 2123.

37:131 Population Biology 4 a.h.

37:160 Advanced Genetics 4 a.h.

37:165 Population Genetics 3 a.h.

37:163 Behavioral Genetics 3 a.h.

37:165 Quantitative Genetics 3 a.h.

37:171 Molecular Genetics 3 or 4 a.h.

37:172 Topics in Molecular Genetics 2 a.h.

37:214 Drosophila Genetics Seminar 1 a.h.

37:215 Seminar: Genetics cr. arr.

37:260 Developmental Genetics 2 a.h.

37:263 Behavioral Genetics Seminar 2 a.h.

NUCLEAR SCIENCE AND TECHNOLOGY

A Program of Graduate Studies

Nuclear science and technology is an interdisciplinary program, leading to the Master of Science degree. It is offered through the cooperation of the Graduate College, the College of Engineering, the Department of Mathematics, Chemistry, and Physics in the College of Liberal Arts, and the Radiological Research Laboratory of the College of Medicine.

The program provides a background in the areas on which nuclear technology is based. It is for students who are interested in applying nuclear processes to scientific and engineering problems, such as the production of electrical power, the application of radioisotopes, and the use of irradiation devices.

The program is administered by an interdisciplinary committee. The chairman of this committee is the advisor to students who enter the program. He should be consulted for advice concerning the program and for help in choosing a director for the student's M.S. program.

The members of the committee are:

William E. Bennett

Chemistry

Richard C. Carlsen

Physics

Tim C. Ferris

Radiation Biology

Edwin H. Oberb

Mathematics

J. Mark Tymoczko

Mechanical Engineering

James O. Sokol

Chemical Engineering

Chairman

Admission. To enter the program, a student must have a B.S. degree in engineering, chemistry, physics, mathematics, or general science and must satisfy the admission requirements of the Graduate College. Write to the Director of Admissions, The University of Iowa, Iowa City, Iowa 52242, for an application form for admission and for information about admission requirements. The following courses are prerequisites for the nuclear science and technology program, and they must be taken before entering the program or during the program without credit toward the M.S. degree:

2103 Fundamental Genetics 3 or 4 a.h.

Same as Zoology 37:103.

2104 Cytogenetics 4 a.h.

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Program requirements. For a Master of Science degree in Nuclear Science and Technology, 36 semester hours are required with a thesis. 28 semester hours must be without a thesis. The degree program is intended to be flexible, while conforming as nearly as possible to the following list:

Nuclear Physics 6 s.h.
Consultant: recommended 25-231, 232
Nuclear Reactor Analysis and Design 4 s.h.
Consultant: recommended 25-235, 236
Nuclear Technology 6 s.h.
Consultant: recommended 25-130, 131, 132
Chemistry 3 s.h.
Consultant: recommended 4:170
Mathematics chosen from:
25-115, 116 3 s.h.
25-117, 118
25-119
25-120
Radiation Biology 2 s.h.
Consultant: recommended 27-200 (Lectures only) or 71-206 (3 s.h.)
Electives 9 or 11 s.h.
Advanced courses in quantum physics, mathematics, engineering, radiation biology, computers, and research.

Total: without thesis 38 s.h.
without thesis 28 s.h.

NEUROBIOLOGY
Chairman of Program, Friedrich P. J. Diecke
Office, 245 Medical Laboratory

The neurobiology program is an interdisciplinary and interdepartmental program which is being developed by a faculty committee representing the participating departments and colleges. The goal of the program is to further interdisciplinary research and to promote interdisciplinary teaching to undergraduate and graduate students in all areas of neurobiology ranging from ultrastructure and biochemistry of excitable membranes to central mechanisms of behavior. Faculty members from the Departments of Anatomy, Anatomy, Pharmacology, Physiology and Biochemistry, Psychiatry, Psychology, Speech Pathology and Audiology, and Zoology participate in the program.

Faculty Committee: F. P. J. Diecke, chairman; ijolde Cortesano, H. Bernhard Hartman, William W. Kaehler, Laura S. Wan Orden.

The following faculty members participate in the interdisciplinary neurobiology program:

Professor: Benton (Psychology and Neurology); Diecke (Physiology and Biophysics); Dai (Psychiatry and Biochemistry); Harvey (Psychology); Ingram (Anatomy); Kaehler (Anatomy); Koss (Psychiatry); Koff (Neurology); Mitchell (Pharmacology); Riske (Anatomy); Schott (Psychology and Biophysics); Small (Speech Pathology and Audiology and Psychology); Associate Professor: Hess (Psychiatry); Fox (Psychology); Kaelen (Anatomy and College of Dentistry); Harig (Psychiatry); Hassel (Psychology); Thomas (Physiology and Biophysics); Assistant Professor: Daedel (Psychiatry); Hartman (Zoology); Ritter (Zoology); Lackovic (Neurology, Physiology and Biophysics); Neur (Child Behavior and Development); Millard (Psychiatry); Phillips (Physiology and Biophysics); Voss (Anatomy). Wernick (Speech Pathology and Audiology); Westheier (Physiology and Biophysics); Vermet (Anatomy).

INTERDISCIPLINARY PROGRAMS

Course Descriptions

Interdepartmental Courses

00:10 Neurobiology and Behavior 5 s.h.
Essentially the same as 00:10 Neurology and Behavior, in the nervous system. The course presents material pertaining to pharmacology, physiology, pharmacology, anatomy, and the medical student in an integrated fashion. The course consists of lectures, laboratory, and demonstrations. Offered every semester.

00:15 Anatomy 5 s.h.
Interdisciplinary study of the elements, organization, and function of the central nervous system. Lectures, conferences, lab-stories, and demonstrations.

00:20 The Visceral Nervous System 3 s.h.
Anatomical system as it relates to motor, functional relationships, and functions, including central mechanisms. Primarily for medical graduates. Offered upon sufficient demand.

00:20 Review of Analytical Neurology 3 s.h.
Important elements of the central nervous system with emphasis on functional relationships. Offered only upon sufficient demand.

Biochemistry

00:28 Neurobiochemistry 3 s.h.
Chemistry of nerve tissue. Cellular and subcellular units, chemical composition, blood brain barrier, ion transport, neurotransmitters, Lectures. First semester. Prerequisite: 00:183 or 00:186.

Pharmacology

00:21 Introductory Neurobiology 3 s.h.
Essentially the same as 00:21 Neurology and Behavior, but arranged to meet the needs of graduate students in physiology, anatomy, pharmacology, and psychology, and the medical student in an integrated fashion. Graduate students in pharmacology and others who desire will participate in a seminar in neuropharmacology, in which review articles and important current research papers are discussed critically. Prerequisite, consent of instructor. First semester.

Physiology and Biophysics

00:22 Neurology and Behavior 3 s.h.
Same as 00:10 except with additional seminars and reading assignments. Prerequisite, consent of instructor.

00:24 Advanced Neurophysiology 3 s.h.
(Muscle) 3 s.h.
Part of a two-year sequence. Open to graduate and postgraduate students. Examines electrical, mechanical, chemical, and thermal phenomena at the cellular level in contracting skeletal muscle. Prerequisites, adequate background in biological and physical sciences and consent of instructor. First semester, alternate years. Offered 1971-72.

00:28 Advanced Neurophysiology (Biophysics of Excitable Membranes) 3 s.h.
Part of a two-year sequence. Open to graduate and postgraduate students. Foundation for an understanding of the generation of electrical transmission of excitation, and information processing in the central nervous system. Prerequisites, adequate background in biological and physical sciences and consent of instructor. Second semester, alternate years. Offered 1971-72.

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INTERDISCIPLINARY PROGRAMS

72:283 Advanced Neurophysiology (Sensory Physiology) 3 s.h.
Part of a two-year sequence. Open to graduate and post-graduate students. A lecture-seminar course designed to examine in depth the problems of transmission and information processing at various levels of sensory pathways. Prerequisites: neuroanatomy, biophysics of excitable membranes, and consent of instructor. First semester, alternate years. Offered 1972-73.

72:294 Advanced Neurophysiology (CNS, Control of Locomotion and Posture) 3 s.h.
Part of a two-year sequence. Open to graduate and post-graduate students. Objective is indepth discussion of the functional-central nervous mechanisms governing posture and locomotion. Prerequisites: neuroanatomy and neurophysiology course and consent of instructor. Second semester, alternate years. Offered 1973-74.

Psychology

31:125 Brain Function and Learning 3 s.h.
Survey of psychological physiology with emphasis on sensory and motor systems and integrative processes of the nervous system.

31:324 Sensory Processes 3 s.h.
Modulates through which information is obtained regarding the organism's external environment.

31:327 Introduction to Physiological Psychology 3 s.h.
Major facts and principles.

31:328 Neuroendocrinology and Behavior 3 s.h.
Development of behavioral concepts as they relate to neuroendocrine and neurochemical aspects of thirst, hunger, and sex. Prerequisite, 31:287.

31:329 Neural Mechanisms and Learning 3 s.h.
Information processing in brain, electrophysiology, sensory and motor coding, integrative functions, sleep, waking, and attention in relation to behavior. Prerequisite, 31:287 or consent of instructor.

31:330 Biochemistry and Behavior 3 s.h.
Biochemistry of the central nervous system with special emphasis on chemical systems affecting brain function and behavior. Prerequisites: 31:287, Biochemistry 39:181, or consent of instructor.

31:371 Psychopharmacology 3 s.h.
Same as Speech Pathology and Audiology 3:354.

31:372 Psychopharmacology Laboratory 2 s.h.
Same as Speech Pathology and Audiology 3:358.

31:390 Behavioral Pharmacology 3 s.h.
Behavioral analysis of drug action in experimental animals including man, with special emphasis on physiological and biochemical mechanisms. Prerequisite, 31:320 or consent of instructor.

31:391 Seminar: Chemical Influences on Behavior 2 s.h.
Selected topics on the relations between brain chemistry and behavior. Prerequisite, consent of instructor.

31:335 Seminar: Brain Mechanisms and Control of Behavior 2 s.h.
Selected topics on nervous system control of behavior.

31:336 Seminar: Physiological Psychology 2 s.h.
Selected topics on the anatomical and neurochemical bases of behavior. Prerequisite, consent of instructor.

31:337 Seminar: Neuropsychology 2 s.h.
Attention, control, and affective processes. Prerequisite, consent of instructor.

31:342 Seminar: History of Neuropsychology 2 s.h.
Selective review of development of knowledge and concepts of brain-behavior relations from antiquity to the present day.

Speech Pathology and Audiology

3:354 Psychocochetics 3 s.h.
Lectures and discussions on advanced topics and current research in auditory sensation and perception. Same as Psychology 31:271. Prerequisite, 3:113 or consent of instructor. Second semester.

3:253 Psychocochetics Laboratory 2 s.h.
Supervised laboratory experimentation. Analysis of stimuli in acoustic environment. Implication by means of classical psychophysical experiments. Two laboratories per week. Same as Psychology 31:272. Corequisites, 3:354 or consent of instructor.

3:296 Physiology of Hearing 4 s.h.
Application of physiological techniques primarily electrophysiological, to basic research in hearing. Neuroanatomy of auditory system (ASS, both peripheral and central), dynamics of the cochlea, electrophysiological responses at various levels in the ASS, extinction studies. Three lectures and two laboratory hours each week. Prerequisite, 3:294 or consent of instructor. First semester.

Zoology

37:134 Comparative Physiology 4 s.h.
Comparative analysis of physiological mechanisms among invertebrates and vertebrates. Prerequisites, 37:207 and Chemistry 6:4 or Physics 350, or grade-stand standing and consent of instructor.

37:141 Comparative Neurophysiology 5 s.h.
Properties of receptors, integrative processes, and effecter mechanisms, exemplified by both vertebrate and invertebrate systems. Prerequisites, 37:125, 37:134 or consent of instructor.

37:226 Hormones and Behavior 2 s.h.
Discussions, readings, and reports dealing with topics in the regulation of behavior. Prerequisite, consent of instructor.

37:299 Neurobirometry 2 s.h.
Lectures, discussions, readings, and reports on development of nervous system and sense organs, development of behavior, nerve growth, and regeneration. Prerequisites, 37:108 and graduate standing or consent of instructor.

37:341 Seminar: Neurophysiology 2 s.h.
Reviews of recent literature of selected topics. May be repeated.

ALLIED HEALTH SCIENCES

DENTAL HYGIENE

Chairman of Program, Pauline Brine Office, J2 Dentistry Building

Two programs in dental hygiene are offered at The University of Iowa:

1. A baccalaureate program with a major in dental hygiene for the Bachelor of Science degree.
2. A graduate program with a major in dental hygiene education and administration leading to the Master of Science.

The baccalaureate program is designed to include pre-professional requirements. This aspect of the curriculum
<table>
<thead>
<tr>
<th>INTERDISCIPLINARY PROGRAMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. A bachelor’s degree from an accredited college or university with content equivalent to a comparable U of I degree.</td>
</tr>
<tr>
<td>3. A minimum grade-point average of 2.5 in all previous college work.</td>
</tr>
<tr>
<td>4. Graduate Record Examination Aptitude Test scores of satisfactory level.</td>
</tr>
<tr>
<td>Consideration is given to each applicant’s personal maturity and professional motivation.</td>
</tr>
</tbody>
</table>

Degree Requirements. The candidate for the master’s program will organize a schedule of courses under the guidance of the graduate advisor in dental hygiene. The curriculum provides courses in general education, dental hygiene education and administration, and electives. Content in general education includes theories of learning, curriculum development, problems in college teaching, and construction and use of classroom tests. Statistics and research methodology provide the student with a basic approach to engage in scientific inquiry. Electives may include such courses as speech pathology, nutrition, psychology, sociology, guidance and counseling, technical writing, public relations, and communication. Or, if the student has the necessary prerequisites, electives may be chosen from a wide range of other subjects. |

To complete the 36-semester-hour program, it is necessary to be enrolled in the Graduate College for two semesters and one summer session. Students in the Graduate College may register for no more than 15 semester hours of graduate credit each semester.

Course of Study for B.S. in Dental Hygiene

The student must complete 60 semester hours of pre-professional requirements before qualifying for professional courses. Pre-professional education includes the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Skills</td>
<td>12 h.</td>
</tr>
<tr>
<td>Natural Science</td>
<td>8 h.</td>
</tr>
<tr>
<td>Dental Science</td>
<td>5 h.</td>
</tr>
<tr>
<td>Dental Hygiene</td>
<td>5 h.</td>
</tr>
<tr>
<td>31:0 Elementary Psychology</td>
<td>8 h.</td>
</tr>
<tr>
<td>32:0 Anatomy</td>
<td>8 h.</td>
</tr>
<tr>
<td>49:0 Language</td>
<td>4 h.</td>
</tr>
<tr>
<td>12:0, 13:0, or 14:0 (German, French, or Russian preferred)</td>
<td>3 h.</td>
</tr>
<tr>
<td>37:0 Principles of Animal Biology</td>
<td>4 h.</td>
</tr>
<tr>
<td>4:1 Introduction to Dental Hygiene</td>
<td>4 h.</td>
</tr>
<tr>
<td>48:0 Introductory Organic Chemistry</td>
<td>4 h.</td>
</tr>
<tr>
<td>Two and one-half units of high school math</td>
<td>4 h.</td>
</tr>
</tbody>
</table>

Students are urged to consult with the Director of Admissions on or before April 1 for the fall semester.

Living Accommodations

Students in the undergraduate dental hygiene program live in University residence halls or approved off-campus housing. Prospective students are advised to apply for University housing at the time of submitting application for admission to the program. Dental hygiene students have the same privileges as other undergraduates enrolled in the University.

Expenses

(See Admissions-Registration-Fees and Housing)

The University will furnish equipment needed for work in clinics and laboratories. However, students are advised to purchase textbooks, uniforms, and laboratory supplies. The approximate cost of dental instruments is $200; laboratory supplies, $45; textbooks, $200; uniforms, $80; and incidental supplies, $35 for the junior and senior years.

Grades and Academic Standards

The Master of Science degree program is designed to prepare experienced dental hygienists for careers in dental hygiene. Admission Requirements. This program is carried on at the Graduate College and is subject to the regulations of the Graduate College. Admission to the program requires:

1. A dental hygiene certificate from an accredited dental hygiene program,

2. A bachelor’s degree from an accredited college or university with content equivalent to a comparable U of I degree,

3. A minimum grade-point average of 2.5 in all previous college work,

4. Graduate Record Examination Aptitude Test scores of satisfactory level. Consideration is given to each applicant’s personal maturity and professional motivation.

Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>31:0 Dental Hygiene</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Dental Anatomy</td>
<td>4 h.</td>
</tr>
<tr>
<td>32:0 Histology</td>
<td>4 h.</td>
</tr>
<tr>
<td>32:0 Human Anatomy</td>
<td>4 h.</td>
</tr>
<tr>
<td>32:0 Physical Diagnosis</td>
<td>4 h.</td>
</tr>
<tr>
<td>32:0 Second Semester</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Dental Hygiene</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Second Semester</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Third Semester</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Fourth Semester</td>
<td>2 h.</td>
</tr>
<tr>
<td>15:0 Nutrition</td>
<td>2 h.</td>
</tr>
</tbody>
</table>

Electives (approved by advisor)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>32:0 Introduction to Dental Hygiene</td>
<td>4 h.</td>
</tr>
</tbody>
</table>

Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>32:0 Dental Hygiene</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Dental Anatomy</td>
<td>4 h.</td>
</tr>
<tr>
<td>32:0 Histology</td>
<td>4 h.</td>
</tr>
<tr>
<td>32:0 Human Anatomy</td>
<td>4 h.</td>
</tr>
<tr>
<td>32:0 Physical Diagnosis</td>
<td>4 h.</td>
</tr>
<tr>
<td>32:0 Second Semester</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Dental Hygiene</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Second Semester</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Third Semester</td>
<td>2 h.</td>
</tr>
<tr>
<td>32:0 Fourth Semester</td>
<td>2 h.</td>
</tr>
<tr>
<td>15:0 Nutrition</td>
<td>2 h.</td>
</tr>
</tbody>
</table>

Electives (approved by advisor)
**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>88:13 Dental Hygiene</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>88:19 Survey of Practice Management</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>88:22 Dental Therapeutics</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>88:23 Dental Radiography</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>88:24 Periotherapy</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:25 Seminar: Preventive Dentistry</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:26 Seminar: Preventive Dentistry</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>88:34 Clinical Dental Hygiene</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:35 Clinical Dental Hygiene</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:19 Clinical Assisting</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>88:19 Survey of Practice Management</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:24 Hygiene and Public Health</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>88:26 Seminar: Preventive Dentistry</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**STAFF**

Professor: Cloyd A. Young
Professor Emeritus: Roy Smith
Assistant Professor: Patricia Rotten, Sally Buchanan, Thaxter Miller, Clayton Shalla, Mary Williams
Instructor: Dental Hygiene: Jean Ferguson, Kay Beshour, Sharon Schirin, Brenda Bippy, Marjorie Taylor

**Course Descriptions**

**Undergraduate Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>88:1 Fundamentals of Dental Hygiene</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:3 Prophylaxis Technic</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:5 Clinical Dental Hygiene</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>88:6 Clinical Dental Hygiene</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>88:6 Dental Health Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:6 Seminar: Preventive Dentistry</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:7 Dental Health Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:9 Survey of Practice Management</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:10 Clinical Assisting</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**Graduate Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>88:201 Directed Teaching Experience</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:202 Practicum I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:204 Practicum II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:205 Research: Dental Hygiene</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>88:206 Directed Teaching of Prophylaxis</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**MEDICAL TECHNOLOGY**

**Director, University Hospitals, Earl F. Rose Building**

**Director, Veterans Administration Hospital,**

**Kenneth R. Cross**

**Office, Veterans Administration Hospital**

The program in medical technology at The University of Iowa is accredited by the Council on Medical Education of the American Medical Association and the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists. Fulfillment of requirements set forth by these accrediting bodies involves three years of medical technology in the College of Liberal Arts and Science and a minimum of twelve months of professional clinical experience, available in Iowa City at the University Hospitals or Veterans Administration Hospital. Upon the completion of this four-year program, students will be eligible to receive the Bachelor of Science degree with a major in general science and medical technology and also by eligible for national certification as a medical technologist.

**Pre-professional Curriculum Requirements**

Completion of the following requirements are necessary for admission to the professional program.

1. Selection of the College of Liberal Arts requirements in rhetoric, literature, social science, historical-cultural core, foreign language, and physical education.
2. At least 40 semester hours in science, which must include:
   - 18 semester hours in chemistry including courses in general chemistry, quantitative analysis, and organic chemistry.
   - 18 semester hours in biological sciences including courses in general zoology, microbiology, and parasitology.
   - 3 to 7 semester hours in mathematics indicating a course in statistics.
### INTERDISCIPLINARY PROGRAMS

#### Recommended Science Electives: Semester Hours
- **Pre-20 Introduction to Medical Technology**
- **Introduction to Human Physiology**
- **Microscopy: Anatomy**
- **Introduction to Human Histology**
- **General College Physics**
- **Elementary Human Anatomy**

### Professional Program

The professional curriculum consists of lectures, seminars, and practical application of scientific knowledge to laboratory work in the following clinical laboratory areas:

- **Chemistry**: Study of the study of chemistry of blood and blood pathologies, including hematology, hematopoiesis, and evaluation of blood cells, coagulation factors, and routine urinalysis.
- **Microbiology**: Principles and techniques of biological processes, compatibility testing, antibody identification, and computer testing.
- **Clinical Microbiology**: Identification of pathogenic microorganisms by applying the principles of bacteriology, mycology, virology, and parasitology.
- **Clinical Biochemistry**: Theory and practice of routine methods of chemical analysis, preparation of reagents, instrumentation, automation, and special procedures in determining chemical constituents.

