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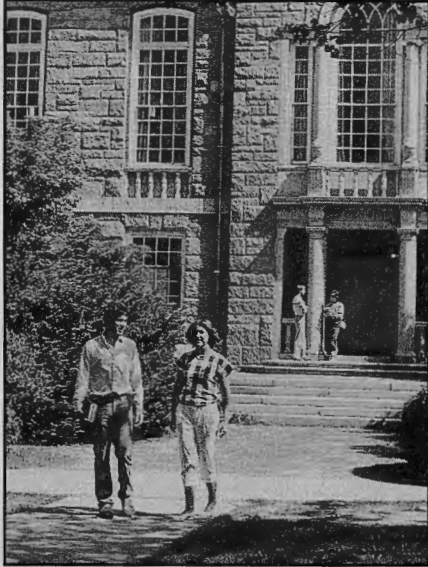
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1992-93  
BULLETIN OF  
THE UNIVERSITY  
OF RHODE ISLAND

# UNDERGRADUATE STUDIES



**1992-93**  
**BULLETIN OF**  
**THE UNIVERSITY**  
**OF RHODE ISLAND**



**UNDERGRADUATE**  
**STUDIES**

Undergraduate Admissions Office  
University of Rhode Island  
Green Hall  
Kingston, RI 02881-0807  
401-792-1000

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Volume 88, Number 2  
August 1992

Bulletin of the University of Rhode Island  
(USPS 077-740). Published four times a year  
in April, August, September, and October by  
the University of Rhode Island, Kingston,  
RI 02881. Second-class postage paid at  
Wakefield, RI 02880.



The text pages of this bulletin are  
printed on recycled paper.

8/92/27M Produced by the URI Publications Office, Division of  
University Relations.

# 1992-93 CALENDAR

## First Semester

**August 24-September 11**  
Registration period, College of  
Continuing Education (CCE)

**August 31-September 4**  
Registration period, Kingston Campus

**September 7, Monday**  
Holiday, Labor Day

**September 8, Tuesday**  
Orientation and academic advising for new  
Kingston students

**September 9, Wednesday**  
Classes begin, Kingston Campus, 8 a.m.  
University Faculty Meeting, 3:30 p.m.

**September 14, Monday**  
Classes begin, CCE

**September 18, Friday**  
Final day to drop Kingston "early drop"  
courses

**September 22, Tuesday**  
Final day to add Kingston courses and to add  
P-F option  
*Kingston Campus fees will not be adjusted  
downward for courses dropped after this date*

**September 23, Wednesday**  
Final day to drop CCE courses designated  
"early drop"

**September 25, Friday**  
Final day to add CCE courses and to add  
P-F option

**October 12, Monday**  
Holiday, Columbus Day

**October 14, Wednesday**  
Final day to drop Kingston courses and to  
change from P-F option to grade

**October 16, Friday**  
Final day to drop CCE courses and to change  
from P-F option to grade

**October 23, Friday**  
Midsemester, Kingston Campus

**October 26, Monday**  
Early registration begins for spring semester,  
Kingston Campus only

**October 30, Friday**  
Midsemester, CCE

**November 3, Tuesday**  
Holiday, Election Day

**November 11, Wednesday**  
Holiday, Veterans Day

**November 12, Thursday**  
University Faculty Meeting, 3:30 p.m.

**November 25, Wednesday**  
Thanksgiving recess begins, 10 p.m.

**November 30, Monday**  
Classes resume, 8 a.m.

**December 15, Tuesday**  
Classes end, Kingston Campus

**December 16-20**  
Reading days, Kingston Campus

**December 17-19, 21-23**  
Final examinations, Kingston Campus

**December 19, Saturday**  
CCE classes, examinations end

**December 25, Friday**  
Holiday, Christmas Day

**December 28, Monday**  
Final grades due in the Office of the Registrar,  
4 p.m.

## Second Semester

**January 1, Friday**  
Holiday, New Year's Day

**January 11-15**  
Registration period, Kingston Campus

**January 11-22**  
Registration period, College of Continuing  
Education (CCE)

**January 18, Monday**  
Holiday, Martin Luther King's Birthday

**January 19, Tuesday**  
Classes begin, Kingston Campus, 8 a.m.

**January 20, Wednesday**  
University Faculty Meeting, 3:30 p.m.

**January 25, Monday**  
Classes begin, CCE

**January 28, Thursday**  
Final day to drop Kingston "early drop" courses

**February 1, Monday**  
Final day to add Kingston courses and to add  
P-F option  
*Kingston Campus fees will not be adjusted down-  
ward for courses dropped after this date*

**February 3, Wednesday**  
Final day to drop CCE "early drop" courses

**February 5, Friday**  
Final day to add CCE courses and to add  
P-F option

**February 15, Monday**  
Classes will not meet

**February 16, Tuesday**  
Monday classes meet

**February 23, Tuesday**  
Final day to drop Kingston courses and to  
change from P-F option to grade

**February 26, Friday**  
Final day to drop CCE courses and to change  
from P-F option to grade

**March 9, Tuesday**  
Midsemester, Kingston Campus

**March 12, Friday**  
Midsemester, CCE

**March 15, Monday**  
Spring recess begins, 8 a.m.

**March 22, Monday**  
Classes resume, 8 a.m.

**April 5, Monday**  
Early registration begins for fall semester,  
Kingston Campus only

**May 4, Tuesday**  
Classes end, Kingston Campus  
University Faculty Meeting, 3:30 p.m.

**May 5-6**  
Reading days, Kingston Campus

**May 7, 10-14**  
Final examinations, Kingston Campus

**May 15, Saturday**  
CCE classes, examinations end

**May 17, Monday**  
Final grades due in the Office of the  
Registrar, 4 p.m.

**May 23, Sunday**  
Undergraduate Commencement

## Summer Session 1993

**May 24-June 25**  
First five-week session

**June 28-July 30**  
Second five-week session

Changes in the academic calendar due to major storms, labor unrest, or other circumstances, may be made when it is in the best interest of the institution, and without prior notice to the students.

## THE UNIVERSITY



**T**he University of Rhode Island is a medium-sized state university in the southern part of Rhode Island in the village of Kingston. In part because of its unique location near the ocean and six miles from Narragansett Bay, the University has developed strong marine programs and has been designated one of the national Sea Grant colleges.

The University enrolls about 13,000 students on its Kingston Campus and another 2,900 in credit courses throughout the state. About half of the 13,000 undergraduates are resident students; there are about 3,500 graduate students, and a full-time teaching faculty of about 720.

**Mission Statement.** The University of Rhode Island is rooted firmly in the tradition of America's unique land-grant institutions—universities that exist to expand and transmit knowledge, and to foster its application in the daily life of the nation.

As the state's flagship institution of higher learning, the University has three major responsibilities: to provide traditional as well as innovative opportunities for education at the undergraduate and graduate levels; to pursue research and other scholarly and creative activities; and to serve the unique needs of the people of Rhode Island by making knowledge and information readily available to individual citizens, to

community groups, to school and educational agencies, and to business, industry, labor, and government.

At the heart of this University, like its counterparts across the nation, there is a strong core of traditional academic disciplines, such as history, physics, and economics. These are not only principal subjects of teaching and research, but also provide the foundation for all specialized, professional, and applied areas of study.

One component of the University's approach to higher learning is the close student-teacher relationship and the consequent concern for the individual person. A low student-to-faculty ratio enhances the success of this vital component of the University's mission.

Because of its commitment to provide access for academically qualified and motivated students of all ages, the University maintains a variety of both traditional and nontraditional learning environments. Students who are either part time, disabled, members of a minority group, working while pursuing an education, or somewhat older than traditional students, are served through a wide range of facilities in Kingston, as well as extensive academic and student services at the University's College of Continuing Education in Providence.

**Campuses.** The University has a spacious country campus 30 miles south of Providence in the northeastern metropolitan corridor between New York and Boston. The center of campus is a quadrangle of handsome, old granite buildings surrounded by other newer academic buildings, student residence halls, and fraternity and sorority houses. On the plain below Kingston Hill are gymnasiums, athletic fields, tennis courts, a freshwater pond, and agricultural fields.

In addition to the Kingston Campus, the University has three other campuses. The 165-acre Narragansett Bay Campus, six miles to the east overlooking the West Passage of Narragansett Bay, is the site of the Graduate School of Oceanography. The College of Continuing Education has a building in downtown Providence. In the western section of the state, 20 miles from Kingston, is the W. Alton Jones Campus. Its 2,300 acres of woods, fields, streams, and ponds is the site of environmental education, research, and conference facilities.

**History.** The University was chartered as the state's agricultural school in 1888. The Oliver Watson farm was purchased as a site

for the school, and the old farmhouse, now restored, still stands on the campus. The school became the Rhode Island College of Agriculture and Mechanic Arts in 1892, and the first class of 17 members was graduated two years later.

The Morrill Act of 1862 provided for the sale of public lands. Income from these sales was to be used to create at least one college in each state with the principal purpose of teaching agriculture and mechanic arts. From this grant of land comes the term land-grant, which applied to the national system of state colleges. In a later adaptation of the concept, federal funds given to colleges for marine research and extension are called sea grants.

In 1909 the name of the college was changed to Rhode Island State College, and the program of study was revised and expanded. In 1951 the college became the University of Rhode Island by an act of the General Assembly. The Board of Governors for Higher Education appointed by the governor became the governing body for the University in 1981. A historical outline may be found in the Appendix.

### Programs of Study

**Undergraduate Study.** All programs aim at a balance of studies of the natural and social sciences, the humanities, and professional subjects. The courses and programs of study have been approved by national accrediting agencies and are accepted for credit by other approved institutions of higher education (see "Programs and Requirements").

Undergraduate students may earn the following degrees:

- Bachelor of Arts
- Bachelor of Science
- Bachelor of Fine Arts
- Bachelor of Landscape Architecture
- Bachelor of Music
- Associate in Science in Dental Hygiene  
(two-year program)
- Bachelor of General Studies  
(College of Continuing Education only)

All freshmen who enter the University to earn a bachelor's degree are first enrolled in University College (see page 29). Undergraduates have a wide choice of programs from which to choose a major, and the advising program in University College provides help in making this decision and in choosing appropriate courses.

## Undergraduate Degrees

### College of Arts and Sciences

Anthropology: B.A.  
 Applied Quantitative Economics: B.S.  
 Applied Sociology: B.S.  
 Art: B.A., B.F.A.  
 Biology: B.A.  
 Botany: B.S.  
 Chemistry: B.A., B.S.  
 Chemistry and Chemical Oceanography: B.S.  
 Classical Studies: B.A.  
 Comparative Literature Studies: B.A.  
 Computer Science: B.S.  
 Economics: B.A., B.S.  
 English: B.A.  
 French: B.A.  
 Geology: B.A., B.S.  
 Geology and Geological Oceanography: B.S.  
 German: B.A.  
 History: B.A.  
 Italian: B.A.  
 Journalism: B.A.  
 Latin American Studies: B.A.  
 Linguistics: B.A.  
 Marine Affairs: B.A.  
 Mathematics: B.A., B.S.  
 Medical Technology: B.S.  
 Microbiology: B.S.  
 Music: B.A., B.Mus.  
 Philosophy: B.A.  
 Physics: B.A., B.S.  
 Physics and Physical Oceanography: B.S.  
 Political Science: B.A.  
 Psychology: B.A.  
 Russian: B.A.  
 Sociology: B.A., B.S.  
 Spanish: B.A.  
 Speech Communication: B.A.  
 Statistical Science: B.S.  
 Theatre: B.A., B.F.A.  
 Urban Affairs: B.A.  
 Women's Studies: B.A.  
 Zoology: B.S.

### College of Business Administration

Accounting: B.S.  
 Finance: B.S.  
 General Business Administration: B.S.  
 Management: B.S.  
 Management Information Systems: B.S.  
 Management Science: B.S.\*  
 Marketing: B.S.  
 Production and Operations Management: B.S.\*

### College of Engineering

Biomedical Electronics Engineering: B.S.\*  
 Chemical Engineering: B.S.  
 Chemical and Ocean Engineering: B.S.  
 Civil Engineering: B.S.  
 Computer Engineering: B.S.  
 Electrical Engineering: B.S.  
 Industrial Engineering: B.S.  
 Materials Engineering: B.S.  
 Mechanical Engineering: B.S.  
 Ocean Engineering, B.S.

### College of Continuing Education

Bachelor of General Studies: B.G.S.

### College of Human Science and Services

Communicative Disorders: B.S.  
 Consumer Affairs: B.S.  
 Dental Hygiene: (four years) B.S., (two years) A.S.  
 Education: (elementary and secondary) B.S.  
 Home Economics: B.S.  
 Human Development and Family Studies: B.S.  
 Human Science and Services: B.S.  
 Physical Education: B.S.  
 Textiles, Fashion Merchandising, and Design: B.S.  
 Textile Marketing: B.S.

### College of Nursing

Nursing: B.S.

### College of Pharmacy

Pharmacy: (five years) B.S.

### College of Resource Development

Animal Science and Technology: B.S.  
 Aquaculture and Fishery Technology: B.S.  
 Dietetics: B.S.  
 Environmental Management: B.S.  
 Food Science and Nutrition: B.S.  
 Landscape Architecture: B.L.A.  
 Plant Science: B.S.  
 Resource Economics and Commerce: B.S.  
 Soil and Water Resources: B.S.  
 Urban Affairs: B.S.  
 Urban Horticulture and Turfgrass Management: B.S.  
 Wildlife Biology and Management: B.S.

## Graduate Degrees

### Accounting: M.S.

Applied Mathematical Sciences: Ph.D.

- Applied Mathematics
- Computer Science
- Operations Research
- Statistics
- Applied Probability

Audiology: M.A., M.S.

Biochemistry and Biophysics: M.S.

Biological Sciences: Ph.D.

- Biochemistry and Biophysics
- Botany
- Fisheries, Aquaculture, and Pathology
- Food Science and Nutrition
- Microbiology
- Natural Resources
- Plant Pathology
- Plant Science
- Zoology

Botany: M.S.

Business Administration: M.B.A., Ph.D.

Chemical Engineering: M.S., Ph.D.

Chemistry: M.S., Ph.D.

Civil and Environmental Engineering: M.S., Ph.D.

Clinical Laboratory Science: M.S.

Community Planning: M.C.P.

Comparative Literature: M.A.

Computer Science: M.S.

Doctor of Pharmacy: Pharm.D.

Economics: M.A.

Economics-Marine Resources: Ph.D.

Education: M.A.

- Education Research
- Elementary Education
- Reading Education
- Science Education
- Secondary Education
- Adult Education

Electrical Engineering: M.S., Ph.D.

- Biomedical Engineering

English: M.A., Ph.D.

Fisheries, Aquaculture, and Pathology: M.S.

Food Science and Nutrition: M.S.

French: M.A.

Geology: M.S.

History: M.A.

Home Economics Education: M.S.

Human Development, Counseling, and Family Studies: M.S.

- Human Development and Family Studies
- Counseling
- Marriage and Family Therapy
- College Student Personnel

Labor and Industrial Relations: M.S.

Library and Information Studies: M.L.I.S.

Manufacturing Engineering: M.S.

Marine Affairs: M.A., M.M.A.

Mathematics: M.S., Ph.D.

Mechanical Engineering and Applied

Mechanics: M.S., Ph.D.

Medicinal Chemistry: M.S.

Microbiology: M.S.

Music: M.M.

Natural Resources: M.S.

Nursing: M.S., Ph.D.

Ocean Engineering: M.S., Ph.D.

Oceanography: M.S., Ph.D.

Pharmaceutical Sciences: Ph.D.

- Medicinal Chemistry
- Pharmaceutics
- Pharmacognosy
- Pharmacology and Toxicology

Pharmaceutics: M.S.

Pharmacognosy: M.S.

Pharmacology and Toxicology: M.S.

Pharmacy Administration: M.S.

Philosophy: M.A.

Physical Education: M.S.

Physical Therapy: M.S.

Physics: M.S., Ph.D.

Plant Pathology-Entomology: M.S.

Plant Science: M.S.

Political Science: M.A.

- International Relations

Psychology (School): M.S.

Psychology: Ph.D.

- Clinical

- General Experimental

- School

Public Administration: M.P.A.

Resource Economics: M.S.

Spanish: M.A.

Speech-Language Pathology: M.A., M.S.

Statistics: M.S.

Textiles, Clothing, and Related Art: M.S.

Zoology: M.S.

\*Admissions suspended.

**Graduate Study.** Study at the graduate level leads to the master's degree in over 60 areas of study and the degree of Doctor of Philosophy in 32. Students may earn the following degrees:

Master of Arts  
 Master of Science  
 Master of Business Administration  
 Master of Community Planning  
 Master of Library and Information Studies  
 Master of Marine Affairs  
 Master of Music  
 Master of Public Administration  
 Doctor of Pharmacy  
 Doctor of Philosophy

**Graduate School.** Students with a bachelor's degree from this University or from another with equivalent requirements may be admitted for graduate study, providing that their credentials meet the standards set by the Graduate School and by the department in which they wish to study, and that facilities for study are available in their field of interest. Among the standards required for admission are an approximate undergraduate average of B or better and, where required, satisfactory scores on a nationally administered examination.

Within each college's chapter in this bulletin, the related graduate degrees are listed. A *Graduate Bulletin*, containing complete information on graduate study and application forms, is available from the dean of the Graduate School, University of Rhode Island, Quinn Hall, Kingston, RI 02881-0809. Further information may be requested from the chairperson of the appropriate department. Applications are returned to the dean of the Graduate School.

Each applicant must submit: 1) completed application forms in duplicate with a \$30 nonrefundable application fee (check or money order payable to the University of Rhode Island); 2) three letters of recommendation from individuals familiar with the applicant's work, preferably in the field for which he or she is applying; 3) two copies of an official transcript sent directly from each college or university attended; and 4) scores from the Graduate Record Examination (GRE) aptitude tests. See the *Graduate Bulletin* for those programs which require the GRE subject tests or which require a different national test.

Applicants from foreign countries must complete the Test of English as a Foreign Language (TOEFL) with minimum scores of 500 for science students and 550 for non-

science students. All inquiries from international students concerning cost of living, housing, etc., should be directed to the Office of International Student Services.

The usual deadlines for receipt of completed applications from international students are March 1 for September and Summer Session admission, and November 1 for January admission. For U.S. applicants, the usual deadlines are April 15 and November 15. See the *Graduate Bulletin* for those programs which have earlier application deadlines.

*The Graduate School of Library and Information Studies* on the main campus offers study leading to the Master of Library and Information Studies degree. Students in undergraduate and other graduate programs may, with the approval of their advisors, enroll in library courses that relate to their studies.

*The Graduate School of Oceanography* on the Narragansett Bay Campus, six miles from Kingston, offers study leading to the Master of Science and Doctor of Philosophy degrees in the areas of biological, chemical, geological, and physical oceanography. Interested undergraduates may take a 400-level general survey course qualifying for General Education credits as well as certain 500-level courses in the oceanography core curriculum. In addition, qualified undergraduates are eligible for a 400-level, semester-long, full-time program of laboratory and field research working with faculty members of the Graduate School of Oceanography. Insofar as possible, the program is tailored to the interests of the student and can range from deep-sea geology to coastal zone planning. There are also three undergraduate programs in oceanography at the University. One leads to a bachelor's degree in physics and physical oceanography, another to a bachelor's degree in chemistry and chemical oceanography, and a third to a bachelor's degree in geology and geological oceanography.

The 165-acre Narragansett Bay Campus has about 4,000 feet of shorefront and docking facilities for its fleet of research vessels, the largest of which is a 177-foot oceanographic research ship, *Endeavor*.

More than 20 permanent buildings house offices, laboratories, and special scientific facilities on the Bay Campus. They include the Pell Marine Science Library, a 12,000-square-foot research aquarium, a towing test tank, and a unique facility which permits controlled ecosystems experiments. The two-megawatt research reactor of the

Rhode Island Nuclear Science Center is also located there.

## Academic Services

**University Libraries.** The library collection of 980,000 bound volumes and 1,250,000 microforms is housed in the University Library in Kingston, at the College of Continuing Education in Providence, and in the Claiborne Pell Marine Science Library on the Narragansett Bay Campus. The latter was designated the National Sea Grant Depository in 1971.

The University Library, which holds the bulk of the collection, has open stacks which provide direct access to books, periodicals, documents, maps, microforms, and audiovisual materials. The Special Collections Department collects and maintains rare books, manuscripts, the University archives, and a variety of special interest materials. Service hours at the other libraries vary, but the University Library provides full reference, bibliographic, and circulation services during most of the 90 hours a week it is open. Terminals linked to the Academic Computer Center are available in the library during the hours both facilities are open.

**Academic Computer Center.** The Academic Computer Center (ACC) provides computational resources needed by the University community for instruction and research. Located in Tyler Hall on the Kingston Campus, the ACC maintains central computing facilities, supports microcomputing activities, provides facilities management and data communications assistance to departmental systems, and offers a wide variety of support services in these areas. The computer network and related services have been expanding steadily since the center opened in 1959, and now a majority of the students, faculty members, and staff use the facilities.

The center has an IBM ES/9000-210VF mainframe computer running the VM/CMS operating system to provide computing support in both interactive and batch-processing modes. A full complement of programming languages and packages is available. Extensive computer graphics facilities are also offered using both video display facilities and a CalComp 58436 color electrostatic plotter for visualization. Self-service printers are available at remote locations. Several hundred personal computers, workstations, and terminals are located in public work areas and private offices. These devices are connected to a MICOM data switch or the



University Ethernet network, which provides access to the ACC systems and remote independent computers. Also available are extensive dial-up facilities as well as external network access to the National Science Foundation Network and BITNET, the international network for educational centers. URI is also a Smart Node member of the Cornell National Supercomputer Facility with both research and educational access to supercomputer facilities.

The ACC provides facilities management services for campus microcomputer laboratories featuring IBM PS/2s, Apple Macintoshes, and UNIX workstations. Numerous applications software packages are available. The microcomputer laboratories are available for faculty research, teaching, and student course work. Eight computer classrooms are available.

**Writing Center.** The Writing Center provides assistance to anyone in the University community who needs help with any phase of writing a paper. The Writing Center is staffed by the Department of English College Writing Program faculty, Department of English graduate students, and undergraduate peer tutors. Tutoring is provided by appointment on an individual basis.

The center helps students become better writers and provides an environment in which writers can write with paper and pencil, or on one of the center's Macintosh computers. Students may use an array of software, including word processing software, to produce their work with support from center staff. The computers and software in the Writing Center are compatible with those in other labs campus-wide.

The Writing Center is open approximately 40 hours per week, including daytime and evening hours. Appointments for tutoring may be made by calling 401-792-4690, or by visiting the center in Room 313, Independence Hall.

## Research and Extension

Within the state system of higher education, the University has the major responsibility for graduate education which is interdependent with a strong program of research. There are active research programs in all departments of the University. Support comes from foundations, commercial firms, federal and state governments, and the University. Applications for research grants are signed by the University's vice provost for research who is the liaison officer for the

president, the business manager, the academic deans, the Research Committee, and the faculty in matters pertaining to research.

In addition to research conducted in the various departments, the University has established a number of research and extension programs in specially defined areas; these are described in detail in the Appendix.

The University distributes the results of its research in publications available to the public. These include a series of marine bulletins, technical reports, and Cooperative Extension and Agricultural Experiment Station bulletins.

The University also publishes through the *University Press of New England*, of which it is a member. Manuscripts originating on the seven member campuses and elsewhere are published as determined by the director and the editorial board on which the University is represented.