### STAFF

**University Hospitals**
- **Associate Professor**: Karl F. Rose
- **Assistant Professor**: Donald P. Nicholson
- **Instructor**: Carol B. Glesch, Lela C. Herd, James E. O'Connor, Janice E. Platt, Carla E. Salmen, Arthur B. Menefee, Frank H. Winkel

**Veterans Administration Hospital**
- **Associate Professor**: Kenneth V. Cross
- **Assistant Professor**: D. M. Alford
- **Instructor**: Karl M. Berglund, Gladys J. Downey

### NUCLEAR MEDICAL TECHNOLOGY

**Program Coordinator**, R. E. Peterson

### Program Objectives

The preclinical and clinical education of a nuclear medical technologist stresses the importance of knowledge of both the biological and psychological aspects of human disease. This knowledge includes the ability to perform and interpret clinical procedures accurately and efficiently.

#### Program Requirements:

**Pre-medical studies**: 3. A minimum of 96 semester hours of preprofessional study fulfilling the scholarship requirements for graduation in the College of Liberal Arts. Pre-medical technology students must complete these requirements by following the suggested course of study:

<table>
<thead>
<tr>
<th>Semester Hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>History I</td>
<td>3</td>
</tr>
<tr>
<td>Biology I</td>
<td>4</td>
</tr>
<tr>
<td>Introductory Mathematics (More advanced mathematics courses may be substituted)</td>
<td>4</td>
</tr>
<tr>
<td>3.1 Principles of Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>Historical-Cultural Core</td>
<td>4</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>4</td>
</tr>
<tr>
<td>Biostatistics: Elementary Probability and Statistics (recommended)</td>
<td>3</td>
</tr>
<tr>
<td>6.5 Principles of Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>Historical-Cultural Core</td>
<td>4</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Semester Hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 Introduction to Quantitative Analysis</td>
<td>3</td>
</tr>
<tr>
<td>3.5 Principles of Animal Biology</td>
<td>5</td>
</tr>
<tr>
<td>Literature Core</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>3 to 4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16 to 17</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>4.3 General Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>4.6 <strong>General Chemistry Laboratory</strong></td>
<td>3</td>
</tr>
<tr>
<td>Literature Core</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2 to 4</td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>Semester Hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>5.112 General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>Social Science Core</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language (German, French, or Russian)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>3.7125 Psychology (or equivalent)</td>
<td>4</td>
</tr>
<tr>
<td>Social Science Core</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>3 to 4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15 to 18</td>
</tr>
</tbody>
</table>

*These students with strong high school chemistry backgrounds, in the Honors Program, or interested in graduate study are strongly urged to substitute one of the following alternate courses of study in chemistry:

**Alternate I**

<table>
<thead>
<tr>
<th>Semester Hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5 Principles of Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>4.7 <strong>General Chemistry Laboratory</strong></td>
<td>3</td>
</tr>
<tr>
<td>4.71 Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>4.72 Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>4.73 Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>4.74 Intermediatate Chemistry Laboratory I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Alternate II**

<table>
<thead>
<tr>
<th>Semester Hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5 Principles of Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>4.7 <strong>Elementary Chemistry Laboratory</strong></td>
<td>3</td>
</tr>
<tr>
<td>4.71 Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>4.72 Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>4.73 Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>4.74 Intermediate Chemistry Laboratory I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Pre-medical technology students must register for 3 semester hours of credit in 4.9 General Chemistry Laboratory.**
### INTERDISCIPLINARY PROGRAMS

#### Educational Program

All students in the Colleges of Liberal Arts who designate nuclear medical technology as a major are assigned to nuclear medical technology advisories for guidance in the completion of the preclinical courses of study.

**Preclinical Program.** The required courses in this study emphasize the physical and biological sciences, which provide a broad background and which are prerequisites for the subjects and activities of the clinical year. In addition to these science courses, the prospective students must also fulfill the core course requirements for graduation from the College of Liberal Arts, and the requirements for a general science major. The following is a summation of the prerequisites for acceptance into the nuclear medical technology program:

1. Proficiency in rhetoric, physics education, and foreign language.
2. Satisfaction of core requirements in the literature, social science, and historical-cultural areas.
3. Completion of the minimum 38 semester hour requirements with two subunits:
   - A combination of 12-14 semester hours in physics, chemistry, or zoology, respectively.
   - A combination of 20-24 semester hours in physics, chemistry, or zoology, respectively.
4. A minimum of 6 semester hours in mathematics.

**Clinical Program.** The clinical year of study is centered in the Veterans Administration hospital and University medical facilities. In terms of time allocations, equal emphasis is given to both didactic and clinical experiences. The didactic portion covers in depth the clinical or technical specialties of physics of nuclear medicine, basic instrumentation, nuclear instrumentation, radiochemistry, radiopharmaceuticals, basic pedagogical techniques, electroencephalography, sonography, scintigraphy, cardiac arrhythmia, health physics, principles of nursing care techniques, photographic chemistry, and densitometer techniques, principles of clinical administration, doctor's conference and some clinical topics in radiology, clinical chemistry, kinetic studies, and medical ethics.

**Recommended Courses of Preclinical Study**

<table>
<thead>
<tr>
<th>Preclinical Year</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td>2</td>
</tr>
<tr>
<td>Sophomore Year</td>
<td>3</td>
</tr>
</tbody>
</table>

---

**Junior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Science Core</td>
<td>8</td>
</tr>
<tr>
<td>Introduction to Human Physiology (7213)</td>
<td>4</td>
</tr>
<tr>
<td>Elementary Human Anatomy (6625)</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First and second semester of the 12-month training program</td>
<td>30</td>
</tr>
</tbody>
</table>

---

**Admission**

Prospective students in nuclear medical 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 limited to six students. The twelve-month training program starts in September of each year. For application information and forms, write to the Director of Admissions, 1 Jessup Hall, Iowa City 2930. For further information, refer to the College of Liberal Arts in the Catalog and to the booklet, Information for Prospective Students.

**STAFF**

Professor: N. R. Peterson  
Associate Professor: E. H. Choong  
Assistant Professor: T. K. Chaudhuri  
Instructor: G. A. Levee  

**PHYSICAL THERAPY**

**Professional Program**

Director, Terry E. Jones  
Office, ES Children's Hospital  
Master of Arts Degree Program  
Director, Gary L. Simid  
Office, WS Children's Hospital  

The physical therapy curriculum is accredited by the Council on Medical Education of the American Medical Association and the American Physical Therapy Association.

**Professional Program in Physical Therapy**

The professional program builds on the student's undergraduate education by preparing him in pursuit of the goals of a professional education. Satisfactory completion of the professional curriculum qualifies candidates for the Professional Examination Service (P.E.S.) test to qualify for licensure in Iowa and most other states.

The educational program in physical therapy offers a two-year professional curriculum leading to certification in physical therapy. Each new class begins in the month of September. Students may enter the curriculum upon completion of the junior year of college work. The student must receive a bachelor's degree in his undergraduate major upon completion of the first year of the professional program. Students having received their bachelor's degree prior to application need not meet this requirement. The degree may be awarded from institutions other than the College of Liberal Arts of the University of Iowa, depending on requirements of the schools involved.

Classroom and laboratory instruction is presented in a manner intended to develop a sound basic knowledge of human anatomy, physiology, psychology, cytology, surgery, medicine, and psychological aspects of human

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**Recommended Courses of Preclinical Study**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td>2</td>
</tr>
<tr>
<td>Sophomore Year</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
</tr>
</tbody>
</table>

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INTERDISCIPLINARY PROGRAMS

Sineas as they may be applied to the treatment of disabilities through physical therapy procedures. Orientation to all health professions and the responsibilities of each is provided. The problem area is stressed throughout the program. The clinical education experience provides the student with the opportunity to develop skills in the evaluation of disabilities and in the prescription and execution of treatment programs, which will enable him to function as a physical therapist. He is taught to recognize the need to educate others and the imperative of his own professional growth in the art and science of physical therapy.

The Graduate Record Examination must be taken during the senior year in order to register in the Graduate College for the second year of the professional program. In addition, the Graduate College requires a 2.5 grade-point average to maintain registration.

After completion of the second year in the professional curriculum, a certificate is awarded by the University of Iowa.

Professional Program Admission Requirements

1. Completion of the junior year of college work (equivalent to 80 semester hours).

2. Minimum grade-point average of 2.0 for 8 semester hours of college work, of which at least 16 semester hours of college work shall be in the chemical sciences (chemistry, biology, or zoology), and a minimum of 8 semester hours in psychology. Chemistry, physics, biology, or zoology courses must include one quarter-hour of laboratory work. As the quality of work in the general sciences is basic to success in physical therapy, special attention will be given to grades in these subjects by the admissions committee.

3. A minimum grade-point average of 2.3 on a 4.0-point system.

4. Application must be made to the Director of the Certificate in Physical Therapy Program of the College of Medicine.

Preprofessional students at The University of Iowa will be assigned to an adviser from the physical therapy faculty. It is essential that each student satisfy the requirements of the major department as well as the requirements of the College of Liberal Arts for a baccalaureate degree.

Students pursuing a pre-professional therapy program at The University of Iowa may follow this suggested course schedule:

First Year

101: Rhetoric 4.0h
102: General Chemistry of the Atom 4.0h
Physical Education Skills for Men or Women 4.0h
Two semesters of historical and cultural education 6.0h
4:1 Principles of Chemistry I 3.0h
4:3 Chemistry Laboratory 1.5h
4:4 Principles of Chemistry II 3.0h
4:4 Chemistry Laboratory 1.5h

Sophomore Year

Two semesters of literature core course 6.0h
Sixteen weeks of social science core course 4.0h
2:5 Principles of Animal Biology 5.0h

Junior Year

28.1:4 Trigonometry 3.0h
28.3:1 College Algebra 3.0h
4:3 Organic Chemistry 4.0h
Two semesters of psychology 4.0h
2:10 Principles of Human Genetics 3.0h

Electives

Pre-physical therapy students should refer to these sections of the Catalog for their respective department's requirements for graduation.

Master of Arts Degree Program

The program leading to the Master of Arts degree in physical therapy is designed to provide the student with experiences which will enable him to function as a problem-solving artist, especially in the areas of physical therapy evaluation and treatment techniques. Therefore, particular emphasis is on research. However, to accommodate the diversity of student interests and national health needs, the program is structured in a flexible fashion.

Some students aspire to positions which are supervisory and consultative in nature, while others wish to teach in a curriculum of physical therapy or a curriculum for training physical therapy supportive personnel.

Admission requirements. To be considered for admission the applicant must be a graduate of an approved professional program of physical therapy and must have earned on all undergraduate work a grade-point average of 2.00 (on a 4.0-point scale) or higher. Mathematics courses through trigonometry are required, while advanced courses through calculus are recommended. Before final registration or during the enrollment in the master's degree program the student must successfully complete one half-year of English literature selected from the following courses: American Literature, British Literature or World Literature. In addition, the candidate must present an average of at least 2.00 (on a 4.0-point scale) for the grades in all courses taken for credit towards a bachelor's degree. A grade of C or better must be received in courses in English Literature, Psychology, and Mathematics. The candidate must also present an average of at least 2.25 for grades in all courses taken for credit towards a bachelor's degree. A grade of C or better must be received in courses in English Literature, Psychology, and Mathematics.

Graduate requires. A total of 30 semester hours of graduate work beyond the professional training is required. At least 18 semester hours must be completed in residence. To qualify for thesis defense the student must have a 2.75 grade-point average of graduate courses taken at The University of Iowa that are being offered toward the degree.

Exclusive of required courses the student should elect courses which are commensurate with his interest and goals.

Required Courses

Semester Hours

101:23 Seminar: Physical Therapy 4
217:25 Evaluation of Neuromuscular Disorders 2
218:36 Analysis of Scientific Literature 2
TP:143 Introduction to Statistics 2
63:161 Elementary Statistical Inference in Medicine 2
—— Introduction to FORTRAN IV 0

Recommended Courses

101:286 Advanced Electrotherapy and Electrodiagnosis 2
218:361 Physical Therapy Exercise 2
101:286 Laboratory Exercise in Teaching Methods and Design 2
101:285 Independent Study 2
3:125 Fundamentals of Laboratory Instrumentation 2

7:212 Conference 3
TP:342 Data Processing 3

Elective Courses

6:105 Biology and Psychophysiology 3
9:105 Research Aspects of Aging 3
TU:136 Orientation to the Rehabilitation of the Physically Handicapped Child 3
3:508 Meter Learning I 3
9:21:20 Laboratory Methods 1
1:9:41 Mechanics of Solids 2
1:081 Laboratory Exercise in Teaching Methods and Design 2
5:100 Child Development 2
3:171 Medical Supervision of Athletes 2
8:217 The Community College 2

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Course Descriptions
To be taken only by those in the professional program

First Year

60:109 Human Anatomy

63:160 Bacteriologies

72:13 Introduction to Human Physiology

Students registering for this course are not required to register for 72:13.

72:151 Mammalian Physiology

Students registering for this course are not required to register for 72:13.

101:101 Medicine I

Introduction to medicine, and lectures concerning medicine history, and medicine's relationship with allied health fields. Special emphasis placed on pathological conditions of various diseases treated by health specialties.

101:141 Professional Orientation and Ethics

Lecture, panel discussion, and demonstrations. Field of physical therapy, allied health professions, professional ethics, and accountability of the individual and the profession to society.

Second Semester

60:110 Human Anatomy and Neuroanatomy

73:101 Psychology for Related Professions
INTERDISCIPLINARY PROGRAMS

101.280 Advanced Electro-Therapy and Electro-Diagnosis 0 to 2 s.h.
Electronic methods used for treatment and diagnosis of neuro-muscular disorders. Special emphasis is made on electromyography.

101.301 Seminar: Thesis
This course serves to guide and instruct the student in all facets which relate to the thesis; formulation of the problem, literature search, procedure for collecting data, analysis of data, organization of the thesis, and writing the thesis.

101.325 Independent Study
A problem solving experience which is consistent with the student's interest and ability.

101.330 Analysis of Scientific Literature cr.arr.
A seminar to develop the student's ability to critically evaluate experimental research which relates to physical therapy.

Summer Session following Second Year

101.120 Clinical Education III 4 s.h.
Following successful completion of didactic work students are assigned to three different facilities for completion of their professional training.

To be taken only by those in the master's degree program

101.213 Seminar: Physical Therapy cr.arr.
Physical therapy evaluation and treatment techniques which involve mechanical principles. Dissection of cadav-
er is included. Special emphasis is placed on gait.

101.275 Evaluation of Selected Neurological Disorders cr.arr.
Reflex testing methods for evaluating central nervous sys-
tem development as well as facilitation techniques used to obtain active automatic motor responses with a progression towards more voluntary and purposeful movement.

101.380 Laboratory Exercise in Teaching Methods and Design 2 s.h.
Individual instruction, observation, and experimentation in teaching, guidance, and analysis of evaluation processes.
The University’s Main Library and its fourteen departmental libraries house a total of more than 1.5 million volumes.

About half of the University’s library collections of books, periodicals, and newspapers, and approximately 500,000 government publications, are in the Main Library.

The Law Library, containing approximately 165,000 volumes, is one of the strong university law libraries in the Midwest.

The Art Library contains approximately 28,000 volumes; Botany-Chemistry, 44,500; Business Administration, 4,500; Dentistry, 9,500; Education-Psychology, 91,000; Engineering, 23,500; Geology, 26,000; Mathematics, 22,500; Medical, 25,000; Music, 55,700; Pharmacy, 10,000; Physics, 29,520; Speech Pathology, 3,500; and Zoology, 19,200.

In addition, the collections in Iowa City of the State Historical Society and the Public Library are available to students and staff members of the University.

SPECIAL RESOURCES

The Main Library facilities include microfilm and microcard 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. Other services include the reserved book stations for undergraduate students in the Burge and Quadrangle dormitories.

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 University’s Leigh Hunt Collection, brought together by Luther A. Brewer of Cedar Rapids, Iowa, is considered one of the most complete in existence. It contains 2,871 separate volumes; 1,810 manuscripts and manuscript letters written by Hunt or to him; by his many famous literary friends; almost 100 association volumes; and nearly 600 editions of Hunt’s writings.

The Mark Twain Memorial Collection contains approximately 3,000 volumes, of which 3,000 were bequested to the University by Mrs. Ranney in memory of her husband, formerly a lecturer in the College of Medicine. The collection is particularly rich in deluxe editions, including many superb bindings made especially for Mrs. Ranney.

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

The "Ding" Daring Collection comprises originals of nearly 6,000 carvings in which for more than forty years Ding recorded and commented on the economic, political, and diplomatic affairs of the United States. His carvings 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 Ballinger-Lincoln Collection, gathered by Judge James W. Ballinger of Davenport, Iowa, consists of about 4,530 books and pamphlets devoted to Abraham Lincoln. The collection 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, while another large group of books contains reminiscences of people who knew Lincoln. Lately, a number of broadsides relating to Iowa and the Civil War period has been added to the collection, developing yet another phase of Lincoln’s period in American history.

The Bodine Collection comprises approximately 281 volumes of poetry, biography, and criticism, and 859 manuscripts or letters, relating to the contemporary English poet Edward Hunden.

The French Revolution Collection includes more than 8,000 political pamphlets, chiefly from the years 1798-1799, supplemented by numerous French newspapers and government publications of the time.

The Iowa Authors Collection includes approximately 4,718 books written by Iowans, and more than 380 manuscripts.

The "X" Collection is a gathering of more than 13,000 rare, rare, or special works on diverse subjects, including books of the fifteenth and sixteenth centuries, early Americas, Roxburgh
Club Publications, private press books, and
selected modern first editions.

The Manuscript Collections includes more than
3,400 individually cataloged letters or manuscript
items of English and American authors or his-
torical figures, principally of the nineteenth and
twentieth centuries, in addition to 155 inventoryed
collections of papers, diaries, and correspondence
files relating to midwestern economic, political,
ad agricultural history.

The Map Collection contains 52,472 cataloged
maps, 54,703 indexed aerial photographs, and
1,316 statues, gazetteers, and related reference
items.

The University Archives preserve materials
relating to the history of the University. The
collection of University publications from 1855 to
1909, originally assembled by Dean Eno N.
Corrier, is today supplemented by 480 file
drawers of correspondence and records; approxi-
mately 1,250 shelf feet of records, papers, and
publications; and an extensive collection of photo-
graphs dating back to 1911.

Other special collections include the Harvey
Jepson Collection of books dealing with the
American Indians; the Levi O. Leonard Collection
of manuscripts and documents dealing with rail-
road ing in the midwest, particularly the Union
Pacific; the History of Hydraulics Collection; the
Eggers Fabric Viper Collection of ballots and folk-
songs; and the Chautauqua Collection donated by
Harry P. Harrison, manager of the Redpath
Bureau. The Chautauqua Collection contains
several thousand letters and business documents
descriptive of the Chautauqua movement during
the first half of the twentieth century.

STAFF
Director: Leslie W. Dunlap.
Associate Director: Dale M. Bentz.
Assistant Director: William C. Roselle.
Bibliographer: Frank B. Hamill.
Assistant Director Emeritus: Grace Van Wermes.
Acquisitions: Richard M. Kolbet, Head; E. Ann Ford,
Kathleen B. Wadell.
Catalog: David A. Andrews, Head; Ruth S. Chittick, Kathy
Anna K. Herdman, Michelle M. Pumka, Barbara E. Goodsirt,
Richard N. O'Connor, Faith K. Cremode, Vivian K. Hick-
mans, Karl K. Kohler, Tatjana Laksh circa, Mary E. Noble,
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Scribal: Donald L. Ferguson, Head; Helen S. Clark,
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D. Root, Chanae L. Nole.

Special Collections: Francine J. Polaha, Head; Alice E.
Leitcop, Robert A. McCown, Earl Nelson, Irene Steidl,
Emeritus.

Departmental Librarians: Art, Hamlin L. Burger; Business
Administrative, Glen L. Plasek, Peter J. Hartford, Chemis-
try-Biology, Pauline L. Muen, Daniel, Mary Kay, R.
Chubadzinski, Administration, Anne G. Kratz, Kathleen Ma-
con, Mary C. Clark, Library Administration.

Opal, Vera J. Michlewicz, Sandra D. Poll manual, Robert
V. Crystall, Charles A. Harter, David R. Parker,
Caroll D. Vogel; Music, Dan B. Boceot, J. Morris Martin;
All financial assistance available to University of Iowa students from general University sources is administered by the Office of Student Financial Aid.

Assistance is provided through scholarships, grants, loans, and part-time job placements.

A student seeking assistance must first complete University admission procedures, including the American College Test, and submit a parent's financial statement through ACT Financial Aid Services, Box 1000, Iowa City 52240, or College Scholarship Service, Box 881, Evanston, Illinois 60204. When it receives a copy of the parent's statement, the Office of Student Financial Aid will supply forms and instructions for applying for aid at Iowa.

Only one application is necessary each year for all forms of assistance administered by the Office of Student Financial Aid.

Application deadlines are February 1 for entering freshmen, April 15 for upperclassmen and transfer students.

Eligibility for Scholarships. To qualify for scholarship assistance, an entering freshman must have graduated in the upper 10 percent of his high school class or have achieved a 28 composite ACT score or above; an upperclassman must have a 2.5 cumulative grade-point average; and a transfer student must have at least 3.0 transfer grade-point average.

Freshman Merit Scholarships. An entering freshman who meets minimum scholarship requirements (above), graduates from an Iowa high school the year he applies for assistance, is admitted to the University by February 1 of that year, registers as a full-time University student that fall, and has established a need for assistance, will receive consideration for a Freshman Merit Scholarship covering tuition.

(A student meeting other scholarship requirements and achieving a composite ACT score of 29 or above will be considered for a $100 Freshman Merit Award, as a matter of recognition, not based on need.)

Educational Opportunity Grants. Available to a limited number of undergraduates unable to attend college or university without such assistance, EOOG grants range from $250 to $1,000 a year, but cannot exceed one-half of the recipient's total assistance. There are no specific academic requirements for an EOOG grant, but the applicant must have shown academic or creative promise.