## The University Community

In addition to the student body, the University community is made up of faculty, administration, staff, and alumni. *The Faculty Senate* represents the faculty and was authorized in 1960 by the general faculty to conduct the business assigned to the faculty by law or by the Board of Governors for Higher Education. *The Graduate Council* is the representative body for the graduate faculty and determines the academic policies for graduate study. The office of *University Ombud* investigates complaints from students, faculty members, and administrative personnel that they have been unfairly dealt with in the normal channels of the administrative process. The ombudsman is a tenured or emeritus member of the faculty appointed by the Faculty Senate and assisted by a student appointed by the president.

The *Instructional Development Program* (IDP) exists to help faculty members in their teaching responsibilities. Faculty members who want to increase their teaching effectiveness by improving their skills or developing new ones may work individually with IDP staff and participate in various workshops, colloquiums, and seminars on teaching.

The voice of the alumni is heard through the *Alumni Association* which includes all those who have attended the University for two semesters or more and whose class has graduated. The organization, with about 70,000 members, promotes the interests of the University and maintains the ties of

alumni with their alma mater through programs, services, and the publication of a magazine. An annual fund drive provides scholarship and other University aid.

The University receives less than half of its support from the state. The balance comes from student fees and tuition, federal grants, and auxiliary enterprises and other miscellaneous sources. *The University of Rhode Island Foundation* encourages and administers gifts from private sources to build a substantial endowment for continuing support of the University. It is concerned with the support of University activities for which adequate provision is not ordinarily made by appropriations from public funds.

**Affirmative Action and Nondiscrimination.** The University of Rhode Island prohibits discrimination on the basis of race, sex, religion, age, color, creed, national origin, handicap, or sexual orientation, and discrimination against disabled and Vietnam era veterans in the recruitment, admission, or treatment of students, the recruitment, hiring, or treatment of faculty and staff, and the operation of its activities and programs. This is in compliance with state and federal laws, including Titles VI and VII of the Civil Rights Act of 1964, as amended, Title IX of the 1972 Education Amendments to the Higher Education Act, Executive Order 11246, as amended, Sections 503/504 of the Rehabilitation Act of 1973, and Section 402 of the Vietnam Era Readjustment Assistance Act of 1974.

With regard to scholarships and commissioning into the armed forces, the ROTC program, in accordance with Department of Defense policy, does not comply with the University's policy on nondiscrimination based on sexual orientation.

Most buildings on campus are architecturally available to the disabled, and provision is made to ensure that no student is prevented from pursuing a course of study because of restricted access to buildings.

AIDS is one of the most tragic, life-threatening epidemics of modern times. Students, faculty, and staff at the University of Rhode Island must provide the compassion, understanding, and support necessary to help individuals with AIDS and HIV infection. As part of this responsibility, the University will vigorously enforce individual rights of confidentiality and freedom from discrimination. The rights of individuals with AIDS are covered under three University policies based on Section 504 of the Rehabilitation Act of 1973: "Reasonable Accommodation for

Handicapped Employees," "Life-threatening Illness," and Handicapped Policy." Copies of these policies are available at the Office of Human Resource Administration, the front desk at Health Services, and the Disabled Student Services Office in the Memorial Union.

Inquiries concerning compliance with antidiscrimination laws should be addressed to the affirmative action officer, 80 Lower College Road, at 401-792-2442; or to the director, Office for Civil Rights, Department of Education, Region I. Questions regarding provisions for the disabled should be directed to Disabled Student Services in the Office of Student Life, 332 Memorial Union. Phone: 401-792-2101.

## PROGRAMS AND REQUIREMENTS



**C**onsistent with its policy of allowing the greatest latitude possible in course selection, the University offers a wide choice to fill its General Education requirements and encourages students to select free electives that cross departmental and college lines. This section deals with academic requirements, regulations, and opportunities that are University-wide rather than college-related.

The University attempts to provide the successful student with a range of knowledge and skills which can, with appropriate motivation and initiative, be used in a variety of ways after graduation. Study options vary from the traditional liberal education to programs which are heavily vocationally oriented. Successful completion of any course of study at the University, however, does not guarantee that the student will find either a specific kind or level of employment.

Students interested in the career opportunities related to particular programs of study are encouraged to consult University College advisors, the appropriate department chairperson, or the Office of Career Services. For students who are uncertain about their career choices, the Counseling Center also offers help.

The University administration may alter, abridge, or eliminate courses and programs of study. While every effort is made to keep this bulletin current, not all courses and pro-

grams of study listed may be available at the time of the student's matriculation. Similarly, course and program requirements may be changed from time to time. In all cases every effort will be made to accommodate individual students whose exceptional circumstances may make it difficult or impossible to meet the changed requirements. Changes in the academic calendar may also be made when deemed to be in the best interest of the institution.

**Accreditation.** The University of Rhode Island is accredited by the New England Association of Schools and Colleges, Inc. In addition, certain courses and programs of study have been approved by national accrediting agencies.

The New England Association of Schools and Colleges, Inc., is a nongovernmental, nationally recognized organization whose affiliated institutions include elementary schools through collegiate institutions offering postgraduate instruction.

Accreditation of an institution by the New England Association indicates that it meets or exceeds criteria for the assessment of institutional quality periodically applied through a peer group review process. An accredited school or college is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the New England Association is not partial, but applies to the University as a whole. As such, it is not a guarantee of the quality of every course or program offered, or of the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the University.

Inquiries regarding the status of an institution's accreditation by the New England Association should be directed to the administrative staff of the school or college. Individuals may also contact the Association of the Sanborn House, 15 High Street, Winchester, MA 01890. Phone: 617-729-6762.

The national accrediting agencies which have approved the quality of certain course offerings and programs of study include the Accreditation Board for Engineering and Technology, the American Assembly of Collegiate Schools of Business, the American

Chemical Society, the American Council on Pharmaceutical Education, the American Dental Association (Council on Dental Education), the American Dietetic Association, the American Psychological Association, the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, the National Association of Schools of Music, the National Association of State Directors of Teacher Education and Certification, the National Council for Accreditation for Teacher Education (School Psychology Program), and the National League for Nursing.

The University is also an approved member institution of the American Association of University Women, the Association for Continuing Higher Education, the Council of Graduate Schools in the United States, the North American Association of Summer Sessions, and the National University Continuing Education Association.

## General Education Requirements

These requirements apply to entering freshmen beginning in the fall of 1981, and transfer students who entered in the fall of 1981 with fewer than 16 transferable credits. Students who entered prior to fall 1981 must follow the General Education requirements outlined in the *Undergraduate Bulletin* for 1980-81 or the year in which they matriculated at the University. Students returning after an absence of more than eight years must follow the current General Education requirements.

The University of Rhode Island believes that all undergraduate students, regardless of their degree program, need experience in the study of fundamentals which builds on the student's previous education and continues through the undergraduate years and beyond. Thus, all bachelor's degree students follow the same University-wide General Education requirements.

General Education is that part of the undergraduate curriculum in which students explore a broad spectrum of intellectual subjects, approaches, and perspectives. The General Education component of the curriculum aims to help accomplish these three goals: 1) to develop further the essential English communication abilities on which advanced studies depend; 2) to offer experience in five broad subject areas: fine arts and literature, letters, mathematics, natural sciences, and social sciences; and 3) to expose the student to a foreign language or culture.

Corresponding with these goals, the General Education program is divided into the following components:

**English Communication.** *Six credits* in English communication, at least three of which must be in a course designed specifically to improve written communication skills;

**Fine Arts and Literature.** *Six credits* in courses related to historical and critical study of the arts and literature as well as creative activity;

**Foreign Language or Culture.** *Six credits* or the equivalent in a foreign language or foreign culture;

**Letters.** *Six credits* in courses which address fundamental questions about the human condition, human values, and ways of communicating these values;

**Mathematics.** *Three credits* in a course specifically designed to provide training in college-level quantitative skills and their application;

**Natural Sciences.** *Six credits* in courses in physical, chemical, or biological sciences;

**Social Sciences.** *Six credits* in courses related to the study of the individual (development and behavior) and society.

*Specific courses which may be used to meet these requirements are listed in the following groups:*

**English Communication: Writing (Cw)**—BGS 100; CMS 101; ENG 103; WRT 101, 103, 112, 122, 123, 201, 227, 301, and 333.  
**General (C)**—CMS 101; PHL 101; SPE 101 and 103.

**Fine Arts and Literature (A):** ARH 120, 251, 252, 265, 284, 285, 359, 364, 374; ART 101, 103, 203, 207, 215, 231, 233; CLA 391, 395, 396, 397; CLS 160, 250, 335; ENG 160, 241, 242, 243, 247, 248, 251, 252, 260, 263, 264, 265, 280; FRN 327, 328, 391, 392, 393; GER 325, 326, 392; HPR 101; ITL 325, 326, 391, 392, 395; LAR 201; MUS 101, 106, 111; PLS 233; RUS 325, 326, 391, 392; SPA 305, 306, 307, 308, 325, 391, 392, 393; SPE 231; THE 100, 181, 351, 352, 381, 382, 383.

**Foreign Language or Culture (F):** This requirement shall be fulfilled in one of the following ways: 1) a two-course sequence in a language previously studied for two or more years in high school through at least the 103 level in a living language or 301 in a classical language appropriate to a student's level of competence (e.g., 102 and 103, 102 and 301;

131 and 103; 103 and 104; 301 and 302); 2) demonstration of competence through the intermediate level by a proficiency examination<sup>1</sup> or by successfully completing the 104 level in a living language or the 302 level in a classical language; 3) course work in a language not previously studied (or studied for less than two years in high school) through the beginning level; 4) study abroad in an approved academic program for one semester; 5) majoring in a foreign language; 6) course work selected from one foreign culture cluster taken, if possible, in the same or successive semesters from the following list: *Africa*, AAF 250, APG 250, 313, HIS 388, PSC 408; *American Indian*, APG 303, 311, HIS 344; *Ancient Greece and Rome*, ARH 354, CLA 391, 395, 396, 397, ENG 366, GRK 109, 110, HIS 111, PHL 321; *East Asia*, HIS 171, 374, 375, PHL 331, RLS 131; *France*, ARH 265, FRN 392, 393, HIS 330; *Germany*, GER 392, HIS 125, 326, 327; *Ireland*, APG 325, IRE 391, 392, WMS 333; *Israel*, HIS 378, PSC 321; *Latin America*, APG 315, HIS 180, 381, 382, 383, 384, SPA 393; *Medieval Europe*, ARH 356, HIS 112, 304, ITL 395, PHL 322; *Middle East*, HIS 176, 177, 376, 377, PSC 321; *Modern Civilization*, ENG 252, HIS 123; *Modern Europe (Early)*, ARH 359, HIS 113, 306, 307, 314, PHL 323; *Modern Europe*, ARH 363, HIS 114, 310, 311, 315, PSC 401; *Renaissance in Europe*, ARH 365, HIS 305, ITL 391, SPA 391; *Russia and the Soviet Union*, HIS 132, 332, 333, RUS 391, 392, PSC 407; *URI in England*, ENG 397, HIS 397. *Formally registered international students and students with a recognized immigrant status shall be exempt from the foreign language or foreign culture requirement.*

**Letters (L):** APG 327; BGS 392; CLS 235; HIS 105, 111, 112, 113, 114, 115, 116, 118, 123, 125, 132, 141, 142, 143, 145, 150, 171, 176, 177, 180, 304, 305, 306, 307, 309, 310, 311, 315, 321, 323, 324, 327, 332, 333, 340, 341, 342, 346, 353, 354, 372, 376, 377, 381, 382, 384, 398; HPR 104, 203; JOR 110; LAR 202; LET 151, 351; NES 200; NUR 360; PHL 103, 235, 204, 210, 212, 217, 314, 318, 319, 321, 322, 323, 324, 325, 328, 331, 346, 355; PSC 240, 341, 342; PSY 310; RLS 111, 125, 126, 131; SPE 200, 205, 210; WMS 333.

**Mathematics (M):** CSC 201; EST 220; MTH 107, 108, 111, 131, 132, 141, 142; QBA 101, 102.

<sup>1</sup> Students who fulfill this requirement through an examination cannot earn course credit for graduation. Students who earn less than six credits in fulfilling the requirement should apply credits to the elective or major areas.

**Natural Sciences (N):** APG 201; AST 108; AVS 101; BGS 391; BIO 101, 102; BOT 111; CHM 100, 101, 102, 103, 105, 112, 114, 124, 191, 192; FSN 207; GEL 100, 102, 103; HPR 103; NRS 212; OCG 123, 401; PHY 109, 110, 111, 112, 130, 140, 185, 186, 213, 214, 285, 286; ZOO 111, 286.

**Social Sciences (S):** APG 200, 202, 203, 220, 319; BGS 390; CNS 220; ECN 125, 126, 300, 361; EDC 102, 312; ENG 232, 330; FSN 150; GEG 100, 102, 104; HCF 220; HLT 123; HPR 102; HSS 350; LIN 200, 202, 220; MGT 110; NRS 100; NUR 150; PSC 113, 116, 201, 221, 288; PSY 103, 113, 232, 235, 254; REN 105; SOC 100, 102, 204, 206, 212, 214, 216, 224, 238, 240, 241, 242, 316, 330, 336; SPE 220; TMD 224; WMS 200.

Honors students may receive General Education credit for honors sections of courses which have been approved for General Education credit.

Transfer students may receive General Education credit for courses taken at other institutions as long as such credits are in courses equivalent to courses given General Education credit at the University of Rhode Island.

**Students must meet the curricular requirements of the colleges in which they plan to earn their degrees. Some colleges require that students select specific courses from the above lists. Therefore, students must refer to the requirements specified for their programs (pages 31–83).**

In the Colleges of Arts and Sciences and Human Science and Services and for the Bachelor of General Studies, credits within a student's own major may not be counted toward General Education requirements in Fine Arts and Literature, Letters, Natural Sciences, or Social Sciences. In other colleges, credits within a student's professional college may not be counted toward any General Education requirements. However, courses which serve as prerequisites for a major may be used to fulfill the General Education requirement.

### Minor Fields of Study

Undergraduate students may declare a "minor" field of study. Requirements for a minor may be satisfied by completing 18 or more credits in: 1) any one of the University-approved minors; 2) a curriculum other than the student's major; or 3) related studies from more than one department under the sponsorship of a qualified faculty member. Descriptions of approved interdepart-

mental minors may be found in the section on Interdepartmental Study. Descriptions of requirements for approved departmental minors may be found in the departmental sections.

To declare a minor, a student must have the approval of the department chairperson of the minor field of study and of the dean. Faculty sponsorship is required for the third option listed above. Students in the College of Business Administration need the approval of the Scholastic Standing Committee for the third option.

A minimum quality point average of 2.00 must be earned in the minor courses, and at least 12 of the 18 credits must be at the 200 level or above. At least half of the credits required for the minor must be earned at the University of Rhode Island. General Education requirements may be used for the minor, but no course may be used for both the major and minor field of study. Minor courses may not be taken on a pass-fail basis.

Application for the minor must be filed in the academic dean's office no later than the beginning of the student's final semester or term.

### Other Academic Requirements

Certain basic courses are required in many curriculums for transfer from University College into the degree-granting colleges at the junior-year level. These are listed in the individual colleges' curriculums.

The responsibility for meeting all course and credit requirements for the degree must rest with each individual student.

Students who desire to accelerate their programs and receive credit for courses taken at other institutions or during Summer Session or in the College of Continuing Education must have prior approval from their academic deans.

### Interdepartmental Study

Students are encouraged to develop interests across departmental lines. A number of such programs are available both as areas of interest or minors, and as degree programs. The interdepartmental minors are listed below; for interdepartmental majors in comparative literature studies, consumer affairs, human science and services, and women's studies, refer to the Index at the back of this bulletin.

**African and Afro-American Studies.** Students who declare African and Afro-American studies as a minor are required to take

two core courses: AAF 201 and 202 (six credits). In addition, students select four electives (12 credits) from the following: AAF 250, 360, 390, 410, 474; APG 250, 313; ECN 404; ENG 247, 248, 360, 362, 363, 364, 474; HIS 150, 384, 388; PSC 408, 410; and SPE 333. Students who want to use other courses that have as their central focus some aspect of the black experience may do so with permission from the program director.

**Biology.** Students who declare biology as a minor must take BIO 101 or BOT 111; BIO 102 or ZOO 111; and MIC 211 or MIC 201. The remaining courses may be selected from BCP 311 and any BOT, MIC, or ZOO course. At least 18 credits are required; at least 12 of the 18 credits must be taken at the 200 level or above.

**Comparative Literature Studies.** Students who declare comparative literature studies as a minor must earn 18 credits distributed as follows: six credits in comparative literature studies at the 200 level or above; 12 credits from literature courses in comparative literature studies, English, or languages, of which six credits must be in one national literature either in the original language or in translation. Students majoring in English or languages may not count courses in their major toward this minor. For a description of the degree program in comparative literature studies, see page 36.

**Consumer Affairs.** Students who declare a minor in consumer affairs are required to complete 18 credits in selected course work to include CNS 220, 320, and 420. Other suggested courses include: CNS 210, 340, 342, 350, 401, 422, and 457, as well as courses in political science, economics, marketing, and business law. For a major in consumer affairs, see page 67.

**Gerontology (The Study of Human Aging).** The program in gerontology is a University-wide program which promotes study, teaching, and research in aging. It also maintains relationships with state and local agencies which serve the older population of Rhode Island. This affords opportunities for research, internships, and field experiences to students interested in the problems of aging.

The adulthood and aging option within the Bachelor of Science degree in human science and services is limited to 15 students a year. There is also the opportunity for students taking their major studies in a number of areas to do a less specialized study in aging by declaring a minor in gerontology. This must be done not later than the first

semester of the senior year. It requires 18 or more credits in aging-related studies approved by the program in gerontology and the college in which the student is registered.

HCF 220 (Gerontology: Theory and Application) is required for either specialization. It also meets a social science requirement in General Education. Undergraduate gerontology courses include: HCF 221, 420, 422, 431; CNS 342; DHY 462; FSN 307; RCR 416; and SOC 438. Also relevant are ZOO 242; HCF 380, 421, 450; NUR 346; and the University Year for Action.

It is important to take courses which fulfill degree requirements from the beginning. Students who wish to specialize in aging are advised to contact the program in gerontology early in their university studies.

**International Development.** The international development minor is available to undergraduates interested in employment overseas, or in domestic enterprises with international operations.

Students choosing the international development minor must complete 18 credits, with a maximum of six credits at the 100 or 200 level. Students must complete the following: 1) RDV 300 (three credits); 2) language or culture (six to nine credits): to be met by the completion of at least six language credits through the intermediate level (103 or 104) or placement in the conversation and composition level (205 or 206) and completion of at least six credits in the same language or culture cluster. Placement for course work is determined by the Educational Testing Service exam as administered by URI's Department of Modern and Classical Languages and Literatures in the following languages: French, Spanish, German, and Russian. URI also offers Portuguese and selected other languages that, with permission, could satisfy the requirement. Six credits are allowed in the General Education requirements for language and culture; 3) an approved internship (three to six credits) providing international development experience during the junior or senior year (RDV 487); and RDV 495 (three credits) of an advanced-level seminar.

**New England Studies.** Students who declare New England studies as a minor must take either NES 200 or 300 and elect at least one course from each of the following four categories: 1) Cultural Patterns—PSC 221; APG 317; ENG 337; 2) Aesthetic Dimensions—ART 263; ENG 340, 347; 3) Historical Dimensions—HIS 335, 346, 362; 4) Physical

Dimensions—BOT 323, 418; NRS 301, 302; GEL 101. Permission may be obtained from the Committee for New England studies to use any rotating topics course, seminar, etc., whose focus is on some aspect of New England as a substitute for any of the above courses.

**Special Populations.** This interdepartmental minor provides students the opportunity to explore the theory and gain practical experience through working with people who have special needs. This includes people who are handicapped (physically, emotionally, mentally, or educationally) or are different (socioeconomically, behaviorally, culturally) and as a result have special needs.

A minimum of 18 credits may be earned by taking the required courses (HCF 200 or PSY 232; PSY 442), a minimum of three credits in supervised field experience, and a minimum of nine credits of selected electives.

Courses are chosen in consultation with an advisor from one of the participating departments: Education; Food Science and Technology; Human Development, Counseling, and Family Studies; Nursing; Physical Education, Health, and Recreation; Psychology; Sociology; Speech Communication; Textiles, Fashion Merchandising, and Design; Theatre. The College of Human Science and Services administers the program, and interested students should contact the program head, Jeannette E. Crooker, 132 Tootell Center.

**Textile Marketing.** This undergraduate interdepartmental curriculum may be pursued through the College of Human Science and Services.

Textile marketing managers are responsible for planning and directing the flow of textile products from the manufacturer to the consumer. The major, which provides a strong background in both textiles and marketing, is designed to give students the opportunity to explore the areas of styling and design, manufacturing, market research, consumer behavior, advertising, promotion, fashion, and sales. The specific requirements of the curriculum may be found on page 72.

**Urban Affairs.** The undergraduate program in urban affairs consists of five different interdepartmental degree curriculums: three in the College of Arts and Sciences and two in professional colleges. They aim to provide students with a general understanding of contemporary urban society and the opportunity to pursue specialized study of urban problems and prospects from the perspective

of varied disciplines, whatever the students' interests and career objectives.

The five majors are: 1) urban social processes, 2) policy formation, and 3) spatial development, in the College of Arts and Sciences; 4) home economics in the urban environment, in the College of Human Science and Services; and 5) resource development in the urban environment, in the College of Resource Development.

The curriculum in each major consists of common core courses and specialization courses. The common core (18 credits) is made up of the following requirements: URB 210 and URB 498 or 499 (six credits); three credits selected from CSC 201; EST 220, 408, or 409; MGS 201; PSY 300; SOC 301; and nine credits selected from CNS 340; CPL 410; ECN 401, 402; HIS 339, 363; PSC 460, 495; SOC 214, 240. The specialization courses are detailed in the appropriate college section in this bulletin.

The Urban Affairs Program is coordinating its offerings with the Department of Social Sciences at the Community College of Rhode Island. Students at the junior college are encouraged to consult with their advisors if they wish to transfer to any one of the majors in the College of Arts and Sciences.

The Urban Affairs Program Coordinating Committee includes faculty members from departments throughout the University and supervises the operation of the program. With the endorsement of the faculty of the college concerned, the committee certifies completion of the major requirements for the appropriate undergraduate degree. A member of the committee serves as advisor for each of the five majors and provides interested students with information.

## Preprofessional Preparation

Competition for places in graduate professional schools is keen, and a superior academic record throughout college is necessary for admission to these schools. Since requirements for the professional schools vary in their "essential" and "recommended" subjects, the student should consult the catalog of the professional school and then plan his or her undergraduate program accordingly.

Those seeking careers as social workers may enroll as majors in sociology, including in their curriculum the social welfare courses. A basic foundation for graduate study, whether directed toward college teaching or research careers, can be provided through any of the liberal arts or science

majors. The Bachelor of Arts curriculum provides specific majors for those planning to become journalists or public school teachers.

**Prelaw Studies.** For students who plan professional study of law, guidance and program advice are provided by departmental advisors assigned in University College and by major advisors within various departments and colleges.

Students interested in law school should consult the *Prelaw Handbook*, prepared by the Association of American Law Schools and the Law School Admissions Council. The association finds it inappropriate, given the wide range of a lawyer's tasks, to prescribe either a set of prerequisite courses for prelaw students or preferred major departments. Rather, it recommends that students choose their majors according to their own individual intellectual interests and "the quality of undergraduate education" provided by various departments and colleges. "Shortly stated, what the law schools seek in their entering students is ... accomplishment in understanding, the capacity to think for themselves, and the ability to express their thoughts with clarity and force." The association emphasizes that "the development of these fundamental capacities is not the monopoly of any one subject-matter area, department, or division."