National Defense Education Act (NDEA) Loan Funds. Up to $2,000 is the University's largest source for long-term education loans. Undergraduate students may borrow up to $3,000 a year and $5,000 overall; graduate students may borrow up to $2,500 a year and $10,000 overall. Applicants must be citizens or permanent residents of the United States. Freshmen have preference. To qualify, a freshman must have graduated in the upper-half of his high school class. An upperclassman must be in good academic standing and be making normal progress toward a degree. No interest is charged while the borrower is at least a half-time student. Loans are repayable at 3 percent interest beginning nine months after the borrower concludes his course of study. Ten percent of the loan obligation is canceled each of the first five years the borrower is employed full-time teaching.

Guaranteed Loans. Borrowers negotiate directly with banks or other private lending agencies. About half the banks in Iowa participate in the program; lending institutions in most other states participate in this or similar programs. Loan maximums are $1,000 a year for undergraduates and $1,500 a year for graduate students. Repayment begins when the borrower concludes his course of study.

University Loan Funds. Short-term loans of up to $500 are available for school-year expenses. To qualify, the applicant must have at least a 2.0 high school and transfer grade-point average, and a 1.8 University average.

Part-Time Jobs. Most University students who take part-time jobs secure them through the Office of Student Financial Aids. The most numerous opportunities are in University food service and hospitals. Hours range from ten to thirty a week; the University recommends a maximum of twenty.

Work-Study. Much of the part-time work available through the Office of Student Financial Aids is provided under the federal Work-Study Program, whose purpose is to enable college-qualified members of low-income families to earn college expenses not covered by other assistance. Work-Study employees cannot work more than fifteen
hours a week. As far as possible, Work-Study jobs are arranged to give employees work experience related to their educational goals.

SCHOLARSHIPS, FELLOWSHIPS, ASSISTANTSHIPS

(Unless special conditions are noted, the sources listed below and in the Loans Funds section are open to all students in the area for which they are listed.)

ALL-UNIVERSITY
ALCOA Foundation Scholarships. Freshmen in mathematics, physical sciences, or engineering; $625.
Activity Scholarships. Students with above-average academic records who have been outstanding participants in extra-curricular activities requiring special aptitude, such as forensics or music.
Barnes Drill Company Scholarships. Preference to Pi Beta Phi members.
Bennett Scholarships. Protestant students, preferably from Bennett, Iowa.
Evco M. Byerly Scholarship.
Carr Scholarships. Students in Colleges of Liberal Arts, Business Administration, Engineering, Nursing, Pharmacy; use primarily for seniors and nonresidents.
Drake Scholarships. Male students from West Liberty, Iowa, and vicinity.
Drew Memorial Scholarships. Resident tuition.
General Motors Foundation Scholarships. Entering freshmen who are Iowa residents and top-ranking candidates for University Merit Scholarships.
Scott German (Maszykstka) Scholarship. Students from Maszykstka, Iowa; full tuition.
Granger Scholarships. Graduates of Fort Dodge or any other Webster County, Iowa, public schools with courses of study qualifying graduates for admission to the University of Iowa; administered by the Board of Education, Independent School District, Fort Dodge.
Virgil M. Hascher Scholarship. $500.
International Scholarships. Foreign students; tuition and fees.
Iowa City First Presbyterian Church Opportunity Scholarship. Freshman Educational Opportunity Program participants; $1,000 each; renewable four years.
Martin Luther King, Jr., Scholarships. Educational Opportunity Program participants in undergraduate, graduate, or professional programs.
Lloyd A. Knaub Scholarship. Science, engineering, business administration students; resident tuition.

SCHOLARSHIPS AND LOANS

Maytag Foundation Scholarships. Graduating high school seniors whose parents are full-time employees of The Maytag Company; fees plus cash grant; apply to The Maytag Company Foundation, Inc., Newton, Iowa.
Nell Kinnechick Memorial Scholarship. Recipient nominated by the U of I athletic department.
Mary Sus Miller Memorial Scholarship. Art major, preferably from Fremont County, Iowa; $500 minimum.
Noyes Scholarships. Basic fees to Colleges of Business Administration, Engineering, Liberal Arts, Nursing, Pharmacy; for United States citizens who are World War I Army or Navy veterans or their direct blood descendants; renewable.
O'Connor Memorial Scholarship. Varsity basketball or golf squad member; $500.
Old Gold Scholarships. Postmasters of Iowa Scholarships. Sophomore or junior child or grandchild of an Iowa postmaster.
Project "Aid". Public Speaking Scholarships. Highest rating finalists; six debaters, two speakers in Iowa High School Forensic League competition; $20 reduction in semester fees; three years; recipients nominated by head of speech department.
Jeannette W. Rutledge Scholarship.
Scottish Highlander Scholarships. Awarded each semester to two Highlanders with sophomore, junior, or senior standing; fees.
Student Aid Scholarships. Resident students in Colleges of Liberal Arts, Engineering, Business Administration, Nursing, Pharmacy; fees, must be self-supporting, unable to obtain sufficient aid elsewhere: minimum 2.75 average.
Iowa City Chapter of the United Nations Association Scholarship. Educational Opportunity Program participant; resident tuition.

BUSINESS ADMINISTRATION
ALCOA Foundation Scholarships. Junior or senior in accounting.
Artur Andersen & Company Accounting Award, Accounting.
Carr Scholarships. See All-University.
Pat Crown Award. Male senior, preferably business administration major with interest in retail clothing business; $200.
Ernst & Ernst. Accounting.
FS Services, Inc., Scholarships. Junior and senior accounting major in top 25 per cent of class, with farm or farm community background; $400.
Haskins & Sells Awards. Senior among top five accounting students: $500.

Home Federal Savings and Loan Association of Des Moines. Scholarships, research grants in further education in finance, insurance, real estate.

Iowa Foundation for Insurance Education Scholarships. $700 each to three junior, senior, or graduate students in insurance.


Maytag Foundation Scholarships in Business Administration. $500 each to one senior in accounting, one in marketing.

Murray Scholarships.

Murray Plaque. $250 stipend.

I. B. McGladrey Accounting Award.

Chester A. Phillips Scholarship. Business administration senior in upper 10 per cent of class; not less than $250.

Price Waterhouse Foundation Award. Accounting.

Bruce M. Roberts Scholarship. Iowa high school graduate; $1,000 for senior year.

Toche-Ross and Company. Accounting, Student Aid Scholarships. See All-University, Western Electric Funds Scholarship. Business Administration major; tuition, fees, books.

Arthur Young & Company Foundation Award. Accounting.

DENTAL HYGIENE

Oral B Toothbrush Scholarship. $250.

DENTISTRY

Back Dental Scholarship. Oral B Toothbrush Scholarship. Junior or senior; $500.

W. R. Prouty Company Dental Scholarship. Junior or senior; $500.

Schleicher Scholarship Award. Junior, preferably in orthodontics.

U of I Student Aid Scholarships. Two one-year resident tuition scholarships.

U of I Dental Achievement Fund Scholarships.

ENGINEERING

ALCOA Foundation Scholarships. Freshmen. Core Scholarships. See All-University, Melodie Fisk Clemens Scholarship.

Collins Radio Company Great. Electrical engineering; $2,000.

P. M. Deuenow Engineering Scholarship.

Engineering Honors Scholarships. Entering freshmen, and transfer students; resident tuition. Foundry Educational Foundation Trustees Scholarships. Students in courses related to cast metals.

Lloyd A. Knouler Scholarship.

Lambert Scholarships. Civil Engineering.

C. P. McGraw Scholarship.

Missouri Mining and Manufacturing Company Scholarships.

Monsanto Scholarship. Chemical and mechanical engineering student.

Herman W. Nelson Memorial Scholarship.

Fred Stiebler Scholarships. $100 to $300.

Student Aid Scholarship. See All-University, Western Electric Funds Scholarship in Engineering. Tuition, fees, books.

GRADUATE

(Two the following are special scholarships and fellowships, for information about general assistantships, fellowships, and scholarships, see Graduate College.)

American Foundation for Pharmaceutical Education Fellowships. Pharmacy; $2,400, fees, cost of special material for research; apply to the Dean of pharmacy.

Arthur Andersen & Company Accounting Award.

Bodine Scholarship. Zoology; for summer work at a marine or other biological station; $200.

Vogel Demple Memorial Scholarship and Award. $500.

Ernst and Ernst Accounting Scholarship. $1,000.

Haskins & Sells Foundation Award. Accounting, student in accounting; $2,500.

Morris Luther King, Jr., Scholarships. See All-University.

I. B. McGladrey Accounting Award.

Price Waterhouse Foundation Award. Accounting.

Barnes & Ramsuddie Fund.

Sutherland Dow Graduate Scholarship in Composition. Music; $3,000.

Toche, Ross, Bailey & Smart Award. Accounting.

Arthur Young & Company Foundation Award. Accounting.

Von Allen-Linck Foundation Fellowship. Outstanding graduate student in aerospace physics; $1,000.

Other Opportunities. A number of industrial corporations and philanthropic organizations annually provide graduate fellowships in certain departments of the University. Information may
be obtained from the departments. The University also participates in fellowship and traineeship programs of the National Science Foundation, National Institutes of Health, Atomic Energy Commission, National Aeronautics and Space Administration, and in the National Defense Edu-

cation Act Fellowship Program and the Edu-

cation Professions Development Act. Information may be obtained from the Graduate College or departmental office.

LAW


cess of tuition; preference to Iowa residents graduated from Grinnell or another Iowa college. Lucille and Walter L. Stewart Fund. Joe B. Ype Fund. Available for Martin Luther King Scholarships.

LIBERAL ARTS

ALCOA Foundation Scholarships. See All-

University. Curr Scholarships. See All-University. Margaret Foster Hof Memorial Scholarship. Home economics senior; resident tuition. General Motors Foundation Scholarship. See All-University. Old Gold Honors Scholarships. Honors Pro-

gram participants; apply to Honors Program director. George Lauman and Jane Richardson Pollock Scholarship. Freshmen and sophomores planning to major in Chinese language and civilization; $100.

SCHOLARSHIPS AND LOANS

Pritchett Scholarships. Apply to Dean of liberal arts.

Prowfoot Scholarships. Act majors, preferably from Warren County, Iowa; $1,000. Robertson G. Hunter Scholarship. Male stu-

dents from Midwest, particularly Iowa, interested in studying science and engineering; $100.

Student Aid Scholarships. See All-University.

JOURNALISM

James W. Blackburn Scholarship. High school senior planning to enroll in the School of Journal-

ism; $1,000, paid $150 sophomore year; $200 junior year; $650 senior year; administered by School of Journalism.

Harry S. Busker Scholarship. Fifth-semester journalism major; $1,000, paid $350 second semester of junior year, $350 each semester of senior year.

Davenport Times-Democrat Scholarship. $300, paid $100 junior year, $200 senior year.

Ruth Baty and Maurice Barnett Jones Scholarship. $400 or more.

Minneapolis Star Scholarship. Junior; $400 or more.


George D. Perkins Scholarship. High school senior planning to major in journalism; $350, paid $150 junior year, $200 senior year.

Quill and Scroll Foundation Scholarships. High school seniors planning to major in journalism; $200, paid $250 freshman year, $250 sophomore year.

Remsey Advertising Internship. To give out-

standing student in advertising an opportunity for agency experience between junior and senior years; $800.

School of Journalism-Heart Foundation Scholarships. Amounts vary.

School of Journalism Merit Foundation Scholarships. Fresh-

men, sophomores, juniors; amounts vary.

Richard and Jo Spencer Scholarship. $1,000.

United Press International Externship. To give promising photography student experience pro-

viding photographs for weekly and dailies; recipient selected by UPI; $500.

WMT News Scholarship. Radio-television jour-

nalism student; recipient spends summer observ-

ing and participating in WMT stations' operations; $1,500.
MEDICINE
(Awarded upon recommendation of the College faculty committee and dean)

Nathaniel G. Alcock Memorial Scholarship. Full resident tuition.

Anne Bartch-Dunne Scholarship for Women. Woman student from Burlington, Iowa, or from elsewhere in Iowa.

Dr. and Mrs. H. S. Frenkel Scholarship. Full resident tuition.

Iowa Academy of Ophthalmology and Otolaryngology Scholarship. Full resident tuition.

Iowa Clinical Society of Internal Medicine Scholarship. Two freshmen; one of them in the Educational Opportunity Program; full resident tuition.

Iowa Obstetrical and Gynecological Society Medical Scholarship. Full resident tuition.

Iowa Psychiatric Society Medical Scholarship. Full resident tuition.

Elizabeth Smith Kennedy Medical Scholarship. Senior woman.

Piifer Medical Scholarship.

Jean and John X. Powers Scholarship. Iowa resident; $1,500.

Robb Memorial Scholarship. Interest in general practice; tuition.

WA-SAMA Scholarship. Junior; preferably doing honors work but not receiving other awards.

Dr. Theodore A. Willis Scholarships. $500.

NURSING

American Legion 49 & 8 Club Scholarships. $75 to two juniors for senior year.

Ann Gerich Memorial Scholarship. $250 to one junior.

Iowa Federation of Women's Clubs Scholarships. $300; registered nurses in first year of baccalaureate work who plan to do graduate study in psychiatric nursing.

Plumbers Auxiliary Scholarship Award. $100, Junior, for senior year.

Psychiatric Mental Health Trainee Stipends. $1,800 plus tuition, fees, junior, senior. In basic nursing program; registered nurses in senior year, in preparation for graduate study in psychiatric mental health nursing.

Army Nurse Corps Student Nurse Program. Tuition, books, fees, board and room allowance, monthly salary; juniors, seniors. Recipients receive enlistment commissions, with full pay, six months before graduation, serve two or three-year terms of active duty in Army Nurse Corps after graduation.

Navy Nurses Corps Candidate Program. Tuition, fees, books, board and room allowance, monthly salary; juniors, seniors. Recipients receive enlistment commissions, with full pay, six months before graduation, serve two- or three-year terms of active duty in Navy Nurse Corps after graduation.

Professional Nurse Traineeship Program. Tuition, stipend; registered nurses students preparing for positions in hospitals or schools of nursing within twelve months of graduation.

Public Health Nursing Traineeship Program. Tuition and stipend; registered nurses preparing for positions in public health nursing within twelve months of graduation.

United States Public Health Service Nursing Student Loan Program. Amount of loan up to $1,500 per academic year, depending on financial need.

United States Public Health Service Nursing Scholarship Program. Up to $1,500 per academic year, depending on financial need.

Commissioned Corps of United Public Health Service. Monthly salary (base pay, rental, subsistence allowance); senior in baccalaureate program. Recipients agree to serve two years as Commissioned Nurse Officer.

PHARMACY

American Foundation for Pharmaceutical Education Scholarships. Students in last three years of study; minimum 3.0 average; $300.

Ciba Scholarships. See All-University.

John W. Dargan Foundation Scholarship. P2 standing; minimum 2.5 average; $200.

Drew Memorial Scholarships. See All-University.

Elgerly Scholarship. First-year student; $370.

Zito Charitable Trust and Foundation Scholarship. Minimum 2.5 average; $500.

General Motors Foundation Scholarships. See All-University.

Iowa Pharmaceutical Association Scholarship. Student who has completed P3; minimum 2.5 average; $500.

Iowa Pharmaceutical Association Women's Auxiliary Scholarship. Woman; $200.

Iowa Pharmacy Foundation Scholarships. $300.

May's Drug Stores Scholarship. $250.

Myers Scholarship. P2 standing; $125.

Oco Drug, Inc. Scholarships. P2 standing; minimum 3.3 average; $330.

Schlegel Sophomore Scholarship. Student who has completed P2; $370.

Schlegel Junior Scholarship. Student who has completed P2; $370.
SCHOLARSHIPS AND LOANS

BUSINESS ADMINISTRATION
Beta Gamma Sigma Loans. High-ranking seniors and graduate students; apply to Beta Sigma, University of Southern California, Los Angeles.

DENTAL HYGIENE
Alpha Kappa Gamma Loan Fund. Seniors, second-semester juniors.
Iowa Dental Association Women's Auxiliary Loan Fund.
Wycliffe Feick Memorial Loan Fund. Preference to graduate students.
Charles H. Henshaw Memorial Loan Fund.

DENTISTRY
American Dental Association Loan Fund for Dental Education.
Brelude Memorial Student Loan Fund.
Gildea Hayden Scholarship Loan Fund of the Association of American Women Dentists. Promising women students; $1,500 maximum.
Iowa Dental Association Student Loan Fund. Freshmen.
Kellogg Loan Fund for Dental Students.
Old Gold Development Loan Fund.
Storie Loan Fund.
American Dental Trade Association. Seniors.
International College of Dentists (U.S.A. section) Student Loan Fund.

ENGINEERING
College of Engineering Loan Fund.
Iowa City Engineering Club Loan Fund.
Ford Foundation Grant. For graduate students to finance engineering education; apply to Dean, College of Engineering.
Rose Hubbard Jones Memorial Loan Fund.
Phillip F. Morgan Student Loan Fund. See Graduate.

GRADUATE
Beta Gamma Sigma Loans. Business administration.
Carr Graduate Fund.
Wycliffe Feick Memorial Loan Fund. See Dental Hygiene.
Ford Foundation Grant. See Engineering.
Minnie Memorial Loan Fund. Speech and dramatic art.

LOAN FUNDS ALL-UNIVERSITY
Daughters of the American Revolution Student Loan Fund. Junior and senior women residents of Iowa; $250 maximum annually.
Dean's Loan Fund. $25 emergency 30-day loans.
Dolphin Club Loan Fund. Primarily for Dolphin Club members.
General Loan Fund.
Chloe-Jean Gezandi Student Senate Aid. Undergraduate or graduate; short-term.
Warran and Neen Hayes Loan Fund. Allamakee County, Iowa, students.
Health Professions Student Loan Fund. Full-time medical, dental, and pharmacy students; federal fund, interest-free during recipient's full-time registration; repayable during 10-year period beginning three years after recipient terminates full-time study in medicine, dentistry, or pharmacy.
International Student Council Loan Fund. Foreign students; $50 maximum per school year.
Iowa City Kiwanis Club Student Loan Fund.
Iowa City Panhelleanic Loan Fund. $100, one semester; interest-free.
Iowa Delta Association Loan Fund. Interest-free 30-day emergency loans; $50 maximum.
C. L. Sr., and Thelma Klinek Loan Fund.
Old Gold Development Loan Fund.
Strong Educational Foundation Loan Fund. Upperclassmen aged 21 or under; repayment at 3 per cent interest after graduation.
Symons Loan Fund. Preference to Anamosa, Iowa, High School graduates who have completed at least one year at the University.
PHILLIP F. MORGAN STUDENT LOAN FUND. First preference to graduate students in sanitary engineering, second to undergraduates in civil engineering with sanitary engineering option, third to graduate and undergraduate students in civil engineering.

SUSAN LOAN FUND.

LAW

American Bar Association Loans. Second- and third-year students; up to $1,500 a year; repayable after graduation.

IOWA LAW SCHOOL LOANS. Long-term; repayable at 3 per cent interest beginning one year after graduation.

IOWA LAW SCHOOL FOUNDATION LOANS. Short-term.

LAW CONSOLIDATED LOAN FUND. Second- and third-year students; short-term.

LIBERAL ARTS

THOMAS COLE LOAN FUND. Geology students.

DENTISTRY LOAN FUND. Students who have completed at least one year.

LOVE MEMORIAL STUDENT LOAN FUND.

PHI EPSILON KAPPA LOAN FUND. Physical education for men, women.

GENE PALMER REED LOAN FUND. Computer science students.

S.C. WILLIAMS LOAN FUND. Sophomore or above.

MEDICINE

(Apply to the Dean of the College)

BOOTH LOAN FUND.

ROBERT R. GIBSON MEMORIAL LOAN FUND.

GRADUATES OF THE COLLEGE OF MEDICINE LOAN FUND. Sophomore through senior year.

IOWA MEDICAL PENSION LOAN PLAN. Iowa residents who agree to practice general medicine in Iowa for at least five years after completion of medical training; state fund, provides tuition up to three years.

IOWA STATE MEDICAL SOCIETY LOAN FUND. Junior and senior residents of Iowa.

KELLOGG LOAN FUND FOR MEDICAL STUDENTS.

COLLEGE OF MEDICINE LOAN FUND.

GEORGE M. MIDDLETON LOAN FUND.

FRANK ROBERTS MEMORIAL LOAN FUND.

SHANNON TRUST FUND. Iowa residents.

SHELD FOUNDATION LOAN FUND.

NURSING

NURSING STUDENT LOAN PROGRAM. Full-time nursing students; federal fund, interest free during student's full-time registration; repayable at 3 per cent interest beginning one year after recipient terminates full-time registration; forgivable at the rate of 10 per cent per year of full-time employment as professional nurse in public or nonprofit private institution, up to 50 per cent of balance unpaid at beginning of such employment.

KELLOGG LOAN FUND FOR NURSING STUDENTS.

U OF I NURSES' ALUMNAE STUDENT LOAN FUND. Juniors, seniors; $500 maximum.

S. LARSON THOMPSON LOAN FUND.

RESERVE OFFICERS TRAINING CORPS

LT. COL. ZADJORD W. BURRIS MEMORIAL LOAN FUND. Advanced Army ROTC students.
Alumni and friends of the University have provided a number of awards, prizes, and honors in recognition of students' special achievements. Detailed information on criteria and procedures for the selection of recipients may be obtained from the administration office. Generally, recognition is in the form of certificates, plaques, medals, desk sets, or similar items; cash awards of $50 or more are indicated on the following list:

**GENERAL**

Alpha Chi Sigma Award. Male with highest scholastic standing for first two semesters of graduate work in chemistry, chemical engineering, or biochemistry.

Ballantine Award. $50; senior; for efforts in self-assistance while maintaining satisfactory full-time study.

Band Service Keys. Six semesters of band membership.

Briggs Award. Senior with highest scholastic average among students elected to Phi Eta Sigma as freshmen.

Brown Award. Outstanding potential in radio broadcasting at University-operated stations.

Fosler Award. $100; active Mortar Board member.

Hancher Award. $50 government bond; junior woman most nearly exemplifying qualities and contributions of Mrs. Virgil M. Hancher to the University community.

Hoffman Award. Junior; academic excellence, critical intelligence, character, broad and conscientious concern for ultimate and spiritual questions.

Don G. Mullen Award. $50; leadership, loyalty, and devotion to University.

Penningroth Award. $80; junior; leadership, scholastic achievement, participation in student activities.

**ATHLETIC**

Athletic Board Cup. Graduating varsity award winner outstanding in athletics and scholarship.

Athletic Scholarship Cups. Numerous winners in each intercollegiate sport; highest scholastic average freshman year and varsity squad member sophomore year.

Forest Rossehaski Football Scholastic Achievement Award. Senior varsity football award winner outstanding in scholarship.

Certificates. Graduating students who have lettered in one or more intercollegiate sports.

Western Intercollegiate Conference Athletic Association Medal. Graduating senior varsity award winner outstanding in scholarship and athletics.

**COLLEGE OF BUSINESS ADMINISTRATION**

Beta Alpha Psi Key. Member with highest scholastic record.

Beta Gamma Sigma Award. Highest-ranking junior member.

Delta Sigma Pi Key. Highest ranking senior man in the College.

Iowa Society of Certified Public Accountants Outstanding Accounting Senior Award.

Phi Gamma Nu Key. Highest-ranking senior woman in the College.

**COLLEGE OF DENTISTRY**

Academy of General Dentistry Award. Outstanding senior general practitioner.

Alpha Kappa Gamma Scholarship Key. Graduating dental hygiene student with highest scholastic average (B minimum).

Alpha Omeca Award. Graduating senior with highest scholastic average.

American Academy of Dental Medicine Award. Dental medicine senior; achievement, proficiency, and promise.

American Academy of Gold Foil Operators Award. For gold foil excellence.

American Academy of Oral Roentgenology Award. Senior; special interest in oral roentgenology.

American Association of Endodontists Award. Senior; highest proficiency and interest in endodontics, and exemplifying A.A.E. ideals.

American Association of Orthodontists Award. Senior; exceptional interest in development of orofacial complex.

American College of Dentists Award. Senior; outstanding paper on topic assigned by A.C.D.

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American Institute of Electrical Engineers Award. Best paper presented before student branch of A.I.E.E.
American Society of Civil Engineers Award. Highest ranking senior.
American Society of Mechanical Engineers Award. Best paper presented before student branch of A.S.M.E.
American Society of Tool Engineers Award. $700; senior in mechanical engineering; scholastic achievement, interest in tool and production engineering.
Chi Epsilon Award. Highest ranking sophomore, senior in civil engineering.
Eta Kappa Nu Award. Junior in electrical engineering; highest scholastic average first two years.
Institute of Electrical and Electronic Engineers Awards. Three best papers presented before Cedar Rapids section of Institute.
Edwin B. Kurtz Award. Senior in electrical engineering; scholarship, character, professional promise, service to department and/or College.
Pi Tau Sigma Merit Award. Junior in mechanical engineering; greatest personal development first two years.
Tau Beta Pi Prize. Sophomore; highest scholastic standing as freshman.
Theta Tau Engineer Award. Upperclassman; highest in competition based on popularity, scholarship, service to College.

COLLEGE OF LAW
Nathan Burks Memorial Competition. $25 and $100; best papers on copyright law.
Iowa State Bar Association Award. $100; graduating senior; highest all-around standing, including scholarship and demonstrated legal capacities and leadership qualities.
Murray Prize. $200; senior of exceptional promise and ability.
Supreme Court Day Contests. Four Junior Arguments winners participating in Supreme Court Day arguments before Iowa Supreme Court.

COLLEGE OF LIBERAL ARTS
American Institute of Chemists Medal. Outstanding senior in chemistry.
Bryans Prize. $250; best essay relating to the science of government.
Chi Omega Award. Graduating woman with highest average in anthropology, economics, political science, psychology, or sociology (rotated among departments).

Clapp Memorial Award in Composition. Music major.

The Devies Award. $100; senior in physics.

Dean's Awards. $100; freshman, sophomore, junior in Honors.

Hamilton Watch Award. Graduating senior most successfully combining proficiency in major field with academic and/or extracurricular achievement in social sciences, humanities.

Johnson Memorial Prize. Graduating senior; all coursework in College; highest academic rank in College class.


Geology: General excellence in geology.

Greek: Excellence in Greek language and literature, by examination.

Latin: Sophomore; excellence in Latin language, by examination.

Mathematics: Undergraduate; enrolled in 22M:7 or below, by examination covering algebra, plane trigonometry, analytical geometry, and differential and integral calculus.

(Also see Forensics)

DAE Medal. Senior woman; highest standing in American history.

Pearce Prize. Senior in chemistry; highest scholastic standing.

Phi Lambda Upsilon Award. Junior in chemistry; highest scholastic standing.

Pi Lambda Theta Prize. Senior woman; high scholarship, personal qualifications, promise in education, qualifications for teaching certificate.

Senexy Prize. $500; senior, highest promise for graduate study.

Myra Lee Sprenger Memorial Award. Outstanding senior in home economics; $100; second semester.

Genevieve Staurna Book Award. Woman graduate student; highest standing in chemistry or allied science.

Wilson Memorial Prize. Excellence in German language and literature.

JOURNALISM

Leon Barnes Community Journalism Award. $100; junior; demonstrated interest and outstanding promise in community journalism.

Luther A. Brewer Key. Graduating senior; highest in scholarship, leadership, promise.

Coger Reynolds Award. Outstanding student in public relations.

AWARDS—PRIZES—HONORS

James F. Fox Award in Public Relations. Outstanding graduate student.

Emma Press Women's Award. Outstanding senior woman.

Johnson Memorial Prize in Journalism. Best news, sports, and feature stories for Daily Iowan. Ruth Betsy Jones Memorial Award. Senior woman; high scholastic rank, demonstrated interest in development of human understanding and appreciation of the social and intellectual functions of the press.

Journalism Alumni Academic Merit Award. Freshmen, sophomores, juniors; first and second in their classes.

Kappa Tau Alpha Scholarship Award. Undergraduate or graduate KTA initiate; highest scholastic average.


Outstanding Freshman in Journalism Award. Jacob E. Reizenstein Award. Outstanding enterprise, capability in news writing.

Howard A. Schmacher Award. Senior receiving Luther A. Brewer Key.

Sigma Delta Chi Award. Outstanding male graduate.

COLLEGE OF MEDICINE

Mildred E. Barnes Award. Outstanding junior in preventive medicine and environmental health.

Walter L. Biering Award in Bacteriology. Outstanding sophomore.

Borden Award. $500; graduating class member for meritorious undergraduate research.

Irving H. Borts Award. $100; best paper presented at Student Research Conference.

Iowa Obstetrical and Gynecological Society Prize. $300; senior; best research paper or statistical review in obstetrics and/or gynecology.

June Lentsfelder Award. Outstanding third-year student in internal medicine.

Lang Awards. Two outstanding members of each class.

John T.McClymbuch Award in Physiology. Outstanding freshman.

MacKenzie Memorial Prize. Outstanding senior.

Punstis Memorial Prize. Outstanding freshman in gross anatomy.

Roche Award. Sophomore best exemplifying ideals of modern American physician.

Upton Achievement Award in Pediatrics. Outstanding senior.

COLLEGE OF NURSING

Carmelita California Heurey Award. $250; senior; excellence in clinical practice.
Senior Nurse Scholarship Award. $50; two worthy juniors.

Women's Auxiliary to the Iowa Association of Plumbing Contractors, Inc., Scholarship Award. $100; senior; Iowa resident.

Women's Auxiliary to the Iowa Association of Plumbing Contractors, Inc., Vida Gibbs Memorial Scholarship Award. $100; senior; Iowa resident.

COLLEGE OF PHARMACY

Cheval Prize. Most deserving student in biochemistry.

Getzky Leadership Award. Senior; potential for outstanding leadership.

Gogar Pharmacy Award. $50; junior; minimum 2.0 average, professional attitude, need.

Johnson and Johnson Award. Senior; scholastic excellence, progressive attitude, ability to apply good principles of pharmaceutical administration to retail pharmacy.

James W. Jones Award. Senior; minimum 2.5 average, definite potential as community pharmacist.

Merek Prize. Two seniors; high standing in subjects related to dispensing.

Nove Memorial Award. Junior; outstanding achievement in pharmacy technology series.

Pharmacy Faculty Award. $150; outstanding seniors.

Rexall Trophy. Outstanding senior.

Rho Chi Prize. Highest first-year scholastic average.

Schering Prize. Excellence in organic chemistry.

FORENSICS

Forensics Association Awards. Meritorious achievement by undergraduate participants in intercollegiate speaking activities.

Lofrove Memorial Prize. Winner, freshman speech contest.

Louden Prize in Debate. $50; at least junior standing, participation with distinction in at least two major debates.

Northern Oratorical League Prizes. $100 and $50; winners of League contest.

MILITARY

Governor's Award.

American Legion ROTC Award. Military, scholastic excellence.

Chicago Tribune Award. First, second place in first, second-year debate.

Distinguished Military Student Badge. Seniors.

Johnson County Reserve Officers Association Medal. Basic students; excellence in military subjects, extracurricular activities connected with military departments.

Military Scholastic Medal and Clasp. “A” rating in military leadership, minimum 3.3 scholastic average.

Minute Man Medal. First-year basic students; leadership, solidarity bearing, knowledge of ideals of founders of United States.

Society of American Military Engineers Award.

Armed Forces Communications and Electronics Award. Fourth-year cadet majoring in electrical engineering, electronics engineering, or communications engineering; leadership and academic accomplishments in detachment and campus activities.

Army ROTC

Superior Senior ROTC Award.

Academic Achievement Award. Second, third, and fourth-year cadets; top 10 per cent of class previous year.

Basic and Advanced Leadership Award.

Association of the United States Army ROTC Award. Outstanding third-year cadet.

American Ordnance Association Award. Outstanding four-year cadet assigned to Ordnance Corps.

AUSA History Award. Outstanding MS II history student.

Bride Commander Award.

Outstanding Campa Leader in Army ROTC.

Outstanding Athlete in Army ROTC.

Outstanding Academic Student in Army ROTC.

Outstanding Rifle Team Member.

The Defense Supply Association Award.

National Defense Transportation Award.

Superior Cadet Award.

Legion of Valor.

Hughes Trophy.

Pilot Badge.

ROTC Medal for Heroism.

Air Force ROTC

AFROTC Commandant Award. Seniors; highest award in the U of I AFROTC program.

Air Force Association Detachment Award. Advanced cadet; most outstanding achievement in AFROTC.

General Dynamics Award. Sophomore cadet; outstanding qualities, interest in flying.

Air Force Times Award. Senior.

National Defense Transportation Association Award. Senior; leadership, academic achieve-
ment, aptitude for military service, at least 25 semester hours in courses related to air and/or surface transportation.

Flight Instruction Program Ground School Award. Seniors; successful completion of FIP Ground School, including FAA private pilot's license examination.

Army ROTC Military Studies Athletic Award.

U of I Color Guard Award.

Outstanding AFROTC Cadet Award.

Pilot or Navigator Badge. AFROTC F1P

U of I Outstanding Performance Award. Cadet.

Outstanding AFROTC Cadet Award.

Outstanding Service Award. Advanced cadet.

U of I Scholaristic Award. Graduating AS100 cadet; highest cumulative grade point average.

Brooks W. Booker Award. Greatest contribution to campus-wide activity or function.

HONORARY AND RECOGNITION GROUPS

Membership in the following organizations is based on high scholarship and/or such other factors as indicated:

Alpha Lambda Delta. Freshman women; minimum 3.5 average.

Alpha Omega Alpha. Medicine.

Alpha Phi Omega. Men's service organization; Boy Scouts of America affiliation.

Angel Flight. Women's auxiliary, Arnold Air Society.


Black Brevets. Army ROTC cadets; military aptitude, desire to further leadership.

Chi Epsilon. Civil engineering; scholarship, extracurricular activities.

Eta Kappa Nu. Electrical engineering; scholarship, extracurricular activities.

Eta Sigma Phi. Classical languages.

Gamma Alpha. Graduate scientific research; men.

Guidon Society. Women's auxiliary, Army ROTC.

Iota Sigma Pi. Chemistry; women.

Kappa Epsilon. Journalism; 3.2 minimum average after freshman year.

Morar Board. Women; all-University; elected end of junior year; scholarship, leadership.

Omceon Delta Kappa. Economics.

Omceon Delta Kappa. Male upperclassmen; all-University; scholarship, leadership.

Omceon Kappa Upsilon. Dentistry.

Omceon Nu. Home economics.

Order of the Coif. Law; scholarship, character.

Parser Rifles. ROTC cadets; military ability.

Phi Beta Kappa. Liberal Arts.

Phi Eta Sigma. Freshmen men; all-University; minimum 3.5 average.

Awards—Prizes—Honors

Phi Lambda Upsilon. Chemistry.

Phi Sigma Iota. Romance languages.

Phi Upsilon Omicron. Home economics.

Pi Delta Pi. French.


Pi Omega Pi. Business administration, education.

Pi Tau Sigma. Mechanical engineering; scholarship, activities.

Purple Mask (National College Players). Outstanding work in University Theatre, scholastic distinction.

Rho Chi. Pharmacy; scholarship, character, personality, leadership.

Sigma Delta Pi. Spanish.

Sigma Iota Epsilon. Management.

Sigma Phi Alpha. Dental hygiene; upper 20 percent of senior class, character, service.

Sigma Theta Tau. Nursing; scholarship, professional, and personal qualities.

Sigma Xi. Science.

Tau Beta Pi. Engineering.

Professional Groups

Alpha Chi Sigma. Men; chemistry, chemical engineering.

Alpha Delta Sigma. Advertising; men.

Alpha Kappa Gamma. Dental hygiene; women.

Alpha Kappa Kappa. Medicine; men.

Alpha Kappa Psi. Business administration; men.

Beta Alpha Psi. Accounting; men.


Delta Sigma Delta. Business administration; men.

Delta Theta Phi. Law; men.

Gamma Alpha Chi. Advertising; women.

Kappa Beta Pi. Law; women.

Kappa Epsilon. Pharmacy; women.

Nu Sigma Nu. Medicine; men.

Phi Alpha Delta. Law; men.

Phi Alpha Theta. History.

Phi Beta Pi. Medicine; men.

Phi Delta Kappa. Education; men.

Phi Delta Phi. Law; men.

Phi Epelos Kappa. Physical education; men.

Phi Gamma Nu. Business administration; women.

Phi Rho Sigma. Medicine; men.

Pi Lambda Theta. Education; women.

Pi Omega Pi. Dentistry; men.

Sigma Alpha Eta. Journalism; men.

Theta Sigma Phi. Journalism; women.

Theta Tau. Engineering; men.
The three main functions of higher education—teaching, research, and service—are tightly interwoven in the philosophies and policies of The University of Iowa. As it transmits knowledge through its classrooms, it strives to increase knowledge through research, and to make both the knowledge and resources of the University available and useful. Although the University recognizes that teaching is its primary obligation, it also recognizes that creative activity is a requisite function of a faculty as well if its teaching is to have the qualities of relevance, freshness, and effectiveness expected of a quality institution of higher learning.

The University does not define research narrowly. A pioneer in the acceptance of work in the creative arts in satisfaction of the thesis requirement for advanced degrees, it holds to the position that the term “research” applies to creativity in all fields. Imaginative originality, be it in the fine arts or in the sciences, is of a common character and significance in the overall intellectual life of the institution.

Because of the vital position of research and creative activity in the University’s structure, the office of the Vice-President for Research has been established as the central office to maintain an overview of the many individual research commitments of the institution and to initiate continuing studies of the nature, extent, requirements, and results of the University’s research effort. This office has an interlocked 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. A University Research Council aids the Vice-President for Research in carrying out his duties. It assists him in a regular advisory capacity in a manner parallel to the advisory function provided to the Dean of the Graduate College by the Graduate Council.

The University Research Council consists of nine senior faculty members with widely recognized personal involvements in basic research or creative activity. Members include two each drawn from the physical, biological, and social sciences and the humanities, and one from the faculty at large. The Council gives regular consideration to such matters as:

1. The establishment of general policies with respect to the University’s research and creative effort.
2. The review of policies and procedures concerned with securing and allocating funds for support of research and creative activity.
3. The consideration of additional matters related to the general research and creative functions of the University and the health of basic scholarship on the campus.

The Graduate College, with the advice of the University Research Council and other appropriately involved officers and committees of the University, currently supports the following programs:

Faculty research assignments. Under the rules of the State Board of Regents, a faculty member may be assigned to devote his full time to a specific research or creative project for a semester. Appointments may be for either the first or second semester.

Old Gold Summer Faculty Research Fellowships. These fellowships provide an opportunity for faculty members to devote full time to research or creative work during the summer months. The program is designed to give support to work that will result in additions to knowledge or in substantial progress in creative activity. Awards are given for the initiation of a project, the continuance of its progress, or its completion.

The Office of the Vice-President for Research also provides support for several University-wide services required by the research and creative activity of the faculty. They include the following:

University Computer Center. The Center was established in 1958 to provide a centralized, high-speed computing facility for the diverse research and educational activities of the University. The Center is under the administrative supervision of the Vice-President for Research who, in consultation with the University Computer Committee, advises the Center Director on problems pertinent to the use and growth of the University’s computer facilities.

Located in East Hall, the Center has evolved through several changes and now has a system capable of an extremely wide variety of scientific data-processing applications. At present the
major computer system is the IBM 360/65 with
three-quarters of a million positions of high-speed
core memory and one million positions of slow-
speed core memory, two large disks, and eight
tape units. It is now used in remote batch process-
ing in connection with a regional computer
activity partially funded by NSF, involving ten
colleges in Iowa and one in Illinois. Conversa-
tional programming by way of typewriter ter-
minals is also available. Although the Center is
a distinct entity from the Computer Science De-
partment, there is a healthy interchange of stu-
dents, faculty, and ideas between the two staffs.

The number and variety of computer-related
courses offered at the University have been con-
stantly expanding as the concepts and techniques
of computer applications continue to grow. The
Computer Center is available to all students,
faculty, and staff members of the University.
The Center provides educational and consultati-
tive services, compatible with its resources, to
assist users in preparing projects for computer
analysis. For complete information on the Cen-
ter the reader is directed to the UCC User's

The Radiation Protection Office. The Radia-
tion Protection Office at The University of Iowa
was created in September, 1963. This office pro-
vides all of the technical and administrative
assistance required by research programs which
involve radioactive materials and radiation-pro-
ducing devices. These services include monitor-
ning for contamination, disposing of radioactive
waste, administering the personal dosimetry pro-
gram, providing technical assistance, providing
liaison with the Atomic Energy Commission and
other regulatory agencies, inspecting X-ray units,
and handling the administrative responsibilities
necessary for this type of program. A Radiation
Protection Manual has been published which sets
forth the necessary administrative and technical
procedures that are employed at The University
of Iowa. Copies of this manual are available at
the Radiation Protection Office.

Other programs. Funds are available for the
support of graduate assistants who are assigned
to research projects of members of the faculty;
for small grants to cover materials, supplies,
equipment, and 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 tech-
niques which will enhance research at the Uni-
versity; for the purchase of specialized equipment
for the use in specific research projects; and for
honors and expenses of visiting lecturers.

The Office of the Vice-President for Research
maintains a resource library of information on
public and private agencies that provide funds
for research and study. Students and faculty are
invited to consult with the staff concerning needs
for financial support and procedures to be
followed in applying for the support.

Although not directly connected with the Office
of the Vice-President for Research, some other
specialized research and research-support
units should be mentioned here because of their
special role in the conduct of research in the
University. These units include: Accident Pre-
vention Laboratory, Agricultural Law Center,
Institute of Agricultural Medicine, Center for
Research in Biochemical Pharmacology and Tox-
icoLOGY, Child Development Clinic, Children's
Research Unit, Clinical Research Center, Com-
munication Research Laboratory, Iowa Educa-
tional Information Center, Bureau of Educational
Research and Service, Institute of Gerontology,
Institute of Hydraulics Research, Center for Inter-
national Studies, Center for Labor and Manage-
ment, Iowa Lakeside Laboratory, Mass Com-
munications Research Bureau, Center for Modern
Letters, Neurosurgery Research Center, Labora-
tory for Political Research, Institute of Public
Affairs, Radiation Research Laboratory, Iowa
Center for Research in School Administration,
Television Center, Center for Textual Studies,
Transportation Safety Research Program, Insti-
tute of Urban and Regional Research. For
further discussion of any of these units the reader
is directed to Chapter 5, Section F, of the Faculty
Handbook.
Established by special appropriation of the General Assembly of Iowa, the purpose of the Extension Division is to "render a larger service to the Commonwealth and to the people of Iowa by carrying out to every part of the State the knowledge, the thought, the ideals, and the spirit of the several departments and colleges of the University and by bringing the University generally into direct contact with the citizen."

The division shares and cooperates with many other parts of the University in this larger service to the people of Iowa. Moreover, it performs several other functions, some of which are campus-wide and others of which are both campus-wide and statewide. The Division's organization and services include the following:

**Bureau of Instructional Services (Correspondence Courses, Extension Classes, European Studies Program)**. Correspondence courses are open to all who are prepared to pursue them with benefit. Courses are available to students who wish to earn credit to apply toward a degree at The University of Iowa or some other college or university, and to those who wish to enroll for the satisfaction of special requirements for professional advancement, preparation for special occupations, or self-improvement.

Students who do not desire or expect credit toward a degree at The University of Iowa are permitted to register for any course in which they have an interest and are preparing to enable them to do the work of the course. Approval by an official advisor of the college in which the student is enrolling is recommended for each such registration if degree credit is to be allowed.