**Plan for Early Contingent Admission to the Master of Science (M.S.) Degree Program in Physical Therapy.** This plan incorporates physical therapy master's degree prerequisites in anatomy, chemistry, mathematics, physics, physiology, and psychology with bachelor's degree requirements in a related discipline during the first three years of study. By properly utilizing electives, students may complete all physical therapy prerequisites and first-year physical therapy courses as part of a participating B.A. or B.S. degree program. This plan is currently available for the B.S. degree programs in human science and services and physical education.

According to this plan, application to the master's program in physical therapy may occur in the third undergraduate year. Successful applicants are selected for contingent admission to the physical therapy program at the beginning of the fourth undergraduate year, with course work taken in the fourth year applied to the B.A. or B.S. degree. A bachelor's degree and a 3.00 average in physical therapy courses are required to attain full graduate status and continue in the physical therapy program. Admission to the

physical therapy program is highly competitive, and students are advised to maintain close contact with a pre-physical therapy advisor. Additional information concerning all admissions requirements for the program in physical therapy is available in the *Graduate School Bulletin*.

## Teacher Education Programs

**Administration.** The University of Rhode Island offers a variety of academic programs leading to teacher certification at both the undergraduate and graduate level. Undergraduate teacher education programs are offered by departments in the College of Human Science and Services, the College of Arts and Sciences, and the College of Resource Development. The Council for Teacher Education, through the Office of Teacher Education, provides for the coordination, planning, evaluation, and promotion of all teacher education programs at the University. The following programs are offered at the undergraduate level: early childhood education, elementary education, health and physical education, music education, resource development education, and secondary education. To find specific program descriptions and information, refer to the Index at the back of this bulletin.

**Admission to the Teacher Education Programs.** Students interested in undergraduate teacher education programs are required to apply for admission to the Office of Teacher Education. Application for admission to teacher education programs normally occurs during the sophomore year. Applications will be reviewed by departmental screening committees based on the following criteria: 1) recommendations from faculty and others who have knowledge of the candidate's experience or interest in working in education; 2) a writing sample expressing career goals, experience in working with children, and expectations as a teacher; 3) scores on a standardized test(s) of basic skills; 4) the student's academic record including a cumulative quality point average of 2.50 or better and grades in the academic major or specialization averaging 2.50 or better. Individual departments or programs may also require an interview.

Transfer students should be advised that academic work taken at the University of Rhode Island is a primary factor in the admission decision. Therefore, students must have completed one year of work at the University before being considered for admis-

sion to the teacher education programs. This may extend the time required for degree completion.

Admission to some programs is competitive, and some applicants meeting the minimum criteria described above may not be admitted due to limited space. For additional information, students should consult as early as possible with the specific department in which they wish to enroll or with their University College advisor.

Students denied admission may petition the department for a review of the decision. In such cases the departmental screening committee shall meet to consider the appeal. Exceptional circumstances will be required for the appeal committee to override the academic record criteria (2.50 cumulative quality point average and 2.50 in academic major or specialization).

Applicants who fail to gain admission should seek counsel from an appropriate advisor. Students may reapply for admission to a teacher education program but should understand that this may delay their anticipated graduation date.

Admissions to teacher education programs at the graduate level are governed by the Graduate School in consultation with academic departments. Students with a bachelor's degree should consult the *Graduate Bulletin* and departments regarding individual program requirements.

**Teacher Certification.** A teaching certificate is, for all practical purposes, a license to teach in a given state, at a specific level, and in a certain type of job. Rhode Island, like other states, requires its public elementary and secondary teachers to hold certificates to ensure that students are taught only by persons who meet specified standards of preparation, health, citizenship, and moral character.

As a graduate of a state-approved teacher education program at the University of Rhode Island, you are eligible to receive an initial teaching certificate in Rhode Island and in over 25 other states through the Interstate Certification Compact (ICC). However, states will only grant certification through the ICC for certifications that are offered by the state. For example, a state that does not have a certification program in early childhood education (nursery school through Grade 2) will not grant a certificate in that area to a graduate of our early childhood program without reviewing the student's transcript to see if they meet that state's guidelines for elementary education.

Therefore, students interested in applying for certification in states other than Rhode Island should always contact the State Department of Education in that state and ask: 1) if the state has the area of certification you are interested in pursuing at URI; 2) if the state grants initial teacher certification under the Interstate Certification Compact (ICC) to students who have graduated from a Rhode Island state-approved teacher education program; 3) to be sent state application materials for certification. If the state is a member of the ICC, graduates of URI are generally entitled to initial certification for a period of five years following their date of graduation. After receiving another state's certification application, you should read the directions for certification carefully and submit all required documentation.

If the state in which you are requesting certification is not a member of the ICC or does not have certification for your area of study, you should ask that state's Office of Teacher Certification to evaluate your transcript and indicate any courses or experiences you would need for certification in that state.

### Premedical, Predental, and Preveterinary Programs

**URI Premedical Committee.** The URI Premedical Advisory Committee (PMAC), also known as the Premedical, Predental, and Preveterinary Advisory Committee, oversees these programs. The URI Premedical Advisor (PMA) acts as the committee chairperson. Committee members offer students academic counseling and information on the admissions process. In addition, the PMAC and the PMA periodically review student's progress, assessing their prospects for admission.

It is advisable for students to select their undergraduate majors based on their own interests and abilities. Students should select their undergraduate majors carefully with appropriate advice from the PMAC. Students should also make sure that their undergraduate majors provide a foundation of knowledge necessary for the pursuit of several career alternatives. It is not advisable for students to select their undergraduate majors solely or primarily to enhance their chances of being accepted by a professional school.

Students interested in studying in any of the following programs must register with the PMAC secretary, Biological Sciences Building, Room B106.

**General Requirements.** For students preparing to apply to postgraduate colleges of medicine, dentistry, or veterinary medicine, the program of study includes courses in the humanities, English and literature, the basic sciences, mathematics, the social sciences, and communication. These courses will fulfill the basic admissions requirements.

It is strongly recommended that students complete the required course work at the same time they meet undergraduate degree requirements. Any major or concentration is acceptable, providing that the minimum requirements for admission into a professional school are fulfilled. Ideally, these requirements should be substantially completed before a student takes the national admission test (either the MCAT, DAT, VAT, or GRE) in the spring semester of the junior year.

Most students in these programs major in animal biology (zoology), or in a related field, such as microbiology, chemistry, pharmacy, or another health-related science. Students chose these majors primarily because these are the subjects which interest them most, but also because, nationally, students with these majors represent the largest number of accepted applicants. However, other majors are acceptable.

Many of the course requirements can be met by fulfilling the General Education or Bachelor of Liberal Studies requirements, but professional schools are usually rather specific concerning minimum requirements in the basic sciences and mathematics.

Recommended courses for fulfilling the basic admissions requirements follow. Only the minimum required number of credits is shown.

**English and Literature:** 12 credits, including one writing course, e.g., WRT 101, and one year of literature.

**Animal Biology:** 8–10 credits chosen from among the following courses (or their equivalents): chordate anatomy (ZOO 102), general zoology (ZOO 111), general animal physiology (ZOO 201), animal development (ZOO 202), basic genetics (ZOO 104 or BOT 352 or ASP 352), and vertebrate histology (ZOO 327 and 329).

**Chemistry:** 16 credits, including general inorganic (CHM 101, 102, and lab, CHM 112, 114) and organic (CHM 227, 228, and lab, CHM 226, or their equivalents).

**Physics:** eight credits, including PHY 111, 185, 112, 186, or PHY 213, 285, 214, 286, or their equivalents.

**Mathematics:** six credits through calculus, MTH 131 and 132, or MTH 141.

**Social and Behavioral Studies:** six credits in sociology (SOC 100, 300, or 424) and psychology (PSY 113, 232, or 300).

**Modern Foreign Languages:** completed through the intermediate level.

**Electives:** eight credits. These optional courses may be selected from upper-level science courses that might have relevance to a professional school's curriculum, or from humanities courses. Because of the structured and particularized nature of the professional curriculum, upper-level courses in the humanities will help to balance the scientific portion of the undergraduate program. Courses in philosophy, history, fine arts, theater, economics, mathematics, and foreign language and culture are helpful in developing problem-solving and communications skills. They are all educationally fulfilling and crucial to the success of an educated person pursuing a professional career.

**Applying to Professional Schools.** Prior to submitting an application to a professional school, each candidate's credentials are evaluated by the Premedical Advisory Committee (PMAC). By the first semester of the junior year, each applicant must provide the PMAC with the following items in writing:

1. A request from the applicant to the PMAC for a letter of evaluation in support of his/her application to a medical, dental, or veterinary school.

2. An official report of the applicant's SAT scores from the testing agency or from his/her high school or other secondary school.

3. Official, recent academic transcripts of all college courses taken at URI and elsewhere.

4. Official reports of scores on the appropriate admission test (MCAT, DAT, VAT, or GRE) sent directly to the PMAC from the testing agency.

5. An autobiography that includes a commentary on the way the applicant's career goals have developed.

6. A description of all extracurricular activities.

7. A description of all honors bestowed on the student.

8. A description of volunteer hospital, dental, veterinary, or other health-related work.

9. A minimum of three letters of evaluation written by persons who can evaluate candidly the applicant's experience and ability to engage in professional and scientific study.

In addition, a series of personal interviews with members of the PMAC in the spring semester of the junior year must be included in the final evaluation of the applicant's candidacy. As a result of this evaluation, which takes place in the spring semester of the junior year, the PMAC decides either to write a letter of evaluation in support of a candidate's application or to advise the candidate on an alternative plan.

**Premedical Studies.** Approximately 85 percent of URI applicants recommended by the PMAC are admitted into medical schools of their choice.

The average admission rate to medical schools in the United States is only about 40 percent. Competition is very strong, and it is wise to plan for an alternate career. Candidates should become familiar with the requirements for admission to the medical schools to which they expect to apply. These are listed in *Medical School Admission Requirements*, published annually by the Association of American Medical Colleges. Copies of this reference and the requirements of certain medical schools are available from the PMAC secretary, Room B106, Biological Sciences Building.

Medical schools generally require at least a 3.00 quality point average and high scores on the required Medical College Admission Test (MCAT), taken preferably in the spring semester of the third undergraduate year.

All candidates must have personal interviews with the PMAC. Normally these interviews will take place during the spring semester of the third undergraduate year.

**The University of Rhode Island-Brown University Early Identification Program for Sophomores.** This is a plan for the early identification and acceptance of URI students into the School of Medicine at Brown University. These students must be Rhode Island residents who are highly motivated, exceptionally qualified, and interested in studying medicine at Brown. An eligible sophomore must have a cumulative quality point average of at least 3.30 after having completed not more than three semesters of academic work at URI.

In December of each year, all eligible students must apply in writing to the URI Premedical Advisory Committee (PMAC) for nomination to this program. In early Febru-

ary, the PMAC conducts a careful evaluation of each applicant's academic and personal qualifications. The committee may then nominate as many as three individuals from this group of applicants on the basis of an excellent record, exceptional promise as a URI premedical student, Rhode Island residency, and a desire to study medicine at Brown.

For each nominated student, a completed application and the committee's letter of evaluation are forwarded to the dean of medicine at Brown University. Final decisions to accept applications are made by the admissions committee at the Brown School of Medicine.

When they are accepted into the program, URI candidates assume the same status as their Brown counterparts, and they continue their studies at URI. They are free to major in any field of study, so long as they continue to show academic excellence while they complete the required premedical courses. As URI undergraduates, they are invited to take one or two of their premedical courses on the Brown campus with their future classmates, and are included in colloquiums and various social events sponsored by the Brown Medical Student Society.

In the spring of their senior year, before students in the program graduate from URI, they are considered for promotion into the first year of medical studies at Brown. This is the same promotion process that is required of all Brown medical students. Academic performance, interviews with members of the admissions committee, and recommendations from faculty and others are reviewed at this time. When they receive their promotion, students in the program become first-year medical students at Brown University.