An enrollment fee of $4, paid only once, is required of each new student. A course fee is assessed at the rate of $17 per semester hour for all students. Both fees are payable at the time of registration.

Departments offering courses by correspondence include: College of Business Administration, Accounting, Economics, Business Administration, Chemistry, Classics (Greek and Latin), Drawing, Education, English, Geography, History, Home Economics, Library Science, Mathematics, Music, Physical Education, Police Science, Political Science, Psychology, Religion, Romance Languages (French, Spanish), Social Work, Sociology, and Speech Pathology.

For a bulletin, Independent Study, write to the Bureau of Instructional Services, Division of Extension and University Services, East Hall, Iowa City 52240.

**Armed Forces Institute courses**. The University of Iowa, in cooperation with the War Department, through the United States Armed Forces Institute, offers many correspondence courses at reduced rates to men and women in the armed services. The plan provides that the student pays only an enrollment fee and the cost of text materials. The government pays the cost of instruction. This service is open to all enlisted personnel who have been in the Army for four months or in the Navy for two months, and also to officer personnel of the Navy, Coast Guard, and Marine Corps. A list of approved courses may be obtained by writing to the Bureau of Instructional Services.

**Veterans Administration courses**. Veterans may enroll for correspondence courses under Public Law 550. An agreement with the Veterans Administration provides for the payment of course fees, without any allowance for subsistence or books and supplies.

**Education for veterans**. The Veterans Readjustment Benefit Act of 1950 includes provision for educational benefits under the Educational Assistance for Veterans and Inservice Personnel. Veterans desiring more information should write to the Veterans Services Office.

**Extension classes**. A limited program of extension classes is offered off-campus in the fields of nursing training, social work, liberal arts, business administration, education, and engineering by special arrangement. Two types of courses are offered: contract courses for industry, and public service courses in the areas listed.

The fee for public service courses is $35 per semester hour. Classes are scheduled six times during the year, and a minimum of twenty students is required for a class.

For information on extension classes write the Bureau of Instructional Services, East Hall, Iowa City 52240.

**European Studies Program**. A program of overseas class opportunities for credit has been offered to interested students. For information write to Bureau of Instructional Services.
Adult Education Advisory Service. This service provides consultative and guidance service on the problems of adult education programs with respect to organization, techniques, subject matter, and other aspects of continuing education in the community. These services are available upon request; write to the Director, Instructional Services, The University of Iowa, Iowa City 22420.

Audison Center. The mission of the Audiovisual Center is to assist in the improvement of the teaching-learning process through the effective use of educational media. In pursuit of this goal, certain services and facilities are made available to the University's faculty, students, and staff: consultation in the planning and design of instructional materials and systems; provision of motion pictures, projectionists, and all types of audiovisual equipment; and the production of instructional materials such as photographs, 2 x 2 slides, audio tapes, videotapes, motion pictures, filmstrips, overhead transparencies, and display graphics.

Educational Development Unit. Objective: to assist in the planning and design of learning systems, facilities, and media. A staff of Media Consultants is available to assist faculty and students in the solution of their instructional problems. Short-term assignment of faculty and/or graduate assistants by departments to the Audison Center is encouraged. All Audiovisual Center staff are available for advice on specific media needs and problems.

Media Library Unit. Objective: to make accessible a library of nonprint instructional materials. Maintained in the Media Library are major collections of 16mm motion pictures and magnetic tape recordings, as well as limited collections of 2 x 2 slides, filmstrips, disc recordings, and overhead transparencies.

Catalogs of materials are published periodically. Systematic additions to these collections are made in response to requests and funds available. No charge is made for films used in classroom and other curriculum-related activities; a rental fee is charged for off-campus use of these films. Tapes are obtained at a nominal charge for materials and duplicating.

Campus Service Unit. Objective: to facilitate the utilization of instructional materials and audiovisual equipment. Audiovisual equipment available for use includes: projectors (film, slide, filmstrip, opaque, overhead); audio tape recorders; record players; portable videotape recorders; portable P.A. systems; and display devices (exhibits, easels, boards).

Classroom and other curriculum-related activities are provided equipment and projectionists as no charge. There is a nominal charge for off-campus equipment and projectionist service.

Media Production Unit. Objective: to produce graphic, still photographic, and motion picture materials. A staff of production technicians and artists is complemented by the facilities and equipment capable to produce materials which include: graphs, charts, maps, titles, layouts, posters, illustrations, models, exhibits, and overhead transparencies; black and white and color photographs, negatives, microfilm, 2 x 2 slides, 3 1/2 x 4 slides, portraits, microphotographs, and all types of specialized photography; motion pictures (silent or sound, black and white or color, 16mm or 8mm), videotapes (¼" and 17'), filmstrips (silent and sound), production scripts, narration, and audio tapes. Still photographic and motion picture printing and processing laboratory services are available. Certain equipment is available for loan.

Reasonable and competitive charges are made for production materials and services.

Satellite Centers. Objective: to provide media, personnel, facilities, and services to specific audiences. Satellite centers are established as needs demand through cooperative arrangements between the Audison Center, departments, schools, colleges, and other service agencies. The Medical Audison Center is maintained for the College of Medicine and other health science areas to provide services in media consultation, medical art, medical illustration, medical photography, medical plastic, audiovisual equipment utilization, and instructional materials acquisition.

The Dental Audison Center is supported in terms of staff and backup facilities.

The Educational Media Laboratory, in cooperation with the College of Education, is equipped with audiovisual equipment and materials, and supported with Audison Center staff for the teaching of educational media courses.

Radio broadcasting services. WSUI and KSUI-FM serve the interests and needs of the people of eastern Iowa with a broadcasting service which extends the resources and activities of the University. The broadcast schedule includes University lectures, classroom broadcasts, supplementary material for extension services, School of Music events, news broadcasts, and University commemorations, convocations, and induction ceremonies. Special feature programs regularly highlight campus activities through interviews and discussions with members of the University faculty and outstanding campus guests. In addition, listeners may hear outstanding music,
Groups such as band, orchestra, and chorus performances, and artist recitals, are regular features.

Bureau of Educational Research. Standardized tests and scales developed through research by staff members and graduate students at The University of Iowa are published and distributed on a nonprofit basis to schools, public agencies, and industrial firms in the state of Iowa and throughout the nation. In addition, many other widely used commercially produced standardized tests and scales with established national reputations are carried in stock for distribution, in most cases at the publishers' list prices. This makes it possible for one to obtain a large variety of test materials from a single source at a savings in time and transportation costs. Orders received for items regularly carried in stock are usually shipped within twenty-four hours. Items not carried in stock are furnished as a special service at a carrying charge above the publishers' prices. For a catalog, write to Bureau of Educational Research, East Hall, Iowa City 32246.

Services to adult education groups. The Division seeks to aid state and local associations, organizations, and clubs in the planning, preparation, and conduct of their programs and services. Examples are the Iowa Adult Education Association, the Iowa Public School Adult Educators, and the Iowa Division, American Association of the United Nations. Organizations such as community groups, parent-teacher associations, luncheon clubs, etc., may often obtain speakers from the University at a reasonable cost. Many members of the faculty of the University are available also for high school commencement addresses.

Publications. The Division publishes and selectively distributes bulletins of several kinds, which describe and list available educational opportunities through courses, conferences, exhibitions, broadcasts, audiovisual and other materials, and others which deal with a wide range of subject matters and ideas.

Scholarly and Professional Publications

The University of Iowa Studies. Includes publications of research conducted by members of the University. The imprint of the University is controlled by the University Editorial Board. A catalog and price list of publications is obtainable from the Department of Publications.

Studies in Character. Discontinued; Volume IV, Number 3, final issue. This series is continued as a subdivision of Iowa Studies in Child Welfare.


Studies in Engineering. Forty-three numbers have appeared.
Studies in the Humanistic Series. The 9th volume is current. A 10th volume can be purchased only in Italy.

Studies in Natural History. The 21st, No. 3 volume is current.

Studies in Psychology. Discontinued; biennial; 23 volumes have appeared.

Studies in Spanish Language and Literature. Fifteen numbers have appeared.

Aims and Progress of Research. Eighty-three numbers have appeared.


The University of Iowa Monographs. Eight titles have been published.

Philological Quarterly. The 49th volume is current.

The Iowa Journalist. Formerly The Iowa Publisher; published monthly.

Iowa Studies in Mass Communications. Published by the Graduate College and the School of Journalism; two numbers have appeared.

Studies in Business and Economics. New series; 9 numbers have appeared.

Studies in Economic Education. Two numbers have appeared.

A Primer of Economics. Five numbers have appeared.

Center for Labor and Management. Current publications are the 26th number in the Reprint Series; the 14th number in the Conference Series; the 15th number in the Monograph Series. The Research Series has been discontinued; 26 numbers have appeared. The Information Series has been discontinued; 7 numbers have appeared.

The University of Iowa Extension Bulletin. Discontinued; 847 numbers have been published.

General University Publications

The title, Bulletin of the State University of Iowa, was replaced by The University of Iowa Publication, which was later replaced by the current title, The University of Iowa Bulletins. This series is issued monthly during the year except December. It includes the administrative publications of the University such as general bulletins and catalogs.

Spectator. Published 6 times yearly by The University of Iowa for alumni, parents of students, and friends of the University.

The University of Iowa Press

The University of Iowa Press is a book-publishing agency of the University, established to publish the results of scholarly research. The imprint is controlled by the University Editorial Board, composed of faculty members appointed by the Vice-President for Research and Dean of the Graduate College, who serves as an ex officio member of the Board. The Director of Publications for the University also serves ex officio on the Board and directs the operation of the Press.

Iowa Lakeside Laboratory. The Division has general administrative supervision of the Iowa Lakeside Laboratory, a summer laboratory for the biological sciences, on Lake Okoboji. A cooperative program in teaching and research is carried on during the summer 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. (See also Botany and Zoology.)

Iowa Lakeside Laboratory Course Offerings

L-101 Field Biology 5 h.
L-103 Aquatic Ecology 5 h.
L-104 Aquatic Ecology (second term) 5 h.
L-105 Plant Taxonomy 3 h.
L-106 Plant Sociology 3 h.
L-107 Botany 3 h.
L-108 Protozoology 3 h.
L-109 Morphology of Algae 3 h.
L-111 Research 3 h.
L-112 Research 3 h.
L-113 Independent Study 3 h.
L-114 Independent Study 3 h.
L-117 Biology of Insects 3 h.
L-132 Quantitative Limnology 3 h.

Macbride Field Campus. The University holds a lease from the U.S. Army Corps of Engineers on two tracts of land in the Corrival Reserve north of Iowa City. The two tracts total approximately 620 acres. One tract is reserved for biological research; the other for University-wide activities.

An advisory committee, composed of representatives of many colleges and departments, is working on a long-range master plan for development of the area. Uses to which the area may be put include recreation, nature study, scientific research, conferences, short courses, outdoor education, and many others. Developments in the area to date include provision of an access road, water supply, electric power, maintenance and storage facilities, a boathouse and sailing facilities, field archery course, facilities for handicapped persons, and picnic areas.

Institute of Public Affairs. This agency serves as a research and training link between the University and public officials and units of government on the local and state levels in Iowa. Through the Institute, related areas of the University and their research facilities are brought in contact with the problems faced by public officials in the state.

A full-time research and training staff is maintained in the Institute. In addition, long-range research projects which may be undertaken in partial fulfillment of the requirements for advanced degrees, may be planned in
EXTENSION AND UNIVERSITY SERVICES

cooperation with the Graduate College and the related departments of the University. A graduate student interested in such research may apply for appointment through the Graduate College, the Institute, and the related departments of the University as a Public Affairs Research Assistant. Such appointments carry a monthly cash stipend paid on the basis of qualifications and service. The results of studies done by research assistants and of such other studies as are of interest to public officials are published and distributed by the Institute.

A close cooperative relation exists between the Institute, the League of Iowa Municipalities, and similar organizations of public officials.

Publications of the Institute include handbooks for various groups of governmental officials, as well as the results of research studies and surveys concerning specific governmental problems. Frequently these publications are prepared by the Institute's full-time staff or public affairs research assistants in cooperation with organized groups of public officials.

Such publications and other projects are jointly planned by representative public officials and public-spirited citizens who meet regularly with the director, and aid in the formulation of Institute policy in the interest of improving governmental and administrative techniques to meet the real needs of public officials in Iowa.

Short courses and inservice training for government officers are held on the University campus. University students may arrange to attend the sessions of these courses.

Information is available at the Institute for students of the University who are interested in political or career governmental service.

Bureau of Police Science. This bureau cooperates with a group of Area Schools that offer the Associate of Arts degree in Law Enforcement by teaching, as a part of the program, a series of supplementary law enforcement courses on the campus and through correspondence study. In addition, the bureau offers a variety of services to law enforcement agencies including entrance and promotional examinations, general administrative or specialized surveys, and specialized training programs. Research programs in areas of public safety are also carried out.

Upon request by law enforcement agencies, the bureau conducts personnel examinations, administrative surveys, and record surveys.

Iowa Center for Education in Politics. The Division serves as the headquarters of the Iowa Center for Education in Politics. The state organization, which is supported by gifts from foundations and others, coordinates activities at all four-year colleges and universities in Iowa to encourage students to become active in political affairs after graduation. These programs are planned in cooperation with leaders of the legally recognized political parties of the state, and college teachers and administrators.

Iowa Community Services. The Division serves as administrative and fiscal agent for Iowa Community Services, a cooperative state-federal program to expand the continuing education services of colleges and universities toward solving community problems. A state advisory council assists in identifying community problems, recommends appropriate activities which will assist in solving those problems, and approves proposed programs submitted by colleges and universities in Iowa.

The program was authorized by the U.S. Congress in Title I of the Higher Education Act of 1965.
HEALTH AFFAIRS

The foregoing sections covering the Colleges of Dentistry, Medicine, Nursing, and Pharmacy contain information concerning the courses and programs offered and the services available through these professional colleges. In addition, numerous programs or agencies, representing cooperative efforts of varying numbers of colleges, departments, and federal and state agencies offer health services to students, the community, and the state.

THE BUREAU OF DENTAL HEALTH EDUCATION

The Bureau of Dental Health Education is sponsored jointly by The University of Iowa and the Iowa State Department of Health. When it was first organized in 1927, it operated under the Extension Division. Later, in 1939, it became a joint project under its present arrangement.

The State Department of Health provides the personnel, the salaries, and office supplies; the University provides the office space and equipment. The program is under the direction and general supervision of the Director of the Dental Health Division, Iowa State Department of Health.

The personnel of the Bureau consists of the director, a dental health consultant, and a secretary.

The primary purpose of the Bureau is to promote a statewide program of dental health education in the public and parochial schools of the state. The present program of the Bureau, known as the Iowa Plan for Dental Health Education, embodies three objectives: dental health education, the prevention of dental disease, and the correction of dental defects. As a means of accomplishing the educational objective, authoritative material is developed and provided to the classroom teacher. The preventive aspect of the program is emphasized through home participation in a rootong program of oral hygiene and correct dietary habits. The corrective phase is stressed through the use of dental referral cards. Referral cards encourage systematic and regular examinations in a dental office where the completion of the necessary work is recommended. In 1968-69, approximately 65 per cent of the public school districts and parochial schools in Iowa participated in the program.

DIRECT HEALTH SERVICES

Located on the University campus and carefully integrated in its program are four major health units of The University of Iowa which render direct health services to the people of the state. Each is supported by appropriation from public funds, and each devotes its major effort to the provision of service. However, to the extent that the provision of the service may also aid in the preparation of young men and women in the health professions and in areas of special teaching, these service organizations are integrated in the University program. They are administered under the general University organization.

University Hospitals—For the medical and surgical treatment of patients referred by physicians.

Psychopathic Hospital—For the care, treatment, and maintenance of committed and voluntary patients.

State Bacteriological Laboratories—For the provision of a statewide bacteriological laboratory service to city, county, and state governments, physicians, and others.

University Hospital School—For the evaluation, management, special education, and research pertaining to physically handicapped and mentally retarded children. (See University Hospital School.)

Oakdale Hospital—For the treatment of tuberculosis and rehabilitation of patients with other chronic diseases.

IOWA MENTAL HEALTH AUTHORITY

A federally funded agency under the Public Health Service Act (P.L. 78-487), the Authority is placed under the final supervision of the Board of Regents with its own policy board, The Mental Hygiene Committee, established under Iowa Code. This agency, located at Psychopathic Hospital, is the central administration for Iowa's 34 Community Mental Health Centers that make available local services for 73 per cent of the Iowa population. The centers are private nonprofit corporations with 467 citizens serving on
the Boards of Directors and 172 personnel on the
staffs. They provide service to over 15,000
patients annually. The total budget of the centers
exceeds $2.5 million annually, with the largest
portion coming from local county taxes.
The Authority provides consultation on federal
Construction Grants (P.L. 89-184) and Staffing
Grants (P.L. 89-105). It maintains an Audio-
visual and Pamphlet Service that provides free
educational materials throughout the state. Con-
sultation, staff development, recruitment, stand-
ards, and research are provided Iowa’s Mental
Health Centers. The Authority consults with
communities about developing local services and
performs liaison and planning activities with other
local, state, and federal programs in the mental
health delivery system.

UNIVERSITY HOSPITAL SCHOOL
The University Hospital School includes a resi-
dential service program for physically handi-
capped children and a day-school program for
mentally retarded children. Its unique function
under a University administration provides
numerous training opportunities for University
students, and broadened possibilities for investi-
gative endeavors. Two sections, the Children’s
Rehabilitation Section and the Fine School Sec-
tion, operate as one administrative unit within
this program.
The Children’s Rehabilitation Section provides
treatment and education for children whose physi-
cal handicap condition makes it impractical
for them to attend or to make satisfactory progress
in their local school. The objective of this care in
the University Hospital School is to rehabilitate
each child sufficiently through special treatment
and education so that eventually he may return
to his home community for continued education
and treatment. Residential care is provided. Age
range extends to twenty-one years. Approxi-
cately sixty children receive inpatient services at
a given time. A comprehensive program of
special management for the child is available in
the fields of medical, dental, and nursing care;
communication skills; various therapies; special
education; physical education; industrial arts;
home making; music; and child development. In
addition, thorough initial evaluation and periodic
rechecks of handicapped children are provided on
an outpatient basis prior to admission to this sec-
tion. Through this activity it is intended that
parents may be given pertinent instructions re-
garding the care of their child at home. An at-
tempt is made to give attention to all of each
child’s problems, insofar as possible.
The Fine School Section has as its main func-
tions educational research, teacher training, and
community service. Classroom instruction is pro-
vided by means of special education for selected
preschool and elementary school children who are
mentally retarded and living in the Iowa City
area. Furthermore, the children’s schedules in-
clude physical education, music, homemaking, in-
dustrial arts and organized recreational activities.
Attendance in the Fine School Section is on a day
basis only. These children live at home and are
transported daily to and from the University
Hospital School.
Additionally, three other programs are housed in
this University Hospital School complex: the
Office of State Services for Crippled Children
(see State Services for Crippled Children); the
Child Development Clinic of the Department of
Pediatrics, serving as an outpatient diagnostic and
guidance service in the field of mental retardation;
and the Children’s Research Unit, undertaking
investigative work relative to the child who has
suffered neurologic damage and mental re-
tardation, either singly or combined.
Training opportunities for prospective workers,
particularly for graduate students, are afforded in
most aspects of these aforementioned programs.
Part-time positions and graduate assistantships
are available to students from various colleges in
the University. (See College of Education, College
of Liberal Arts, and Graduate College.) Supervised
experience is offered in the fields of special
education, child welfare, speech pathology, occu-
pational therapy, physical therapy, physical
education, social work, music, nutrition, nursing,
home making, and in some other areas.

STATE SERVICES FOR
CRIPPLED CHILDREN
Crippled Children’s Services are supported by
federal appropriations through the U.S. Depart-
ment of Health, Education, and Welfare, and
many state appropriations through the University
Hospitals.
The purpose of these services is to provide
facilities for diagnosis, treatment, referral, and
facilities to assist in planning for home and
local care of crippled children. The Iowa SSCC
defines a crippled child as “one who has a chronic
or congenital health problem which hinders the
realization of his full potential.” Services are
available to children under the age of twenty-one
years.
Diagnostic field clinics are conducted annually
in forty-one communities through the state, and
at Oakland. Patients are usually referred by
local physicians or dentists. Medical examiners
at the field clinics are staff members in the De-
partments of Pediatrics, Orthopedic Surgery, and
Otolaryngology. Diagnostic services are also
provided in the areas of speech pathology, audi-
ology, and clinical psychology. Sixteen of the
field clinics are specialized cardiac evaluation
clinics staffed by cardiologists from the Department of Pediatrics and Internal Medicine. The 22 Oakdale clinics are combined clinics for cardiac and muscular dystrophy patients. There are 10 special ear, nose, and throat evaluation clinics held annually.

Special care programs are offered for children who have von Recklinghausen's disease, cystic fibrosis, polyuria, muscular dystrophy; a number of research and care programs for mentally retarded and multiply-handicapped children and premature and other high-risk infants are maintained.

Two special research projects, "Congenital Anomalies of the Hand" and "Validity of Five-Year Prophylaxis in Non-Cardiac Rheumatic," are subsidized by the Research Division of the U.S. Division of Maternal and Child Health Services (formerly the Children's Bureau).

Field workers in public health nursing, physical therapy, and medical social work provide follow-up care for crippled children who have been examined at diagnostic field clinics or in departments at the University Hospitals.

This agency subsidizes a graduate training program in audiology and speech pathology within the University, and other special training programs for staff.

GENERAL SERVICE UNIT

ADULT EDUCATION ADVISORY SERVICE

This service within the College of Education provides consultative and guidance service on the problems of adult education programs with respect to organization, techniques, subject matter, and other aspects of continuing education in the community.

COUNCIL ON SPEECH PATHOLOGY AND AUDIOLOGY

The work of the various departments of the University which have some bearing upon the problems of speech and hearing handicap is coordinated by the Council on Speech Pathology and Audiology. Teaching, research, and a well-known service program are carried on. For further information, see Speech Pathology and Audiology.

U OF I ALUMNI ASSOCIATION

When he enrolls at The University of Iowa, a student assumes an identity with this institution which lasts throughout his lifetime. Whatever his period of residence on the campus, the student's identity with the University is perpetual; if he chooses, his University association may continue to be rich and meaningful throughout the years.

The leading agency through which Iowa students retain their current identity with the University after they leave the campus is The University of Iowa Alumni Association. Organized in 1867, the Association's current membership includes the sons and daughters of generations, throughout the world. Alumni retain their Association membership through the payment of nominal annual dues, or through the purchase of life memberships.

The Association publishes the Iowa Alumni Review, a bimonthly magazine for its members. In addition to current institutional news, the magazine contains a wide variety of intellectual content, and reports thousands of news items each year about alumni themselves—an alumni news service which is not otherwise available.

The Association's continuing objectives are:
1. To identify alumni with the University as a continuing source of inspiration and enrichment for their personal lives;
2. To strengthen public recognition of the University as an institution vital to the stability and welfare of the state and of the nation;
3. Through organized alumni effort, to serve the University in strengthening its programs in teaching, research, and public service.

The Association is particularly active in its support of The University of Iowa Foundation, which receives and administers private gifts and bequests for the permanent benefit of the University, and for support of specific and continuing projects on the University campus.

THE UNIVERSITY OF IOWA FOUNDATION

The University of Iowa is supported generously by the state of Iowa, but it has always needed financial aid from other sources as well. Recent growth has accentuated its needs.

The University of Iowa Foundation was organized in 1856 to provide private support for the educational objectives of the University. The primary purpose of the Foundation is to strengthen all of the University's scientific, literary, and educational pursuits by encouraging voluntary giving for its support.

A private nonprofit corporation, the Foundation is empowered to solicit and receive gifts and bequests; to accept trusts subject to the conditions imposed thereon; and to hold, administer, manage, use, or distribute gifts, bequests, and trusts; all for the benefit of The University of Iowa. As a private corporation, its investment policies are less restrictive than those of the public policies which govern the University itself.

The Foundation is constantly at work to provide more funds for scholarships, fellowships, student loans, library acquisitions, and faculty
research grants. The original purpose of the Foundation was to serve as a channel for alumni gifts to the University, and this continues to be an important phase of the Foundation's activities. Thousands of alumni gifts are received each year as the result of campaigns for the annual alumni fund which are conducted by mail, telephone, and personal contact.

Costal campaigns for buildings, equipment, new programs, professorships, and other needs are also a regular and growing part of the Foundation's activities. A recently completed $1,250,000 campaign to provide a new art museum—the keystone building of a new Fine Arts Campus—provided the seed money and impetus for a total fine arts project of nearly $15 million. The total project is being financed by a desirable blend of private gifts, state appropriations, federal grants, and fees from student tuition. The Foundation's second capital campaign, $2 million to provide a Health Sciences Library, was completed in 1980.

Anyone who wishes more information about the needs of the University or the mechanics of making gifts or bequests to the Foundation should write to the President of The University of Iowa, or to the Executive Director of The University of Iowa Foundation, Iowa City, Iowa 52240.

MUSEUM OF NATURAL HISTORY

The Museum of Natural History is located in MacBride Hall. To meet the needs of the general public and the various departments of the University, the Museum provides a repository and the proper care for specimens, single and collective, which come to the University either by gift or through the efforts of its own collectors. It designs and executes new exhibits of educational value and offers instruction in the scientific and artistic technique of curatorship and exhibition.

Habitat exhibits of North American mammals include the American bison, the antelope, the moose, the lion, the American moose, and the beaver. The specimens and the accessories for the exhibit were collected near Iowa City.

A large and well-known bird habitat exhibit is the Laysan Island Cyclorama. This is a complete reproduction of a bird island of the Hawaiian group. Other habitat exhibits include The Bering Sea, the Louisiana Swamp, the Fall Migration, and Crestes on South Dakota Prairie. The crane exhibit includes both the sandhill crane and the rare whooping crane as they appear on the prairies during migration.

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

Exhibition programs in the Museum present materials from many parts of the world. Indian and Eskimo materials, including beadwork and carved ivory received in the late 19th century, are exhibited.

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

The Museum is open from 8:00 a.m. to 4:30 p.m. weekdays and from 1:00 p.m. to 4:30 p.m. on Sundays.

READING CLINIC

The Reading Clinic, a teacher-training unit within the College of Education, provides a diagnostic and corrective service for school children having reading difficulties.

OFFICE OF PUBLIC INFORMATION

The Office of Public Information and University Relations, and its affiliated University News Service, the University seeks to foster a greater understanding of its far-reaching aims and activities, both within the immediate University community and among the public at large. To attain this goal, both offices cooperate with all members of the faculty, staff, and student body in helping to achieve support and good will for the University and for higher education in general.

Among the specific services of the Office of Public Information and University Relations are the establishment of liaison between University speakers and clubs and other groups; publication of Spectator, Faculty Newsletter, and University Operations Manual; the provision of campus tours and other services for guests; the preparation and display of exhibits, both on and off campus, of interest to University personnel, alumni, and friends; and the provision of public service programs for Iowa radio stations. In addition, the Office keeps a file of public relations material, the annual report of University policy matters of major public interest and assists in internal communications within the University.

As a division of the Office of Public Information, University News Service helps tell the University's story by providing news information about the institution to the mass media of communication both inside and outside of Iowa. Other activities of the Service include the gathering and writing of informative material for special and general interest periodicals, assisting in the preparation of special University publications, answering of myriad requests for information and assisting representatives of the mass media who visit the campus seeking information and material for articles and productions.

The University News Service also offers assistance to the colleges and departments of the University on matters of information and communication on campus and with the University organization.

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Aid in planning and promotion of campus events is provided by the University News Service and the Office of Public Information. Two staff members work exclusively with the various health science departments and agencies on the campus in furthering public understanding of the University's activities in medicine and allied fields.

Through the Sports Information Service the people of Iowa are informed of the University's program of physical education and intercollegiate athletics.

**OFFICE OF SPACE ASSIGNMENT AND UTILIZATION**

The office serves in direction and coordination of the University's use of its buildings and the room facilities in them. This service provides analysis of current and projected needs necessary in formulating University schedules and new building programs. The office operates under Planning and Development.

**UNIVERSITY PERSONNEL SERVICE**

The University Personnel Service is responsible for a program of administering to the employment needs of individuals and departments for the entire University complex.

The office functions in the areas of recruitment, interviewing, screening, testing, placement, and salary and fringe benefits administration for full-time, permanent, and continuous nonteaching employees of the University. 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 people.
STATE BOARD OF REGENTS
The University of Iowa, the 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 membership of the Board is as follows:

Stanley F. Redaker, President
R. Wayne Richey, Executive Secretary
Ray V. Bailey, Clarion
Casey Loson, Algona
Thomas A. Louder, Fairfield
Nett Perrin, Mapleton
Mrs. H. Rand Peterson, Harlan
William B. Quarton, Cedar Rapids
Donald Shaw, Davenport
Ralph H. Wallace, Mason City

CENTRAL ADMINISTRATION
President, William L. Boyd, Jr., B.S.L., LL.M., S.J.D.
Vice-Provost: Dean, Academic Affairs, Philip G. Hubbard, B.S., M.S., Ph.D.
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Vice-Provost and Dean for Health Affairs, Robert C. Hardin, B.S., M.D.
Vice-President, Educational Development and Research; Dean, Graduate College, Duane C. Sprietshardt, B.Ed., M.A., Ph.D.
Vice-President, Business and Finance, Erwin T. Joliffe, B.S.C.

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Administrative Dean, Allin W. Dakin, B.A., M.A., M.B.A., LL.D.
Assistant to the President, Robert E. Engel, B.A., B.D., Ph.D.
Special Assistant to the President, John W. Larson, B.A., J.D.

BUSINESS ADMINISTRATION
Dean, H. L. Barnes, B.S., M.B.A., Ph.D.
Center for Labor and Management
Director, Judi F. West, B.A., M.A.

DENTISTRY
Dean, Donald J. Galagan, D.D.S., M.P.H.

EDUCATION
Dean, Howard J. Jones, B.S., M.A., Ph.D.
University Schools
Director, Wesley A. Erbe, B.A., M.A., Ph.D.

ENGINEERING
Dean, Hunter House, M.S., Dr. Ing., Dr.-Ing.Sc.
Institute of Hydraulic Research
Director, John P. Kennedy, B.S., M.S., Ph.D.

GRADUATE
Dean, Duane C. Sprietshardt, B.Ed., M.A., Ph.D.
Dean, Advanced Studies, Alvin H. Saff, B.D., M.A., Ph.D.

LIBERAL ARTS
Dean, Dewey R. Sull, B.S., M.S., Ph.D.
Division of Fine Arts
School of Art
Director, Frank A. Seibertling, B.A., Ph.D.
School of Music
Director, Hinlie Voxman, B.S., M.A.

Department of Speech and Dramatic Art
Chairman, Samuel L. Becker, B.A., M.A., Ph.D.
School of Journalism
Dean, Malcolm R. McGowan, B.A., M.A., Ph.D.

School of Letters
Dean, John C. Gerber, B.A., M.A., Ph.D.

School of Library Science
Director, Frederick Wenzman, B.S., B.L.S., M.E.D.

School of Religion
Dean, George W. Forell, B.D., Th.M., Th.D.

School of Social Work
Director, Frank Z. Glick, A.B., A.M., Ph.D.

LAW
Dean, David H. Vernon, A.B., LL.B., LL.M., J.S.D.

MEDICINE
Dean, John W. Eckstein, B.S., M.D.
NURSING
Dean, Laura C. Dustan, B.S., M.N., M.A.,
Ed.D.

PHARMACY
Dean, Louis C. Zopf, Ph.G., B.S., M.S., D.Sc.

OTHER EDUCATIONAL UNITS
DIVISION OF EXTENSION AND
UNIVERSITY SERVICES
Dean, Robert F. Ray, Ph.D.
AudioVisual Center
Director, William Oglesby, Ph.D.

Bureau of Educational Research
Director, J. Leonard Davies, Ph.D.

Bureau of Police Science
Director, Richard Holcomb, B.S., M.A.

Center for Conferences and Institutes
Director, Brooks W. Booker, B.S., M.A.

Bureau of Instructional Services
Director, J. Leonard Davies, Ph.D.

Institute of Public Affairs
Director, M. Dean Senor, B.A., M.A., Ph.D.

Iowa Lakeside Laboratory
Director, Richard V. Bovbjerg, B.S., Ph.D.

Publications, Printing Services, Campus Stores
Director, John E. Simmons, B.A.

Radio Stations WUI-KSU
Director, Hugh V. Corder, B.A., M.A., Ph.D.

COMPUTER CENTER
Director, Gerald P. Weeg, B.S., M.S., Ph.D.

INSTITUTE OF CHILD BEHAVIOR
Director, Charles C. Spiker, B.A., M.A., Ph.D.

LIBRARIES
Dean, Leslie W. Dunlap, B.A., M.A.S.L.S.,
Ph.D.

SUMMER SESSION
Director, George A. Chambers, B.A., M.A.,
Ph.D.

HEALTH AFFAIRS UNITS
Vice-Provost for Health Affairs, Robert C.
Hardin, B.S., M.D.

UNIVERSITY HOSPITALS
Superintendent, Gerhard Hartman, B.A.,
M.A., Ph.D.

PSYCHIATRIC HOSPITAL
Director, Paul R. Huston, B.S., M.A., M.D.,
Ph.D.

STATE BACTERIOLOGICAL LABORATORY
Director, William J. Hauben, B.A., M.A.,
Ph.D.

Consulting Director, Franklin Henry Top,
A.B., M.D., M.P.H.

OAKDALE FACILITIES
Superintendent, William M. Spear, M.D.C.M.
Director, John C. MacQueen, B.D., M.D.

ADMINISTRATIVE OFFICERS
UNIVERSITY HOSPITAL SCHOOL
Director, Raymond Ralph Rembold, A.B.,
M.D.

STUDENT HEALTH
Director, Robert A. Wilson, M.D.

STATE SERVICES FOR CHILDFRAID CHILDREN
Director, John C. MacQueen, B.S., M.D.

RESEARCH ADMINISTRATION
Vice President for Research, Duane C. Spieris-
werbach, Ph.D.

OFFICE OF RESEARCH SERVICES AND ADMINISTRATION
Director, Margaret H. Hoppin, M.A.

OFFICE OF AGENCY LIASON
Director, C. David Cornell, M.A.

OFFICE OF PROJECT DEVELOPMENT
Director, Tony H. Evans, Ph.D.

STUDENT SERVICES
Vice Provost, Philip G. Hubbard, Ph.D.

ADMISSIONS AND RECORDS
Dean, W. Albright Cox, M.A.
Director of Admissions, Robert D. Leach,
M.A.

Registrar, John F. Demitroff, M.A.

CAREER COUNSELING AND PLACEMENT
Director, Helen M. Barnes, M.A.

IOWA MEMORIAL UNION
Director, Loren V. Kottner, M.A.

STUDENT AFFAIRS
Dean of Students and Director, Marion L.
Rut, M.A.

STUDENT FINANCIAL AIDS
Director, John E. Moore, M.A.

UNIVERSITY COUNSELING SERVICE
Director, John O. Crittts, B.A., Ph.D.

UNIVERSITY EXAMINATION AND
EVALUATION SERVICE
Director, Douglas R. Whitney, M.A.

BUSINESS AND FINANCE
Vice-President, Elwin T. Jolliffe, B.S.C.

BUSINESS OFFICE
Controller and Secretary, Leonard R. Beka,
B.S.C.

Business Manager and Treasurer, Ray B.
Moseman, B.S.C.

Purchasing Agent, Alainey Burke, B.S.

UNIVERSITY PERSONNEL SERVICE
Director, Fred H. Dodero, B.A.

DORMITORIES AND DINING SERVICES
Director, Theodore Martin Rohder, B.S.C.

UNIVERSITY ARCHITECT
George Lewis Horner, B.S., R.A.
Adminstration and Instruction

Acting Head Catalog Department, University Libraries, 1962 (1970)
Abdi, Mahamoud M., A.B. Dade, 1955; M.S. Nebraska, 1956; Ph.D. Washington, 1959
Assistant Professor, Medical Technology, 1955
Abelthaus, James I. B.A. University of Montana, 1965; B.S. University of South Dakota, 1963; M.A. 1969; M.D. University of Colorado, 1964
Assistant Professor, Otolaryngology and Maxillofacial Surgery, 1969
Aboul, Francis M. M., M.B. B.Ch. El Ain Shams (Egypt), 1951
Professor, Internal Medicine, 1961 (1960)
Abdul-Wadad, Waad A., M.B. Cairo (Egypt), 1964; Ch.B. 1964; M.D. 1964
Research Associate, Internal Medicine, 1962
Abel, Charles M. B.A. Monicago College, 1962; M.S.W. University of Nebraska, 1964
Assistant Professor, Social Work, 1969
Abevan, Maxwell, B.A. Wesleyan, 1977; M.D. Albany Medical College, 1983
Assistant Professor, Otolaryngology and Maxillofacial Surgery, 1970
Adams, Harold J., B.A. Albion, 1951; M.A. Michigan, 1964; Ph.D. 1969
Assistant Professor, Counselor Education, 1965
Addis, Lilac C., B.A. Iowa, 1953; M.A. Brown, 1966; Ph.D. Iowa, 1966
Assistant Professor, Philosophy, 1963 (1960)
Alberto, Alfredo D., B.A. Lehigh College, 1956; M.A. Iowa, 1956; Ph.D. 1959
Assistant Professor, Education; Project Director, Upward Bound, 1967 (1967)
Assistant Professor, Economics, 1965 (1975)
Alamut, Lydia R., R.N., B.S. Philippine Christian College, 1964; M.S. Ohio State, 1966
Instructor, Nursing, 1963
Assistant Professor, Institute of Child Behavior and Development, 1968
Alexander, Margaret A., B.A. Wheaton, 1928; M.A. New York, 1931; Ph.D. Institute of Fine Arts, 1934
Associate Professor, Classics, 1935 (1955)
Alexander, Robert L., B.A. Queens, 1942; A.M. New York, 1942; Ph.D. 1947
Professor, Art, 1951 (1980)
Allen, Kirklee Lee
Associate, Ophthalmology, 1937 (1956)
Allen, Frank T., B.A. University of Minnesota, 1961; M.A. Washington, 1963
Reference Libraries, University Libraries, 1969
Allen, Robert Hammond, B.S.P.E. Iowa, 1960; M.A. 1968
Assistant Professor and Swimming Coach, Physical Education for Men and Athletics, 1968 (1968)
Alley, Gordon R., B.A. Augustana, 1959; M.A. Iowa, 1961; Ph.D. 1967
Assistant Professor, Pediatrics, 1967
Alley, Louis Edward, B.S.Ed. Central Minnesota State Teachers College, 1936; M.S. Minnesota, 1941; Ph.D. Iowa, 1949
Professor and Head, Physical Education for Men, 1946 (1965)
Allen, Everett Donald, B.A. Iowa State Teachers College, 1926; M.B.B.E. Iowa, 1926
Associate Professor, Electrical Engineering, 1926 (1938)
Amada, Kenneth R., B.A. Rutgers, 1931
Assistant Professor, Music, 1947
Amsel, William F., B.S. Wisconsin, 1946; M.S. 1950
Professor, Mechanics and Hydraulics, 1947
Anderson, Roger L., B.A. Vermont, 1950; M.A. Iowa, 1965; Ph.D. 1968
Assistant Professor, Hospital and Health Administration, 1966 (1968)
Anderson, Dean W., B.A. Iowa, 1961
Research Associate, Pediatrics, 1965 (1965)
Anderson, Charles Y., B.S. Nebraska, 1957; Ph.D. Pittsburgh, 1962
Associate Professor, Otolaryngology, 1966 (1968)
Associate Professor, Education, 1959 (1970)
Anderson, Jane E., A.B. DePauw, 1956; M.S. Purdue 1961
Ph.D. 1963
Assistant Professor, Pediatrics and Psychology, 1966
Anderson, Paul Gordon, B.M. Iowa, 1948; M.A. 1949
Professor, Music, 1965 (1969)
Anderson, Ralph E. B.A. Minnesota, 1950; M.S.W. Nebraska, 1955
Assistant Professor, Social Work, 1963 (1967)
Anderson, Thomas P., B.S. Northwestern, 1956; M.S. 1958;
Ph.D. 1961
Professor, Mental Health Engineering, 1966
Professor, English and Comparative Literature, 1967
Anderson, William R., B.A. Iowa, 1953; M.D. 1958
Associate Professor, Obstetrics and Gynecology, 1958
Andrahen, George F., B.S. Nebraska, 1955; D.D.C. 1957
M.D. 1967
Associate Professor and Head, Orthodontics, 1963 (1969)
Instructor, Speech, 1969
Andrews, John Stephen, B.A. St. Mary's College (Indiana), 1959; M.S. Columbia University, 1960
Serial Libraries, University Libraries, 1969

* A single data following this indicates the beginning of service in the University. If two dates are given, the first indicates the beginning of service in the University and the second, in italics, the beginning of service in present position. The list is compiled as of February 1, 1970.
A HARRISON AND INSTRUCTION


Bergeman, Gustav, Ph.D., Vienna, 1928; J.D., 1936; Ph.D.; Philosophy and Psychology, 1940 (1937).


Beveridge, Robert, Osteomyelitis and Maxillofacial Surgery, 1931 (1926).

Beveridge, W., C.A., R.A., Scotland, 1919; M.S., Illinois, 1939; M.S., Iowa, 1945; Ph.D.; 1941; Associate Professor, Preventive Medicine and Environmental Health, 1945 (1940).

Beveridge, W., R.A., Illinois, 1925; M.S., New York, 1945; Associate Professor, Preventive Medicine and Environmental Health, 1938 (1935).

Beverly, Melvin L., B.A., St. Louis, 1925; M.A., Illinois; Professor and Head, Engineering Drawing; Assistant Dean, College of Engineering, 1972 (1962).


Bier, Charles, B.S., University of Minnesota, 1902; M.S., 1903; Ph.D., 1906; Associate Professor, Preventive Medicine and Environmental Health, 1944.

Bird, Robert M., B.A., Drake University, 1956; M.D., Illinois, 1963; Assistant Professor, Psychiatry, 1959.

Birkeland, Arnot, Ph.D., Washington, 1931; B.S., Virginia, 1930; M.S., 1933; Associate Professor, Preventive Medicine and Environmental Health, 1954.

Birkeland, Arnot, Ph.D., Washington, 1931; B.S., Virginia, 1930; M.S., 1933; Associate Professor, Preventive Medicine and Environmental Health, 1954.

Birch, Florence, B.A., Brown, 1902; Ph.D., Illinois, 1909; Assistant Professor, Business Administration, 1983.

Birch, Isadore, Ph.D., California, 1911; Ph.D., Illinois, 1915; Associate Professor, Philosophy; Associate Professor, Preventive Medicine and Environmental Health, 1954.

Birch, Robert M., B.A., Drake University, 1956; M.D., Illinois, 1963; Assistant Professor, Psychiatry, 1959.

Bisset, Arnot, Ph.D., Washington, 1931; B.S., Virginia, 1930; M.S., 1933; Associate Professor, Preventive Medicine and Environmental Health, 1954.