In order to obtain a letter of evaluation in support of an application, each candidate must have personal interviews with the PMAC. Normally these interviews will take place during the spring semester of the third undergraduate year. Competition for admission into schools of veterinary medicine is exceptionally strong. Therefore, evidence of high motivation and an outstanding academic record are absolutely essential.

**URI Postbaccalaureate Preprofessional Programs.** There are two nondegree programs at URI for potential premedical, predoctoral, or preveterinary candidates who have already earned degrees, either from URI or from other colleges or universities.

Candidates must first consult with the URI Premedical Advisor (PMA), who is the chairperson of the Premedical Advisory

Committee (PMAC). The PMAC secretary will arrange for an appointment (Biological Sciences Building, Room B106, 401-792-2670). Candidates must register in writing at the secretary's office.

Program A (one to three years) is designed for students who made a late decision to enter professional school and wish to complete the basic admission requirements prior to submitting an application.

Program B (two to four semesters) is designed for the applicant who has completed the basic admissions requirements and has not yet earned grades that are competitive with other applicants. The individual's specific needs will be met by courses selected in consultation with the PMA.

In order to complete the course work in either of these programs, a candidate should register with the URI Office of the Registrar as a nondegree postbaccalaureate student.

## Special Academic Opportunities

**Honors Program.** The University Honors Program offers motivated students opportunities to broaden their intellectual development and to strengthen their preparation in major fields of study. The program consists of courses in analytical thinking skills which prepare academically talented students to get the most from classes throughout their undergraduate years, a colloquium which brings distinguished authorities to campus from across the nation, special tutorials in major concentrations of study, and independent research projects under the guidance of a faculty sponsor. Honors courses on the 100 and 200 level treat general topics and usually count for General Education credit in particular divisions. Those on the 300 and 400 level are more specialized and often are used to fulfill the requirements of a major.

Eligibility standards are established by the Honors Program and Visiting Scholars Committee. Students may take honors work if they meet the following standards: freshmen must have graduated in the upper 10 percent of their high school class or must submit a letter of recommendation from their high school principal or guidance counselor; sophomores, juniors, and seniors must have earned at least a 3.20 cumulative quality point average. (Under special circumstances, these eligibility requirements may be modified with the permission of the Honors Program director.)

Eligible students may participate in the Honors Program in one of two ways: they may take honors courses on an occasional



basis, registering for any number or pattern of courses which interest them; or they may do honors work on a regular basis, meeting the specific requirements to receive the transcript notation, "Completed the University Honors Program." In the latter case, a student must begin honors work no later than the beginning of the sophomore year and must complete a minimum of 15 honors course credits which meet the following requirements: 1) three credits at the 100 level; 2) three Honors Colloquium credits (HPR 201 or 202); 3) three credits at the 300 level (tutorial); 4) six credits at the 400 level, which may be either six credits of the Senior Honors Project (HPR 401, 402) or three credits of the Senior Honors Project (HPR 401) and three credits of the Senior Honors Seminar (HPR 411); and 5) a 3.20 quality point average for honors courses and a 3.20 cumulative quality point average.

See page 113 for a list of honors courses.

**National Student Exchange Program.** The National Student Exchange Program (NSE) offers URI students the opportunity to study at more than 100 participating state colleges and universities in 46 states paying in-state rates or URI tuition while maintaining their status as URI students. NSE offers the opportunity to explore new geographical areas, experience academic diversity, and study under different educational and social circumstances in various parts of the United States. Financial aid is available to participants in this program. For further information, contact the National Student Exchange, Study Abroad Office, Taft Hall.

**New England Land-Grant Student Exchange Program.** Students with special academic interests may now take advantage of the talent and resources available at the region's state universities without having to become a degree candidate at another institution. Under a cooperative agreement, URI students can study for one or two semesters at the other New England land-grant institutions if they wish to take a course, a sequence of courses, or part of a program not available at URI. Students participating in this program pay their normal URI tuition and fees and maintain their status as URI students. Advisors or members of the University College staff have more information about this program and its requirements.

**Rhode Island Interinstitutional Exchange.** Full-time students matriculated at one of the public institutions of higher education in Rhode Island may enroll for a maximum of

seven credits of their full-time schedule per semester for study at one of the other public institutions at no additional expense. Each institution will determine and maintain the integrity of the degree to be awarded. Students will be subject to the course selection process applicable at the receiving institution. Summer session and continuing education registrants are not covered under this program. Students interested in this arrangement should contact the Office of the Registrar.

**Ocean Studies.** Undergraduates are encouraged to explore opportunities at the Narragansett Bay Campus for active participation in the oceanographic sciences. Juniors and seniors may spend an entire semester at the Bay Campus pursuing their individual marine interests, for which they receive full academic credit. They work as part of a research team in the laboratory and in the field under the direct guidance of the Graduate School of Oceanography faculty.

**Study Abroad.** The Study Abroad Office sponsors University programs abroad, helps students make arrangements for foreign study, and maintains information about overseas study programs. The Office also assists in the evaluation of credits from study abroad. The University of Rhode Island sponsors exchange programs with universities in England, France, Germany, Indonesia, Italy, Japan, Korea, and Spain. Many of these exchange programs make study abroad available to our students at a modest cost. The University also participates in the New England-Quebec and New England-Nova Scotia exchange programs enabling our students to study at any one of the ten English- and French-speaking universities in these provinces on an exchange basis. Study abroad programs at other New England land-grant universities and at institutions participating in the National Student Exchange Program may also be open to our students. The Study Abroad director and advisor help students who wish to participate in these or other approved academic programs in choosing the appropriate programs, obtaining prior approval for courses to be taken abroad, and retaining matriculated status at the University of Rhode Island during their absence from campus.

**University Year for Action (UYA).** The UYA Internship Program is administered by the Office of Internships and Field Experience. It is an academic program that provides undergraduate students with opportunities for professional development and field study

during the academic year as well as the summer. It is especially designed for the motivated student who wishes to apply classroom learning to a field experience in a career-related setting. Students from any undergraduate curriculum may apply for 15 credits in free or professional electives.

Students work full time under the supervision of qualified professionals in carefully selected settings. A weekly seminar brings interns together to discuss issues that emerge during the internship. The program offers students a choice of more than 550 placements that include the categories of law, counseling, government, administration, public relations, communications, alternative education, health, nutrition, marketing, management, marine affairs, environmental science, and medical research.

To apply, students must have a minimum quality point average of 2.50 and junior or senior standing.

## Dean's List

Undergraduate matriculating students who have achieved certain levels of academic excellence in any semester are honored at the end of that semester by inclusion of their names on the Dean's List. The Office of the Registrar will publish lists of students who have attained the required quality point average.

A full-time student may qualify for the Dean's List if he or she has completed 12 or more credits for letter grades and achieved a 3.30 quality point average.

A part-time student may qualify for the Dean's List if he or she has accumulated 12 or more credits for letter grades and achieved a 3.30 quality point average.

## Pass-Fail Grading Option

This plan encourages undergraduate matriculated students to increase their intellectual breadth and discover aptitudes in new areas of knowledge. A student above the freshman level who is not on probation may register under this plan for courses considered to be free, unattached electives by the college in which he or she is enrolled. Courses designated in the student's curriculum as degree requirements, General Education requirements, and military science courses may not be included.

A student choosing to take a course under this plan must notify his or her advisor, academic dean, and the Office of the

Registrar in writing, prior to the end of the add period of each semester. The instructor is not informed.

Grades will be P (pass) or F (fail). The P grade is credited toward degree requirements, but not included in the quality point average. The F grade is calculated in the same manner as any other failure. A student may change from the P-F option to grade by notifying the Office of the Registrar in writing before the last date for dropping courses.

A student may elect not more than three P-F courses each semester and not more than two P-F courses during a summer.

### Army Reserve Officers Training Corps (ROTC)

Army Reserve Officer Training Corps (ROTC) is offered by the University and is available to all male and female students. Physically qualified American citizens who complete the entire four-year program are eligible to be commissioned in the U.S. Army. Delayed entry into active service for the purpose of graduate study is available. Military science is designed to complement other instruction offered at the University. Emphasis throughout is on the development of individual leadership abilities and preparation of the student for future important leadership roles in the Army. Professional military education skills in written communication, human behavior, military history, mathematical reasoning, and computer literacy are fulfilled through required University General Education courses and the military science curriculum. Three variations of ROTC are available.

During the four-year program, students participate in required military science courses and activities. Attendance at a six-week advanced training camp is required between the third and fourth year.

The two-year ROTC program begins with a six-week Camp Challenge summer training session (with pay). After successful completion of Camp Challenge, the student enters the third year of ROTC and attends advanced camp during the next summer. As an alternative, an enlisted member of the Army National Guard or Army Reserve who has completed basic training can qualify for the two-year ROTC Simultaneous Membership Program.

The third variation consists of a three-year program for students who wish to enter ROTC during their sophomore year or who intend to complete their academic studies in

three years. This program compresses the requirements for the Basic Course into one year.

All Basic Course (freshman and sophomore) military science courses are an excellent medium for personal enrichment. Significant scholarship opportunities are available.

Completion of the four-year military science program qualifies students to petition their college for a minor in military science.

Enrollment in any military science course allows a student to compete for off-campus training at the following U.S. Army schools: Airborne, Air Assault, Northern Warfare School, and Nurse Summer Training in Europe.

### Grades and Points

Student grades are reported as A, A-, B+, B, B-, C+, C, C-, D+, D, and F. The unqualified letter grades represent the following standing: A, superior; B, good; C, fair; D, low grade, passing; F, failure; S, satisfactory; U, unsatisfactory.

Grades are given quality point values as follows: A, 4.00 points; A-, 3.70 points; B+, 3.30 points; B, 3.00 points; B-, 2.70 points; C+, 2.30 points; C, 2.00 points; C-, 1.70 points; D+, 1.30 points; D, 1.00 points; F and U, 0 points. P and S are not calculated in the quality point average.

Grade reports are mailed to all students at their home addresses at the end of each semester. Midsemester grade reports are mailed to all freshmen at their local addresses at the midpoint of each semester. These midterm reports are intended to alert freshmen to their academic status and to aid in advising. Midterm grades are not recorded on permanent academic records nor are they figured into quality point averages.

A grade may be reported as "incomplete" only when course work has been passing but has not been completed due to illness or another reason which in the opinion of the instructor justifies the report of incomplete. Incomplete grades that are not removed from an undergraduate student's record by the following midsemester will remain on the student's permanent record.

Students are required to make up failures in required courses. The course should be repeated when next offered. No limit is placed on the number of times a course may be repeated, but the credit requirement for graduation is increased by the number of credits repeated. Students are not required to make up failures in elective courses.

Under specified conditions and with the approval of the academic dean, freshmen and transfer students in their first semester may repeat a course in which a grade of C- or lower was earned. Only the grade earned in the second attempt will be calculated in their quality point average. All grades earned for a given course will remain on the student's permanent academic record. A student may not repeat a course in which a grade of "C" or better was earned without approval of the academic dean.

Certain courses do not lend themselves to precise grading, and for these courses, only S (satisfactory) or U (unsatisfactory) shall be given to all students enrolled. S/U courses shall be labeled as such in the University bulletins. S/U courses are not counted as courses taken under the Pass-Fail option.

**Probation and Dismissal.** A student shall be placed on scholastic probation if the student's overall cumulative quality point average falls below 2.00. For purposes of determining dismissal of part-time students, scholastic standing committees shall consider an accumulation of 12 credits as the minimum standard for one semester's work.

A student shall be dismissed for scholastic reasons when he or she has a deficiency of eight or more quality points below a 2.00 average after being on probation the previous semester. A student on probation for the second successive semester who has a deficiency of eight or fewer quality points below a 2.00 average will continue on probation. At the end of the third semester of probation, a student shall be dismissed. Students who obtain less than a 1.00 average in their first semester shall be dismissed automatically.

A student subject to dismissal shall be so notified by the dean after which he or she shall have five days to file a written appeal with the dean.