Bisset, Arnot, Ph.D., Washington, 1931; B.S., Virginia, 1930; M.S., 1933; Associate Professor, Preventive Medicine and Environmental Health, 1954.
A M N I S T R A T I O N A N D I N S T R U C T I O N

Hamblin, Tatiana M., A.B. William and Mary, 1960; M.S. Instrutor, Russian, 1969
Assistant Professor, Oral Diagnosis and Oral Pathology, 1977
Bibliographer, University Libraries, 1953 (1960)
Hassen, Andrew M., B.A. Omaha, 1915; M.A.L.S. Minnesota, 1926
Instructor, Library Science, 1947
Hassan, Gary F., B.A. Iowa, 1957; M.A. 1961; Ph.D. 1964
Assistant Professor, Physical Education and Physical Education for Men, 1963 (1969)
Hard, Robert Calvin, B.S. Iowa, 1953; M.D. 1957
Vice-president and Director for Medical Affairs, Professor, Internal Medicine, 1945 (1969)
Hard, Virna M., B.S. Kansas and Heidelberg, 1940; M.A. Southern Illinois University, 1952; Ph.D. 1957
Associate Professor, Journalism, 1969
Hardy, James C., B.S. Northeast Missouri State Teachers College, 1931; M.A. Iowa, 1957; Ph.D. 1961
Professor, Speech Pathology and Audiology, 1961 (1965)
Professor, Business Administration, 1957 (1964)
Har, Gordon G., B.A. Iowa State Teachers College, 1948; M.A. 1956; M.S. Washington University, 1959; Ph.D. Iowa, 1969
Assistant Professor and Coordinator, Educational Information Center, 1969
Harvis, James L., B.S. Georgia Institute of Technology, 1961; B.Arch. Harvard, 1965; M.C.P. 1969
Associate Professor and Dean, Urban and Regional Planning, 1969
Hartley, Carol, B.A. Iowa, 1960
Harvard, Peter J., B.S. Southern Illinois University, 1964
Business Administration Librarian, Business Administration School, 1964
Harman, Bernard L., B.S. Maryland, 1955; M.S. American University, 1962; Ph.D. Economics, 1967
Assistant Professor, Zoology (Entomology), 1967
Harrill, Edward, B.A., Buffalo, 1892; M.A. 1896; Ph.D. Chicago, 1902
Assistant Director, University Library, 1911 (1953)
Harrison, Ellen, B.S. University of Illinois, 1900; M.S. 1899
Hass, A. Curtis, M.D. Iowa, 1960
Assistant Professor, Radiology, 1960
Haufler, William John, Jr., B.A. Kansas, 1951; M.A. 1955; Ph.D. 1965
Assistant Professor, Preventive Medicine and Environmental Health; Director and Principal Biostatistician, State Biological Laboratory; Associate Professor, Dentistry, 1965 (1967)
Havens, Lois A., B.A., Tulane, 1945; M.A. Boston, 1949; Ph.D. 1968
Assistant Professor, Sociology and Anthropology, 1967 (1969)
Hawk, Ellis W., B.A. University of Virginia, 1930; Ph.D. Wisconsin, 1939
Professor, History, 1969
Hawtrey, Charles K., B.A. Grinnell College, 1927; M.D. Iowa, 1931
Assistant Professor, Urology, 1969
Hawtrey, John, D.M.S. Oregon, 1947; M.S. Michigan, 1955; Ph.D. Iowa, Indiana, 1955
Professor, Yach, Irving, and Research Coordinator, Dentistry, 1955 (1957)
Hawman, David B., B.A. New York, 1948; Ph.D. Paris (France), 1955
Professor, English and Comparative Literature, 1965
Healy, Alfred, B.S. Notre Dame, 1936; M.A. Iowa, 1937; M.D. 1942
Assistant Professor, Pediatrics, 1967
Heidrich, Stephen T., B.S. Michigan, 1966; M.S. 1962; Ph.D. 1969
Assistant Professor, Computer Science, 1967 (1969)
Heller, Ray L., J.D., A.B. Yale, 1956; M.A. 1950; Ph.D. 1951
November, English, 1973; Ph.D. 1973
Research, Ph.D. 1968
Hespell, John A., B.S. Iowa, 1956; M.A. Minnesota, 1956
Assistant Professor and Coordinator, Nursing, 1960 (1968)
Ose, James, Ph.B. Chicago, 1944; A.M. 1945; Ph.D. 1948
Professor, Sociology and Anthropology, 1950 (1969)
Henderson, Judith D., B.A. Iowa, 1967
Acting Director, Educational Placement, 1959
Associate Professor, History, 1969
Heppler, Charles D., B.S. Connecticut, 1950; M.S. Iowa, 1965
Assistant Coordinator, Hospital Pharmacy Education, 1955
Herbert, Lela C., B.S. Iowa, 1955; A.S.C.P. Oklahoma, 1956
Assistant Director, Medical Technology, 1960 (1967)
Hershkovitz, Yosef, B.S. Union College (Schenectady), 1962; Ph.D. Johns Hopkins, 1969
Assistant Professor, Physics and Astronomy, 1967
Herrig, Richard B., B.A. Augusta, 1956; M.A. Iowa, 1961; Ph.D. 1966
Professor, Music, 1967 (1969)
Assistant Professor, Psychiatry, 1968
Hethcote, Herbert W., B.S. University of Colorado, 1964; M.A. University of Michigan, 1965; Ph.D. 1968
Research Associate, Mathematics, 1969
Heuberg, William L., B.S. Iowa, 1955; M.A. 1958
Assistant Professor, Dentistry, 1966 (1969)
Hibbard, William A., B.M. New England Conservatory, 1930; M.S. 1932; Ph.D. 1955
Assistant Professor, Music, 1966 (1970)
Hibler, Roder Lea, B.A. Iowa, 1942
Director and Editor, Community Relations, 1948 (1950)
Hickman, James Charles Ba. Baptist, 1929; M.S. Iowa, 1932; Ph.D. 1938
Professor, Statistics, 1933 (1938)
Hickey, Victor, B.A. Stony Brook, 1941; M.A. Denver, 1945
Carroll Library, University Libraries, 1968
Professor, Philosophy, 1956 (1959)
Higginbotham, Leslie B., B.A. University of Chicago, 1930; M.A. Indiana, 1934; M.S. 1937; Ph.D. 1943
Assistant Professor, English and Comparative Literature, 1959
Hills, Lois F., B.S. Indiana, 1965; M.A.L.S. 1965; Ph.D. 1969
Assistant Professor, Education and Library Science, 1969

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Nicholson, Donald P., B.S., Iowa State, 1951; B.S.M. South Dakota, 1959; M.D. Iowa, 1961

Assistant Professor, Microbiology, 1965

Nilsberg, George W., B.A. Valparaiso University, 1953; B.D. Evangelical Lutheran College, 1956; S.T.M. 1962; Th.D. Harvard University, 1966

Nielsen, Hua-Ling L., B.A. National Central University (China), 1948; M.P.A. Iowa, 1956

Associate Professor, English, 1959

Noble, Mary E., B.A. Iowa, 1917; M.S. 1918

Renewed, Associate University Library, 1968

Nolf, Luther Owen, B.S. Kansas State, 1938; M.S. 1939; Sc.D. Johns Hopkins, 1939

Professor, Zoology, 1931 (1950)

Neuland, Duane A., B.S.E.E. Iowa, 1947

Director, Operations and Maintenance, Physical Plant, 1950 (1965)

Norbeck, Niven, B.S. Reed, 1928; Ph.D. Chicago, 1936

Professor, Physics and Astronomy, 1957 (1967)

Nordquist, Gerald L., B.S.C. Iowa, 1952; M.A. 1956; Ph.D. 1958

Nordquist, Professor, Economics, 1954 (1964)

Norwood, Margaret W., B.A. University of Michigan, 1959; M.A. University of North Carolina, 1960

Director, Systems Development, 1969

Norvi, Albert S., M.D. Western Ontario, 1931

Professor, Pathology, 1935 (1950)

North, George F., B.D.D.S. Iowa, 1909

Clinical Associate Professor, Oral Diagnosis, 1969

Norton, Dan T., B.S. Illinois State, 1947; M.A. Iowa, 1950; Ph.D. 1952

Associate Professor, Education and Psychology, 1957 (1963)

Norton, George J., B.S. Medical College of Virginia, 1923; Ph.D. University of Minnesota, 1929

Assistant Professor, Pharmacy, 1931


Associate Professor, History, 1969 (1968)

Noyes, Russell J., Jr., A.B. DePauw, 1956; M.D. Indiana, 1959

Assistant Professor, Psychiatry, 1955 (1965)

Nunneley, Jurgen G., Diploma University of Munich, 1966; Ph.D. 1968

Professor, Physics and Astronomy, 1969


Assistant Professor, Dentistry, 1967

Nunnemaker, David A., B.S. State University College of Dental Surgery, 1967

Instructor, School of A, 1969

Nybakken, Oscar Edward, B.A. Luther, 1958; D.H.L. 1968; M.A. Iowa, 1959; Ph.D. 1971

Professor, Classics, 1969 (1959)

OEy, Edgar Nathaniel, B.A. Minnesota, 1939; M.A. 1939; Ph.D. 1952

Professor, Mathematics, 1957 (1959)

OE-cabi, Eldon Ross, B.A. Iowa, 1940; M.A. 1942; Ph.D. 1950

Professor, Music, 1967 (1967)

Ochs, Donald J., B.A. Loyola, 1959; M.A. Iowa, 1963

Associate Professor, Rhetoric and Speech and Dramatic Art; Speech Supervisor, Rhetoric Program, 1970 (1970)

O'Connor, James E., B.A. St. Ambrose College, 1942; M.T. Quad Cities School of Medical Technology, 1965; M.S. Iowa, 1967

Instructor, Clinical Microbiology, 1969

Oehrle, Robert H., B.S. Michigan, 1948; M.S. Detroit, 1952; Ph.D. 1955

Professor, Mathematics, 1954 (1967)

Ogden, William R., B.S. Miami University, 1954; M.S. Indiana, 1959; Ph.D. 1967

 Associate Professor and Director, Audiovisual Center, 1959

OGleid, Richard F., B.A. Washington (Missouri), 1920; M.A. 1921; Ph.D. Pennsylvania, 1927

Professor and Chairman, French and Italian, 1967

Olens, Allen P., B.S. Baldwin-Wallace, 1937; M.M. Eastern, 1939

Professor, Music, 1944 (1947)

Okawara, Shoichi, M.D. Nanyan University, 1954; Ph.D. Nagoya, 1959

Assistant Professor, Surgery, 1969


Professor, Otorhinolaryngology and Maxillofacial Surgery, 1965 (1965)

Olsen, Ralf R., M.A. Aarom, 1957; M.S. Rutgers, 1965; Ph.D. 1968

Assistant Professor, Education, 1967

Olm, John Joseph, B.S. Rose Polytechnic Institute, 1950; M.S. Purdue, 1954

Associate Professor, Civil Engineering, 1950 (1963)

Osborne, Margaret Olivia, B.S. Nebraska, 1939; M.A. 1951; Ph.D. Iowa, 1951

Associate Professor, Home Economics, 1951 (1985)

Osborne, James W., B.S. Illinois, 1945; M.S. 1951; Ph.D. 1956

Professor, Radiation Research: Laboratory and Radiology, 1969 (1989)

Osborne, James O., B.S. Michigan, 1939; M.S. 1940; Ph.D. 1945

Professor, Chemical Engineering, 1946 (1967)

Osman, Elizabeth M., B.S. Illinois, 1937; M.S. 1938; Ph.D. Bryn Mawr, 1942

Professor, Home Economics, 1963


Professor, English, 1964 (1962)

Osmond, Patricia J., B.S. St. Catherine, 1952; M.S. California (San Francisco), 1954

Assistant Professor, Nursing, 1954 (1957)


Dietetic Internship and Recreation, 1955 (1951)

Overland, Anne R., B.S. Iowa, 1954; M.A. Columbia, 1949

Associate Professor, Nursing, 1955 (1955)

Pachow, Wang, B.A. Shanghai, 1938; Ph.D. Bowling Green, 1948

Associate Professor, Religion, 1958

Paul, William J., B.A. Wisconsin, 1928; M.A. Harvard, 1933; Ph.D. 1934

Professor, English and Linguistics, 1949 (1969)

Pallas, Michael S., B.A. Ohio State, 1944; M.A., Yale, 1967; Ph.D. 1968

Assistant Professor, Psychology, 1968

Palmer, Geoffrey W., B.S. Victoria University, 1965; J.D. University of Chicago, 1967

Assistant Professor, Law, 1966


Head, Special Collections Department, University Library, 1968 (1982)

Parker, Ford B., B.A. Ken State University, 1964; M.A. 1966

Instructor, German, 1965

Parks, Frederick M., M.D.S. University of Pennsylvania, 1900; M.S.D. University of North Carolina, 1907; Ph.D. 1915

Professor and Head, Periodontology, 1909
ADDITIONAL INFORMATION

Schatzki, Byron Arthur, B.A. Iowa, 1949; M.S. State College of Washington, 1951; Ph.D. Iowa, 1954
Professor: Physiology and Biophysics (Neurobiology), 1957-1967

Schrupp, George I., B.S., Iowa, 1954; M.A. 1955
Instructor: Museum; Assistant, 1956
Scheuer, Paul D., B.S., Northwestern, 1955; M.A., 1956
Professor: Pediatrics, 1956-1969

Shultz, John Henry, B.S., M.A. Kansas State Teachers College, 1939; Ph.D. 1946
Professor, 1947-1951

Schwinn, James W., D.D.S., Iowa, 1954; M.S. 1957
Associate Professor, Ophthalmology and Maxillofacial Surgery and Dentistry Prosthesis, 1957-1968

Schwitzer, John W., B.A. Villa Madonna, 1969; M.S. Cincinnati, 1969
Assistant Professor, 1969-1972

Scott, M. Claude, B.A. Idaho, 1927; M.A. Iowa, 1931
Ph.D. 1937

Seidel, Earl, Head, Physical Education for Women, 1929-1935


Seybold, Hugh Frances, B.A. Iowa State Teachers College, 1926; M.A. Iowa, 1933; B.S. Columbia, 1928
Professor, Speech, Head of Speech, University High School, 1935 (1935)

Sears, Gordon W., B.B. Illinois, 1941; M.D. 1945; Ph.D. Northwestern, 1953

Assistant Professor, Orthodontics and Anatomy, 1964

Sedgwick, Paul Milton, B.A. Indianapolis, 1955; M.D. 1961
Professor, Internal Medicine, 1961-1969

Sensation, Frank A., B.A. Princeton, 1931; Ph.D. Chicago, 1942
Professor and Director, Art, 1959 (1964)

Seki, Toru, M.D. Yamaguchi Medical School, 1957; Med. Sc. 1965
Research Associate, Ophthalmology and Maxillofacial Surgery, 1969

Assistant Professor, Geology, 1984 (1980)

Seid, Gerald M., B.A. Yale, 1964; M.A. California (Los Angeles), 1966; Ph.D. 1968
Assistant Professor, Psychology, 1968

Severson, Charles D., B.S. University of Chicago, 1961
Research Associate, Internal Medicine, 1965

Shapiro, Irvin A., B.S. Northern Illinois University, 1964; M.A. University of Washington, 1967
Assistant Professor, College of Nursing, 1963


Shatkin, Joseph J., M.D., Cornell University, 1945; M.D. Washington, 1947; Ph.D. 1951
Professor, Surgery, 1952

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Skeell, Martin D., R.S. Snevulovick, 1964; M.D. Pittsburgh, 1962
Associate Professor, Anesthesiology, 1982 (1983)
Sobol, Robert Malvin, R.B.C. St. Louis, 1942; M.A. Washington (Seattle), 1948; Ph.D. 1950
Professor, Business Administration, 1954 (1955)
Sole, Charles E., B.A. Hastings, 1958; M.S. University of Wisconsin, 1959
Serials Librarian, University Libraries, 1969
Solomon, Gerald, Associate Royal College of Physicians and Surgeons (Edinburgh), 1942; D.C.H. Royal Col-
lege of Physicians and Surgeons (England), 1944
Professor, Pediatrics; Director, Child Development Clin-
ic, 1969
Solomon, Hope C., B.A. Clark University, 1952; A.M. Wel-
lesley, 1954; R.D. Boston University, 1957
Associate Professor, Nursing, 1967
Solorus, Michael, B.A. University of California (Los Angeles), 1954; Ph.D. University of Washington, 1959
Assistant Professor, Zoology, 1962
Sonti, Narender R., B.S.D.S. Bombay, 1949; M.S. Rochester,
1957; M.D. India, 1957
Associate Professor, Oral Biology, 1967
Assistant Professor, Radiology and Radiation Research Laboratory, 1969 (1970)
Soper, Robert T., B.A. Cornell College, 1940; M.D. Iowa,
1942
Sporled, Surgery, 1967 (1968)
Spangler, James Culwell, B.A., Illinois, 1942; B.S. Hartford Theological Seminary, 1942; Ph.D. Columbia, 1950
Professor, Religion, 1966 (1968)
Spanuani, Eugene B. California (Los Angeles), 1962; M.A. 1966; Ph.D. 1969
Professor, Zoology (Entomology), 1969 (1968)
Assistant Professor, Internal Medicine, 1968
Spencer, Donald Lee, B.S.M.E. Iowa, 1962; M.S. 1968; Ph.D. 1970
Assistant Professor, Mechanical Engineering, 1969 (1970)
Spitzer, Charles W., B.A. San Francisco State College, 1940; M.A., 1944; Ph.D. 1946
Professor, Interim, Child Behavior and Development, 1953 (1958)
Spitzer, Alan B., B.A. Swarthmore, 1948; M.A. Columbia, 1952 (1955)
Professor, History, 1957
Spitz, Thurman, Colored, B.S. Minnesota, 1929
Professor and Head, Aerospace Studies, 1967
Spirk, Gerard C., B.A. Presidency College (India), 1959;
M.D. 1963
Assistant Professor, English, 1965 (1970)
Spivey, Bruce, B.A., Co., 1956; M.S., M.D. Iowa, 1959;
M.D. Illinois, 1969
Associate Professor, Ophthalmology (Genetics), 1969 (1968)
Spratt, James L., B.A. Chicago, 1952; Ph.D. 1957; M.D. 1959
Associate Professor, Pharmacology; Associate Dean, Medicine, 1961 (1968)
Sprinzlareb, Duane Cary, B.S. Illinois State Teachers College, 1940; M.D. Iowa, 1946; Ph.D. 1946
Vice-President for Research; Dean, Graduate College; Professor, Anatomy and Audiology and Otolaryn-
gology and Maxillofacial Surgery, 1948 (1966)
Springer, Owen L., B.S. Indiana State Teachers College,
1942; M.D. Illinois, 1942; R.D. Michigan State, 1964
Assistant Dean and Associate Professor, Education Ad-
ministration, 1952
Stech, Donald P., B.S. Ohio State, 1959; M.S. 1961; Ph.D. 1969
Assistant Professor, Microbiology, 1965

ADMINISTRATION AND INSTRUCTION

Stahmann, Robert F., B.A. Manchester, 1960; M.S. Utah,
1965; Ph.D. 1967
Associate Professor; Education; Senior Consultant, Coun-
Stampfl, Frederick William, B.A. Iowa, 1939; M.D. 1943
Professor, Pathology, 1946 (1963)
Starbuck, George E., B.A. Chicago, 1957
Associate Professor, English; Director, Writers Work-
shop, 1964 (1967)
Starck, Harold H., B.S.B.S. Nebraska State Teachers Col-
lege, 1953; M.A. Iowa, 1964
Professor, Music, 1963 (1965)
Stare, Barbara A., B.A. Vassar, 1947; M.A. Radcliffe, 1949;
Ph.D. 1952
Associate Professor, Zoology, 1967
Steck, Forrest A., B.S.C. Iowa, 1954
Research Associate, Internal Medicine, 1964 (1968)
Steel, Oliver B., A.B. Auburn, 1942; M.S. 1951; Ph.D. Vir-
ginia, 1952
Associate Professor, English, 1967
Steinbrenner, William J., B.A. Pennsylvania, 1953; Ph.D. 1958
Associate Professor, Pharmacology, 1967 (1969)
Steingart, Lewis B. B.A. Hope, 1952; M.S. Michigan, 1951;
Ph.D. 1953
Assistant Professor, Biochemistry and Pediatrics, 1963 (1968)
Stephen, James A., B.S. Iowa State, 1952; Ph.D. 1957
Assistant Professor, Pediatrics; Senior Psychologist, State Services for Crippled Children, 1967
Stellwagon, Darla C., B.S. Illinois, 1953; M.S. North-
western, 1959; Ph.D. California (Berkeley), 1959
Associate Professor, Biochemistry, 1964 (1969)
Stephens, E. Robert, B.A. Morris College, 1952; M.S. Drake,
1955; Ph.D. 1957
Assistant Professor, Iowa Center for Research in School Administration, 1956 (1959)
Stephens, Ralph R., B.S.G.S. Illinois, 1957; M.S. 1959; M.D. Wisconsin, 1965
Professor, Associate Professor, Mechanical Engineering, 1955 (1965)
Stevens, Harriet Adeline, B.A. Iowa, 1952; M.A. 1954
Assistant Professor, Home Economics, 1953 (1955)
M.B.A. Syracuse, 1966; Ph.D. Michigan State, 1965
Associate Professor, Business Administration, 1967 (1969)
Stewart, Dorothy M., B.S. Wheaton, 1961; M.A. Chicago, 1965
Assistant Professor, Nursing, 1965 (1967)
Stilts, Lynn G., B.S. Utah, 1939
Assistant Football Coach and Instructor, Intercollegiate Athletics, 1965
Still, John Kenneth, B.S. Arizona, 1952; M.S. 1953; Ph.D. Illinois, 1957
Professor, Chemistry, 1967 (1965)
Stout, Ada M., B.A. Co., 1951; B.S.L. Wisconsin, 1956
Reference Librarian and Instructor, University Lib-
arions, 1955 (1958)
Stout, Karen M., B.S.M. Kansas, 1962; M.S.M. Yale, 1965
Assistant Professor, Nursing, 1965 (1969)
Stone, Daniel Ronald, M.D.; B.S. London, 1962; Ph.D. 1969
Research Associate Dean for Academic Affairs, Col-
lege of Medicine; Professor, Internal Medicine (En-
docrinology), 1960 (1969)
Stone, Franklin D., B.A. Jamestown, 1929; M.A. Iowa,
1930; Ph.D. 1932
Assistant Professor, Education, 1964 (1969)
Stone, Thomas H., B.A. Michigan, 1950; M.A. Minne-
apolis, 1957; Ph.D. 1961
Associate Professor, Business Administration, 1969

465
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<th>I. University Level</th>
<th>Summer Session 1968</th>
<th>Academic Year 1968-69</th>
<th>Total Excluding Duplicates</th>
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<td>Men</td>
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<td>Administration</td>
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<td>College of Engineering</td>
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<td>Total Excluding Duplicates</td>
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Students Enrolled for Correspondence Study
*Graduate Correspondence Study 808 1,022 1,820
*Undergraduate Correspondence Study 1,879 2,045 3,924
Total Excluding Duplicates 2,687 3,067 5,754
Total Different Students Enrolled for Study in Residence or for Correspondence Study 17,257 12,818 30,075

II. Experimental Schools and Noncollegiate

<table>
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<tr>
<th></th>
<th>Men</th>
<th>Women</th>
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<td>High School</td>
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<td>Speech Clinic</td>
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<tr>
<td>Reading Clinic</td>
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<tr>
<td>Total</td>
<td>398</td>
<td>388</td>
<td>786</td>
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*Enrollment Compiled on Annual Basis
HUMAN RIGHTS

The University is guided by the precept that in no aspect of its programs shall there be dis-
fferences in the treatment of persons because of race, creed, color, sex, or national origin, and
that equal opportunity and access to facilities shall be available to all. This principle governs
the admission, housing, and education of students. It is reflected in policies governing programs of
extracurricular activities and in the employment of faculty and staff. The University works cooperatively with the Iowa City com-
munity in furthering this principle. The University’s Committee on Human Rights has adopted
the following general policy:

Policies

(a) The Constitutions of the United States of America

and of the State of Iowa call for political liberty and
equality and afford the equal protection of the laws for
all persons. Racial, religious, and ethnic discriminatory
practices betray the vision of the founding fathers
and threaten the orderly procedures of democratic
government.

(b) The General Assembly of the State of Iowa enacted
the Iowa Civil Rights Act of 1965. The clear intent of
this law is the assurance that the rights to equal treat-
ment of the people of Iowa shall not be abridged.

(c) In recognition of Iowa’s declared public policy

and the obligations imposed on all units of state government
by the Fourteenth Amendment to the United States Con-
stitution, the Board of Regents declares the following to be
its policy:

Statement of policy. The Board of Regents has a special
obligation to have its operations serve as a model for
business, industry, labor, and education. Neither the Board of
Regents nor any official who is responsible to the
Board of Regents shall perform, or assist or cooperate
in the performance of any actions, that would give

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official responsible for the implementation of such pro-

grams shall be charged with the duty of seeking to provide
equal opportunity for all, regardless of race, color,
religion, sex, or national origin.

State services and facilities. Pursuant to the pro-

visions of the Fourteenth Amendment to the Constitution
of the United States and the Iowa Civil Rights Act of 1965,
equal educational opportunity shall be granted by all insti-
tutions of the Board of Regents in performing their services to
the public. This equal treatment shall be afforded in the use of
their facilities. Those in charge of the various

Institutions of the Board of Regents shall be

instructed as to the procedures to be followed in the

in the use of the facilities.

State contracts and subcontracts. To assure compliance

with the provisions of the Iowa Civil Rights Act of 1965,
every official responsible to the Board of Regents who is
authorised to make contracts or subcontracts for public
works or for goods or services shall be inserted into
every such contract or subcontract a clause in

which the contractor or subcontractor is prohibited from

performing any discriminatory employment practices

as defined by the Iowa Civil Rights Act of 1965. These contractual
provisions shall be fully policed and enforced; any breach
of them shall be regarded as a material breach of contract.

Compliance and reporting. All officials responsible to
the Board of Regents shall cooperate fully with the
Iowa Civil Rights Commission and such other state officials as
may be involved in the effectuation of the nondiscrimina-
tory policies of this state.

IOWA DEPARTMENTAL RULES—STATE BOARD OF REGENTS

Residence

SECTION D. CLASSIFICATION OF RESIDENTS AND NONRESIDENTS FOR ADMISSION AND

AWARD OF SCHOLARSHIPS AND OTHER BENEFITS

1. General. Students enrolling at any of the three state

institutions of higher education as resident or nonresident for

admission, fee, and tuition purposes by the Board of

Regents will be classified as resident or nonresident

by the student and all other relevant information.

The classification is based on the student’s family

affiliations, verifications, or other evidence as are judged

necessary to establish the correct classification. The

classification will be in accordance with the provisions

of the Iowa Civil Rights Act of 1965. Every

student is required to furnish the Board of

Regents with the necessary evidence to support

his request.

2. Residency qualifications. Classification as

inward residents for admission, fee and tuition purposes is

generally determined by the Board of Regents for

students who are Iowa residents by birth or by
certification of the Board of Regents. Students who

(Continued)
A student who willfully gives incorrect or misleading information to avoid payment of the nonresident fee and tuition shall be subject to disciplinary action and must also pay the nonresident fee for each semester.

An alien who has entered the United States on an immigrant visa, who has ever obtained a nonresident residence status in Iowa by living in Iowa for the state for at least twelve consecutive months immediately preceding the date of registration, quarter or session may be eligible for resident classification providing he may be required to pay the nonresident fee and tuition purposes other than to attempt to qualify for resident status.

Men in military service (except career servicemen) who are private residents of Iowa shall be classified as residents when their state of domicile is classified as a state at the time such resident majority - or married and the student is not domiciled in another state, or, if the student marries or residing in the state of Iowa by residing in the state for at least twelve consecutive months immediately preceding the beginning of the semester or quarter or session. Non resident status in Iowa means that the student is not in the state primarily to attend a college; that he is in the state for purposes other than to attempt to qualify for resident status.

Any nonresident student who resides in the state of Iowa for at least twelve consecutive months immediately preceding the beginning of the semester, quarter or session. Non resident status in Iowa means that the student is not primarily to attend a college; that he is in the state for purposes other than to attempt to qualify for resident status.

Any nonresident student who resides in the state of Iowa for at least twelve consecutive months immediately preceding the beginning of the semester, quarter or session. Non resident status in Iowa means that the student is not primarily to attend a college; that he is in the state for purposes other than to attempt to qualify for resident status.

Any nonresident student who resides in the state of Iowa for at least twelve consecutive months immediately preceding the beginning of the semester, quarter or session. Non resident status in Iowa means that the student is not primarily to attend a college; that he is in the state for purposes other than to attempt to qualify for resident status.
 Committee on Educational Relations and are comparable for all three institutions. Competence established at one is acceptable at all three, but due to different specific curricular requirements, does not guarantee admission to either of the other two.

B. ADMISSION OF UNDERGRADUATE STUDENTS BY TRANSFER FROM OTHER COLLEGES

1. Students from accredited colleges and universities. Transcripts of record are given full value if coming from colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or similar regional associations. For schools not regionally accredited, the recommendations contained in the current issue of the Report of Credit Given by Educational Institutions published by the American Association of Collegiate Registrars and Admissions Officers will be followed. The student shall submit an official transcript bearing the original seal and signature of the official in charge of records from each college or university which the student has attended previously. The student will also submit any other records or letters which the college may require to support his application for admission.

b. A transfer applicant shall be expected to have maintained a "C" average (2.00 based on an "A" grade being 4 points) for all college work previously attempted and not be on suspension from the last college attended. Students who are not residents of Iowa may be expected to have maintained a 2.25 grade index.

c. A student who is below the above standard may be permitted to take entrance examinations. If the applicant successfully completes the examinations he may be admitted on probation.

d. In general transfer applicants under academic suspension, if the duration of the suspension is not less than one semester, or if an indefinite period, until six months have passed since the last date of attendance. When eligible for consideration the applicant will be considered as in "c" above.

e. A transfer applicant under disciplinary suspension will not be considered for admission until a clearance and a statement of the reason for suspension is 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 in consideration of the application. An applicant granted admission under these circumstances will always be on probation and his admission subject to cancellation.

f. Applicants for admission by transfer who do not meet the standards may be denied.

2. Transfer credit from a junior college will not be accepted if credit is earned after the total number of hours of credit accumulated by this student at all institutions attended exceeds one-half of the number of hours needed for the earning of the baccalaureate degree.

2. Students from nonaccredited colleges.

a. Transfer credit from a nonaccredited college may be granted credit from a nonaccredited college or may admit the applicant on a provisional basis and provide a means for the validation of some or all of the credit. The validation period shall not be less than one semester and will ordinarily be a full academic year. The college will specify to the student the terms of the validation process at the time of provisional admission. Each student from a nonaccredited college will be considered on the merits of the admission or rejection is at the discretion of the admissions officer.

C. APPLICATION DEADLINES

Applications for admission must submit the required applications for admission and the necessary official transcripts and other required documents to the admissions officer of the appropriate college at least ten days prior to the beginning of orientation for the session for which the student is applying. Applications for admission from students who are required to take entrance examinations will not be considered unless the examinations can be completed at least five days before the beginning of orientation may be waived by the admissions officer only for adequate reasons.

This regulation does not apply to the colleges of medicine and dentistry at the university. Regulations applying to these are given in the following sections: IIA2, IIA7.

APPENDIX

All new undergraduate students must complete the American College Testing Program tests, the Scholastic Aptitude Test (CEEB), or the equivalent as determined by the admissions officer before the beginning of orientation for the session in which the student first registers.

II. SUPPLEMENTAL SPECIFIC REGULATIONS FOR EACH INSTITUTION

The following requirements are in addition to those given in section I above.

A. THE UNIVERSITY OF IOWA

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 material as required by the Director of Admissions. Students may not be registered until they have been officially admitted by the Director of Admissions.

1. College of Business Administration

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 application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

For admission to the college of business administration an applicant must have—

a. Completed specific coursework as prescribed by the faculty of the college.

b. Attained satisfactory scores on the university's required admission examinations.

c. Maintained a satisfactory grade-point average on all courses undertaken, and on all courses undertaken at The University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee such students may be granted conditional or probationary admissions.

Fulfillment of the minimum requirements listed above, however, does not assure admission to the college of business administration. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

2. College of Dentistry

Address all inquiries regarding admission to the Director of Admissions, The University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applicants should consider a combined program of liberal arts and dentistry which would qualify them for a baccalaureate degree upon the completion of the freshman year in dentistry. Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

Fulfillment of the specific requirements for admission listed does not assure admission to the college of dentistry. From the applicants meeting the minimum requirements, the admissions committee will select the applicants who in their judgment appear to be best qualified for the study and practice of dentistry.

An accepted applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work outlined below is sufficient to meet the minimal academic requirements for admission to the college of dentistry.

The college curriculum should include at least three academic years of accredited work comprising not less than ninety-six semester hours and including specific re-
APPENDIX

required courses as prescribed by the faculty of the college. Electives should be chosen so as to give the applicant a well-rounded educational background.

In order to meet minimum scholarship requirements the applicant should attain a cumulative grade-point average of 2.5. Since the quality of coursework in predental science is basic to success in dentistry, special consideration to such college work is given by the admissions committee. The grade-point average is based upon The University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admission of the college of dentistry.

Admissions committee may waive or reduce some of the above requirements when the candidate for admission is considered outstanding in other respects. In exceptional circumstances, candidates with fewer than three years of college work will be considered for admission if the applicant's performance and his potential for the dental profession are deemed to be outstanding. These candidates will be required to take the Graduate Record Examination as well as the Dental Aptitude Test. In these instances, assessment of the candidate's performance on the Graduate Record Examination will be included in the evaluation by the admissions committee to make of the applicant's credentials for entrance into the college of dentistry. Applicants who have completed the requirements for admission to dentistry five or more years prior to seeking admission to the college of dentistry will be considered by the admissions committee only under exceptional conditions.

Applicants from those who are more than thirty years of age will be considered for acceptance only in exceptional cases.

Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents.

Personal interviews will be required of applicants for admission to the college of dentistry. Applicants will be notified when they should appear for the required interviews with the admissions committee.

All applicants must complete the Graduate Record Examination and any other tests sponsored by the council on dental education of the American Dental Association. Tests are given three times annually. The University of Iowa is a testing center.

To facilitate early registration, candidates for admission to the college of dentistry are urged to complete the application forms before October to enable the admissions committee to begin its selection in December.

Accepted applicants are required to make the required deposit within two weeks after notification of favorable action on their applications or as established by the American Dental Association, if later than two weeks. This deposit is not refundable except under circumstances which arise beyond the control of the student, but is credited toward the first fee payment. The applicant who fails to make the deposit within the time specified forfeits his place in the class.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance.

All applicants must complete, through student health service, an X-ray film of the chest and a successful vaccination against smallpox prior to registration.

Advanced Standing

Applications for admission with advanced standing are handled as individual cases.

3. College of Engineering

Address all inquiries regarding admission to the Director of Admissions, The University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Admission of Freshman Students

The applicant must submit a formal application for admission and must have the secondary school provide a certificate of high school credits, including a complete statement of the applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by this university.

Each applicant must have attained satisfactory scores on the university's required admission examinations, have maintained a satisfactory cumulative grade-point average, have been in good standing, and have successfully completed all prerequisite courses. The university's grading system shall be applied and periodically reviewed specific minimum requirements for admission to the college of engineering. Among the items to be so determined are test score, grade-point average, class rank and prerequisite courses. These specific determinations will be published in the university catalog.

Admission of Undergraduate Students by Transfer

The applicant must submit a formal application and official transcript of college work. Each applicant should have completed at least 15 semester hours of college work with an average grade of not less than 2.0. Both residence and transfer courses will be considered. A cumulative grade-point average of 2.5 is required on all college work undertaken.

From applicants who do not meet recommended requirements, the director of admissions will review individual records and may offer probationary admission.

4. Graduate College

Graduates of any college or university accredited by regional accrediting associations may if the academic record is satisfactory be admitted to the Graduate College. Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree. Such acceptance is given usually after the completion in residence of work at the University and upon recommendation of the major department and approval by the Dean of the Graduate College. The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within four semester hours of having satisfied all the requirements for the bachelor's degree in the University of Iowa may be given a tentative admission to the Graduate College.

5. College of Law

Address all inquiries concerning admission to the Dean of Admissions, The University of Iowa, Iowa City, Iowa. Beginning students may enter the College of Law only in the fall semester. Except for good cause shown, applications for admission must be filed in the Office of Admissions not later than the first day of the preceding the fall semester in which the applicant wishes to enter.

The applicant must have a high school average of not less than 2.3 in the class rank in college work undertaken. The grade-point average is based upon University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the Office of Admissions.

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the College of Law. The test is given several times per year and may be taken at numerous locations in the United States and throughout the world. Applicants are urged to take the test in the fall or winter preceding the fall semester for which they are making application. Except upon a showing of acceptable reasons, the Admissions Committee will not consider applications from students who fail to take the test prior to the June of the preceding the fall semester in which they wish to enter.
APPENDIX

Admission With Advanced Standing
A transfer student may be eligible for admission if he (1) has attended a school approved by the Association of American Law Schools; (2) is in good standing at the time of his withdrawal; (3) has written a letter from the dean or president of his law school setting forth in detail the admission requirements for beginning students at the law school to which he is applying; and (4) marks the admission requirements for beginning students at The University of Iowa Law School more liberal than those in the law school to which he is applying. Where an applicant has completed more than the year of law school, advanced standing will be permitted only in exceptional cases. Applicants for admission with advanced standing should confer with the procedures required for admission to the four-year class.

6. College of Medicine
Address all inquiries regarding admission to the Director of Admissions, The University of Iowa.
Applicants are urged to apply early as possible, since it is not unusual for the admission committee to require more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of each session.
Applications from those who are more than thirty years of age will be considered for acceptance only in exceptional cases.

Applicant must be in good standing and have completed the following:
1. Have completed three years of a combined baccalaureate and medical degree program which includes the basic premedical requirements of the college of liberal arts of The University of Iowa of the bachelor of arts degree.
Each applicant must present to the dean of the college of liberal arts the appropriate college transcript and an official transcript from each college attended.
The college work as entered below is considered as meeting the minimum academic requirements for admission to the college of medicine.
Applicants who have completed the baccalaureate degree and required courses live or more years prior to matriculating admission to this college of medicine will be permitted to, the admissions committee only under exceptional conditions.
The college curriculum must include at least three years (equivalent to ninety-six semester hours) including specific professional courses as prescribed by the faculty of the college.
A student is encouraged to study medicine abroad, but in no case shall a student be permitted to study medicine abroad, but in no case shall he be permitted to use the course work toward the requirements of the baccalaureate degree.

To be considered for admission, an applicant must have gained a grade point average of 3.5 or better at a single college with a four-year program, or a grade point average of 3.0 or better at a single college with a two-year program. A grade point average of 3.5 or better at a single college with a four-year program shall be based on the University of Iowa's grade system in which A = 4.0, B+ = 3.5, B = 3.0, and C = 2.0. Other grade systems shall be converted to a 4.0 scale based on the University of Iowa's grade system.

All applicants must also complete, through Student Health Services, an X-ray film of the chest and x-ray screening examination of the lungs and chest at least once prior to registration.

Admission to Advanced Standing
If their work precludes it, students of this college of medicine who have not completed requirements of this college of medicine students from other approved medical colleges may be admitted to advanced standing according to the following conditions:

Only applicants of high standing shall be considered.

They must present certificates showing that they have satisfactorily completed, without equivalent to them any study they have been required thereby.

In no case shall a student be permitted to study medicine at another college or university.

No advanced standing will be granted to students from other than approved medical colleges.

Unclassified Students
Applicants for admission should be in good standing of the college who are not considered for a degree but who desire to register for other purposes. Applicants for admission shall be admitted to any lecture or laboratory course only after complying with the regular requirements for admission to such course or by action of the faculty upon recommendation of the dean of the college or in the charge of the course.

7. College of Nursing
Applicants for admission to the undergraduate program in nursing must present a minimum of thirty-six semester hours completed in an accredited liberal arts college program including satisfactory performance of the following minimum requirements:

History—University of Iowa transfer applicants must have satisfied the liberal requirements of the college of liberal arts of the University of Iowa.

Biology—Applicants must have satisfactorily completed a minimum of 40 semester hours of credit in English composition, and 12 semester hours of credit in English, one semester of college algebra, and two semester hours of credit in speech.

Mathematics—All applicants must have completed two and one-half (2.5) semester hours of college algebra or an equivalent course in mathematics comparable to a higher than intermediate algebra (222).

Chemistry—All applicants must have completed four semester hours of chemistry. Applicants from the college of liberal arts at The University of Iowa or from other colleges of liberal arts or science should complete their course in organic and biochemistry.

Applicants who
APPENDIX

transfer from other accredited colleges may, if necessary, complete the organic and biochemistry requirement after admission to the college of nursing.

All applicants are required to complete the American College Tests. Applicants who are graduates of associate degree or diploma programs of nursing must have successfully passed the examination for registered nurse license before admission to nursing courses.

To be considered for admission, an applicant should have obtained a cumulative grade-point average of at least 3.3 in all college work undertaken. The grade-point average is based upon the grading system of the University of Iowa in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Fullfillment of the specific requirements for admission listed above does not ensure admission to the college of nursing. From the applicants meeting the minimum requirements, the admissions committee of the college of nursing will select those applicants who, in their judgment, appear to be best qualified. The nursing admissions committee may require personal interviews of applicants.

Address all inquiries regarding admission to the Director of Admissions, The University of Iowa, Iowa City, Iowa. Applicants with no previous preparation in nursing may apply for admission to the college of nursing beginning July 1 of the year preceding their expected enrollment. Applicants with previous preparation in nursing will follow the same procedure except that they may be admitted either in the fall or spring semester. The closing date for receiving applications shall be April 15 for first semester and November 15 for second semester.

6 College of Pharmacy

General Basis for Admission

Fullfillment of the specific requirements for admission does not assure admission to the College of Pharmacy. From the applicants meeting the specific requirements, the Admissions Committee will select those applicants who, in their judgment, appear to be best qualified. Admissions for admission to pharmacy should have graduated from an approved high school or have an equivalent amount of training.

College Work

The college work as outlined below will meet the minimum academic requirements for admission to the College of Pharmacy. The minimum should include 58-59 semester hours of college-level work, completion of credit in English and Social Science. The semester hour requirement must include 4 semester hours of English Composition and three semester hours of credit in Speech or in an eight-semester-hour year course in Rhetoric.

Inorganic Chemistry and Qualitative Analysis—eight semester hours.

College Mathematics—eight semester hours.

Physics or Sociology—eight semester hours.

Students from other institutions may substitute a comparable eight-semester-hour course in Biology in lieu of Sociology.

Military or Air Science (if available)—0-2 semester hours.

Students who present minor deficiencies in meeting the above requirements may be admitted to the College of Pharmacy upon the recommendation of the Dean of Admissions and the College of Pharmacy.

Scholarship and Application Deadlines

To be considered for admission to the College of Pharmacy, students must have earned a 3.0 or C average on all college work undertaken. The minimum grade-point average of 2.0 is based upon the University of Iowa's grading system. The minimum grade-point average is based upon a 4.0 scale.

Applications for admission, and the required additional materials, should be filed before March 15 for the class to enter Pharmacy in September.

Required Tests

Applicants for admission are required to take the American College Testing Program test.

Current Requirements

Applicants for admission to the College of Pharmacy must have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education. If their college academic average is acceptable, they may be admitted and granted advanced standing toward the degree of Bachelor of Science in Pharmacy.
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