Students are expected to be honest in all academic work. Instructors shall have the explicit duty to take action in known cases of cheating or plagiarism. For details consult the *University Manual*, sections 8.27.10-8.27.20.

### Leave of Absence

Sometimes students are forced to take a semester or two off due to circumstances beyond their control. Others find they simply need a break from studying. For these students taking a leave of absence might be wise. Students who have an approved leave of absence for a semester or a year may

register for the semester in which they plan to return without applying for readmission. Undergraduate students may apply for a leave of absence through the Office of the Registrar.

### Withdrawal from College

A student who wishes to withdraw from the University prior to the end of the semester or summer session shall do so according to procedures established by the Office of the Registrar. If the withdrawal process is completed satisfactorily and the student has cleared all financial obligations to the University, the date of withdrawal shall be noted on the student's permanent academic record. No grades for the current semester shall be recorded.

Students who withdraw from the University after the last day of classes but before a semester ends, shall be graded in all courses for which they are officially registered. If a student withdraws from the University after midsemester, grades shall be recorded for any course which has an officially specified completion date prior to the date of withdrawal.

A student who withdraws from the University after midsemester and who seeks readmission for the next semester shall be readmitted only with approval of the Scholastic Standing Committee for the college or school in which registration is desired.

### Undergraduate Graduation Requirements

To graduate, a student must have completed the work for, and must have achieved the minimum quality point average established by, the curriculum in which he or she is enrolled and must have earned at least a 2.00 quality point average.

In addition, students must abide by community standards as defined in the *University Manual* and the *Student Handbook*.

The work of the senior year shall be taken at the University of Rhode Island. Exceptions must be approved by the faculty of the college in which the student is enrolled.

Any student who has met the requirements for a second bachelor's degree and has completed an additional 30 hours of credit beyond the minimum requirements for the initial degree may be granted two bachelor's degrees.

Any student who has met the requirements for two separate majors within any single bachelor's curriculum has earned a

double major and may have both fields listed on his or her permanent record.

Students who complete at least 60 credits of their work at the University are eligible to graduate with distinction. Grades in all courses attempted at the University will be included in the calculation of the quality point average. Those who attain a cumulative quality point average at the time of graduation of at least 3.30 shall be recognized as graduating "with distinction." Those who achieve a cumulative quality point average of at least 3.50 shall graduate "with high distinction," and those who attain a cumulative quality point average of at least 3.70 shall graduate "with highest distinction."

### University Manual

University regulations governing matters such as conduct, grading, probation and dismissal, academic integrity, withdrawal from college, and graduation requirements are fully explained in the *University Manual*. Copies of the *University Manual* are available for reference in the library and in the deans' offices.

Such rights and responsibilities are also described in the *Student Handbook* available from the Office of Student Life.

## ADMISSION AND REGISTRATION



### Admission to the University

Ideally, admission to the University is a process of mutual selection. It is hoped that those students who seek admission will also be the kind of students sought by the University: those who will benefit from the educational opportunities afforded by the University; those who will be stimulated and challenged by doing undergraduate work in an environment that includes scholarly research and graduate study; those who are committed to becoming contributing members of the University. Students are selected for enrollment primarily on the basis of their academic competence and without regard to race, sex, religion, age, color, creed, national origin, handicap, or sexual orientation, and without discrimination against disabled and Vietnam era veterans.

The University has been authorized under federal law to enroll nonimmigrant alien students.

All freshmen pursuing four- or five-year degree programs are admitted to University College, a college of advising and academic student services. Many students who are undecided about their choice of major use the year or two in which they remain in University College to explore their interests before declaring a major. Students who have identified their prospective majors are assigned faculty advisors in that area and follow their

chosen course of study while in University College. The University evaluates applicants' credentials in terms of their stated prospective majors and the space available in professional programs with limited enrollments.

**Admission Requirements.** Admission to the University is competitive, and primary emphasis in the review process is placed on a student's high school record, the quality of courses taken, and the grades earned. Performance on standardized tests (SAT or ACT), extracurricular activities, alumni tradition, and letters of recommendation are considered. The students offered admission for fall 1990 presented an average class rank in the top 30 percent of their high school class, with SAT scores of well over 1,000 combined.

SAT or ACT tests are required for freshman candidates, but transfer students from another college are assessed mainly on their earlier college records. Each candidate is given individual consideration; however, a minimum of 18 units of college preparatory work are expected: four units in English, three in algebra and plane geometry, two in physical or natural science, two in history or social science, two in foreign language, and additional units that meet the requirements of the college in which the candidate expects to major. All students are encouraged to select their additional units from the arts, humanities and foreign languages, mathematics, social sciences, or laboratory sciences. Candidates for the College of Business Administration and majors in chemistry, computer science, and physics, must complete four units of mathematics (trigonometry). Candidates for the College of Engineering should select chemistry and physics. Applicants to the Bachelor of Music degree program must audition and must contact the Department of Music for specific requirements.

Students presenting official GED results in lieu of a high school diploma must fulfill the University's entrance requirements in mathematics by presenting secondary school or college records which include successful completion of Algebra I, Algebra II, and geometry.

International candidates must submit certified copies of original documents (in original language) and notarized translations in English. Candidates must meet the University's academic requirements. They must show that they possess funds for their first year and that funds for subsequent years will be available. If government or reserve bank permission is required to transfer funds

from the student's country to the United States, a notarized copy of the permission is required. No financial assistance is available.

**Application Procedures.** Students should discuss their plans for study at the University with their academic counselors as early as possible to establish realistic goals and program selections. Admissions counselors at the University will be glad to correspond with students about individual problems. Requests for application forms and information should be sent to the Undergraduate Admissions Office, University of Rhode Island, Green Hall, Kingston, RI 02881-0807.

Inquiries from international students concerning nonimmigrant visas, transfers, funding, etc., should be sent to the Office of International Student Services, University of Rhode Island, 37 Lower College Road, Kingston, RI 02881-0820. On- and off-campus housing inquiries should be sent to the Office of Residential Life.

Students are enrolled at the beginning of the fall semester in September and at the beginning of the spring semester in January. High school seniors are urged to submit applications early in their final year of preparatory study as the University reviews applications on a continuing basis as soon as complete credentials are submitted. Applicants are notified as soon as decisions are made. Closing date for fall term applications is March 1, and most decisions are reported in February, March, and April. Closing date for spring term application is November 1.

*Early action* is taken on the application of any freshman candidate who has established a superior academic record and above-average scores on the CEEB Scholastic Aptitude Test, and whose potential as a superior student is reflected in the secondary school endorsement. Applications meeting these qualifications which are clearly labeled "early action candidate" are considered on a priority basis if filed before November 1.

**Entrance Tests.** All freshman candidates for admission must take the Scholastic Aptitude Test (SAT) or the American College Testing Program Test (ACT). Applicants who have been away from formal studies for at least three years should contact the Admissions Office about entrance requirements.

Applicants are encouraged to take the SAT as early as possible in their senior year; delay beyond January materially reduces a candidate's prospects for a timely decision. Full information concerning this test may be obtained from local high schools or by writ-

ing to CEEB Headquarters at P.O. Box 592, Princeton, NJ 08540. Further information regarding the ACTs is available from the American College Testing Program, P.O. Box 168, Iowa City, IA 52243.

Students whose first language is not English are encouraged to submit official Test of English as a Foreign Language (TOEFL) examination results to supplement their SAT verbal scores. International candidates for whom English has not been the language of instruction must submit official TOEFL examination results of 550 or better. The TOEFL examination is administered by the Educational Testing Service, Princeton, NJ 08540, USA.

**Interviews.** Personal interviews can be arranged, but are not required of all applicants. It would be impossible for the admissions staff to interview all candidates, but individual conferences can be arranged with professional staff and student interviewers on a space-available basis.

*Group conferences* are scheduled several afternoons each week during the year. Students and their parents are invited to participate in these meetings to get acquainted with the University. Visitors are asked to phone ahead to be scheduled for these meetings. Call 401-792-9800.

**Campus Tours.** Students conduct daily tours of the campus for visitors, Monday through Saturday, while classes are in session. Group tours for high schools and other organizations may also be arranged. For more information, call 401-792-9800. Tours of the Narragansett Bay Campus and the Graduate School of Oceanography may also be arranged. Call 401-792-6211 for details.

**Admissions Inquiry Line.** Candidates may check the status of their applications from a touch-tone telephone from November through May, Monday through Friday, from 8:30 a.m. to 4:30 p.m. Eastern time. Instructions are forwarded to candidates when applications are received.

**Early Enrollment (Early Admission).** Students who have completed their junior year of high school with superior records are eligible for early admission. A part-time study program may be arranged for students who wish to begin college study in their senior year while continuing their high school work. A full-time program may be arranged for those recommended for college admission without completion of the standard preparatory program.

Early admission students would normally have completed: three years of English, three years of mathematics, two years of foreign language, two to three years of social studies or history. Students should be academically competitive within their high school class, have corresponding scores on the College Board PSAT, SAT, or equivalent tests, and the endorsement of their school.

Interested persons should plan with their high school counselor early in their junior year and direct further inquiries to the Admissions Office.

## Advanced Standing

*Advanced placement for freshmen* is granted to students who have completed college-level courses in a high school participating in the Advanced Placement Program and have passed with a grade of 3.00 or better the CEEB Advanced Placement Examination in the subject area for which advanced placement is sought. In addition, students also may take proficiency examinations administered by departments of the University to be granted advanced placement. Entrance with advanced standing can accelerate the completion of degree requirements, or it can enrich the undergraduate program with greater scope for elective or advanced courses.

*Transfer students* who have attended, or are attending another college or university, must have official transcripts sent directly from the institution, whether or not they expect or desire credit for such work; their high school record must also be submitted. Credit will not be awarded for course work taken prior to admission to the University which is disclosed after acceptance. A minimum cumulative quality point average of 2.50 is required, but most successful applicants have much higher quality point averages. Certain programs may require a higher quality point average or specific prerequisite courses. Candidates accepted with transfer credit are classified as freshmen, sophomores, juniors, or seniors according to the number of credits accepted for transfer. The transfer of General Education credits is described on page 9. Priority consideration will be given to applicants presenting 24 or more transferrable credits. Students may apply to the Teacher Education Program only after acceptance by an academic department.

**Proficiency Examinations.** Students who show evidence of advanced knowledge or who have taken "enriched" programs in high school may be exempt from certain

courses and requirements if they take departmental proficiency examinations. A student who successfully passes such an examination earns credits as well as exemption from the course. However, students who, by successfully passing proficiency examinations, have the General Education requirements waived in writing (Cw), mathematics (M), and/or foreign languages or culture (F) must still complete the specified number of credits for their degree programs.

Upperclassmen interested in taking these exams should contact their academic dean. New students may obtain further information during orientation or from their assigned advisor in University College.

### College Level Examination Program.

**CLEP General Examinations.** Students who have not been pursuing formal studies for at least three years may take the CLEP General Examinations to demonstrate academically measurable learning acquired in nontraditional ways. URI students must secure prior approval from their academic dean to take the exams for credit. Transfer students may receive credit from CLEP General Examinations taken prior to enrollment at URI provided that their scores meet URI standards and provided that their academic dean judges that the CLEP credit does not duplicate other transfer credit.

CLEP General Examinations may be taken in the following areas. URI credits for these are shown in parentheses.

	<i>Minimum score</i>
English Composition (English Composition elective, 3 credits <sup>1</sup> )	450
Fine Arts (Fine Arts elective, 3 credits)	46
Literature (Literature elective, 3 credits)	45
Biological Sciences (Natural Science elective, 3 credits)	46
Physical Sciences (Physical Science elective, 3 credits)	44
Social Sciences (Social Science elective, 3 credits)	46
History (History elective, 3 credits)	45
Mathematics (no credit)	

**CLEP Subject Examinations.** Academic departments may use CLEP Subject Examinations as proficiency exams to test students' mastery of the subjects taught by the department. A department which judges a CLEP

Subject Examination to be a satisfactory proficiency exam decides what credit should be awarded within the department to students who pass the exam, establishes the minimum score for credit, decides whether students must answer the optional essay questions supplied by CLEP, and decides whether students must pass a supplementary department test, such as a lab exam. The following CLEP Subject Examinations are accepted by departments as proficiency examinations.

<i>Subject (URI credit)</i>	<i>Minimum raw score</i>	<i>Minimum percentile</i>
American Government (PSC 113)	47	38th
American History <sup>2</sup> (HIS 141, 142)	45	40th
American Literature (ENG 241, 242)	46	37th
Analysis and Interpretation of Literature (ENG or WRT 103)	49	43rd
Biology (BIO 101, 102)	49	47th
College Algebra– Trigonometry (QBA 101)	49	50th
Educational Psychology (EDC 312)	47	40th
English Literature (ENG 251, 252)	46	38th
General Chemistry (CHM 101, 102, 112, 114)	47	45th
General Psychology (PSY 113)	47	39th
Human Growth and Development (HCF 200 or PSY 232)	47	38th
Introduction to Business Management (MGT 301)	50	50th
Introductory Accounting (ACC 201, 202)	N/A	50th
Introductory Business Law (BSL 333)	51	50th
Introductory Marketing (MKT 301)	50	50th
Introductory Sociology (SOC 100)	48	40th
Western Civilization I <sup>2</sup> (100-level HIS elective)	46	52nd
Western Civilization II <sup>2</sup> (100-level HIS elective)	47	52nd

<sup>1</sup> Three additional credits may be earned by completing a writing sample test administered by the College Writing Program.

<sup>2</sup> Optional essays required.

**Prior Learning Assessment Program.**

Matriculated undergraduates may be awarded credits for learning outside of the classroom if it can be shown that such learning is equivalent to college-level learning. In order to do so, the student must demonstrate to the University both that learning occurred and that the learning is college level. Before beginning the assessment process, students interested in obtaining credits for noncollegiate experience should consult with an academic advisor to determine if the Prior Learning Assessment Program is the best means of evaluating their prior learning. There are three stages to the Prior Learning Assessment Program: 1) enrollment in the one-credit course PLA 100 Prior Learning Assessment Portfolio Development; 2) payment of an assessment fee at the time the portfolio is submitted to the academic dean of your college; and 3) evaluation of the portfolio and, if warranted, posting of credits to your transcript.

**Health Questionnaire.** Every newly entering student is provided a health questionnaire from University Health Services. It is expected that these questionnaires will be completed and returned promptly. This questionnaire provides University Health Services with basic health information prior to the student's arrival on campus. Questionnaires are distributed only after admission to the University and therefore play no part in the process of acceptance to the University.

In accordance with Section 16-38-2 of the General Laws of Rhode Island, the University must have a certificate signed by a licensed physician giving the dates of immunization against rubella (German measles) and rubeola (measles) for all incoming students. This certificate is included with the questionnaire.

**New England Regional Student Program.** Through a cooperative plan sponsored by the New England Board of Higher Education, students from other New England states may enroll in designated programs at the University of Rhode Island which are not offered in their own states. Certain programs at other New England state universities are open to Rhode Islanders on a reciprocal basis. Regional students at the University will be charged the in-state fee plus a surcharge of 50 percent. If, at any time, a student transfers out of the New England Regional Student Program, out-of-state fees will apply.

Details on the operation of this program are available on request from the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111, or from high school guidance offices. All new undergraduate students apply for regional student status through the Undergraduate Admissions Office as part of the application process. The Office of the Registrar provides information pertaining to this program for students who are already enrolled at the University.

Continuing or returning students claim eligibility by submitting a formal request to the Office of the Registrar prior to the end of the add period of the semester in which regional status is to be effective.

**Special Programs for Talent Development.** The University encourages the application of economically, socially, and culturally disadvantaged individuals from Rhode Island. To encourage and assist such applicants, the University has instituted recruiting and pre-matriculation programs. Financial aid is available for students accepted to Talent Development; need is determined by the filing of a Financial Aid Form.

Interested prospective students should apply to Special Programs for Talent Development during their senior year in high school. Those who have been out of high school for some time and those with an equivalency diploma are also encouraged to apply. Applications and all credentials should be sent to the Undergraduate Admissions Office, University of Rhode Island, Green Hall, Kingston, RI 02881-0807, during the application period between October 1 and March 1.

**Readmission.** Students formerly enrolled at the University and seeking reentry may obtain applications for readmission at the Office of the Registrar. Readmitted students must make a \$50 advance deposit. All applications for readmission must be submitted to the Office of the Registrar no later than August 15 for the fall semester, and December 31 for the spring semester.

**Registration**

All students must register for courses through the Office of the Registrar in order to be properly enrolled.

**Early Registration.** Matriculated (official degree-seeking) students who meet the eligibility requirements as defined in the *Schedule of Courses* generally register in April and Octo-

ber for the following semester. However, freshmen entering in the fall semester may register at specified dates during the summer as part of the summer orientation program. Additional information is available from the Office of the Registrar.

**Late Registration.** Students are expected to register for courses before classes begin. Those who are unable to do so may enroll as late registrants in the Office of the Registrar during the first two weeks of classes. A late registration fee shall be charged to students who register on or after the first day of classes (see page 22).

**Nonmatriculating Students.** Such students must contact the Office of the Registrar for permission to enroll and for registration instructions. Registration for nonmatriculating students begins the week before the first day of classes each semester.

**Schedule of Courses.** The *Schedule of Courses* is published in March for the fall semester and in October for the spring semester. It is available in the Office of the Registrar. The University reserves the right to cancel courses offered in the *Schedule of Courses*.

**Payment of Fees.** Arrangements must be made with the Bursar for complete payment of tuition and/or fees. If, during the semester, it becomes apparent that a student has not met his or her financial responsibilities with the University, the registration for that semester is subject to immediate cancellation.

**Drop and Add.** Students are permitted to add courses through the first two weeks of classes only. Courses offered by the College of Continuing Education may be added, with approval of the instructor, prior to the third class meeting or by the prescribed University deadline, whichever is later.

Undergraduate students may drop a course according to official procedures determined by the Office of the Registrar before the end of the fifth week of the semester. However, courses dropped after the end of the second week of classes will not affect the fees that have been assessed (see "Reassessment of Fees" on page 22).

If a student has not dropped a course by the end of the drop period, the instructor must submit a grade. A student may drop a course after the end of the drop period only in exceptional circumstances and only with authorization of the dean of the college in which the student is enrolled.

**Auditing.** Auditors are persons who have permission to attend a course but are not taking the course for credit. Auditing is not permitted in noncredit courses. An auditor may be admitted to a class on a space-available basis with the consent of the instructor as indicated by the instructor's signature on an audit authorization form which must be filed in the Office of the Registrar before the end of the "add" period. The course instructor shall determine the extent to which an auditor may participate in class activities. An auditor's name shall not appear on official class rosters, and the course will not be noted on the student's grade report or permanent academic record.

**Flexible Scheduling.** Simultaneous enrollment in Kingston classes and College of Continuing Education classes may give scheduling flexibility to students with special time and location restrictions. Students should consult their academic advisor or college dean for further information.

**Off-Campus Study.** A full-time student who wishes to study at another college or university and use that course work to satisfy graduation requirements at the University of Rhode Island may register for off-campus study. The student must obtain signed approval for the off-campus courses from the dean of his or her college.

Off-campus study includes summer sessions, one or two semesters at another American university, or study abroad. A student may not ordinarily study off campus during the senior year. Students who wish to maintain registration eligibility while studying off campus must register for off-campus study for each semester of absence from the University of Rhode Island, or take an official leave of absence for that period.

**Veterans' Educational Benefits.** Full information describing these benefits may be obtained from your base education officer or from the Veterans Administration Regional Office, 380 Westminster Mall, Providence, RI 02903. A toll-free number is available for inquiries by asking the long distance operator for Enterprise 5050.

Veterans enrolled in Kingston Campus courses who are eligible to receive VA educational benefits must notify the Office of the Registrar in person. In order to satisfy Veterans Administration regulations, all students who receive VA educational benefits must report all changes in academic status to the

veterans' registration clerk in the Office of the Registrar. Veterans enrolled in courses through the College of Continuing Education must be certified by that college.

Recipients of VA educational benefits are also governed by the same University policies as all other students and are, therefore, responsible for completing those procedures described in the *Schedule of Courses* for effecting changes of status (adding and dropping courses, changing address, withdrawing from the University, etc.).

The *University Manual* and the *Graduate Student Manual* further explain the University's policies and procedures concerning the following: 1) the grading system and standards of progress required of the student by the University and the conditions for dismissal for unsatisfactory grades; the allowed probationary period, and the conditions of reentrance for academically dismissed students (see: *University Manual*, Chapter 8; *Graduate Student Manual*, Appendix A; *Students' Guide to URI*, Section 2); 2) the records of academic progress maintained by the University and furnished to the student (see: *University Manual*, Chapter 8; *Graduate Student Manual*, Appendix C); 3) the policies and regulations relating to student conduct and conditions for dismissal for unsatisfactory conduct (see: *University Manual*, Chapters 5 and 6; *Graduate Student Manual*, Appendix A).

**Change of Address.** It is the responsibility of the student to report changes of local or home address to the Office of the Registrar or the Office of Residential Life as needed.

## EXPENSES AND STUDENT AID



### Expenses

*Charges and fees set forth in this bulletin are subject to change without notice.*

In addition to the University fees outlined below, a student should expect to spend about \$600 per academic year for books and supplies, and allow for additional expenditures for travel and personal needs.

All charges are payable by the semester and are due and payable on receipt of the bill or by the due date indicated on the bill.

#### *Full-Time Students Pay per Year*

In-state fee (general fee)	\$2,874
Out-of-state fee	9,308
Regional student fee <sup>1</sup>	4,312
Memorial Union fee	176
Student Activity fee	68
Recreation fee	70
Student Health Insurance plan <sup>2</sup>	369
Student Health Services fee <sup>3</sup>	312
Registration fee	40

<sup>1</sup> See page 20 for a description of the New England Regional Student Program.

<sup>2</sup> See page 23 for a description of the Student Health Insurance plan.

<sup>3</sup> See page 23 for a description of the Student Health Services fee.

*Students Living in University  
Residence Halls Add*

Room rent \$2,684-3,098

Meal plans—

*Board plans*

Any 20 meals (Mon.–Sun.) \$2,158

Any 15 meals (Mon.–Sun.) 1,996

Any 10 meals (Mon.–Fri.) 1,814

*Points plans*

Level A (20,000 points) \$1,838

Level B (26,000 points) 1,974

Level C (32,000 points) 2,112

Level D (38,000 points) 2,250

*Combo plans*

A Board plan along with points in \$50 increments.

*Students Living in a Fraternity or Sorority Add*

Average room rent \$2,230

Average board 2,160

*Part-Time Students*

Part-time students, registered for up to 11 credit hours per semester are charged the fees below:

Tuition, per credit hour

Rhode Island residents \$121

Out-of-state students 388

Regional students<sup>1</sup> 182

Off-campus study 131

Registration fee per semester 20

Memorial Union fee (per credit hour) 7

Student Activity fee 17

**Reassessment of Fees.** Students may drop and add credits during the first two weeks of each semester (add period) without affecting their initial fee assessment. Fees are reassessed and adjusted according to the credit enrollment and/or student status resulting from drop/add transactions as processed by the Office of the Registrar during the add period. After the add period, term bills are only reassessed for part-time students who add credits and full-time students adding credits beyond the credit overload limit. *Note: Dropping credits after the end of the add period does not reduce term bills.*

**Credit Overload Fee.** A credit overload fee is charged to all undergraduate students who register for more than 19 credits per semester and to all graduate students who register for more than 15 credits per semester. It is assessed according to residency and is charged per credit above the 19- and 15-credit limits. Enrollment at the Kingston and Providence locations is combined when determining this fee. *Note: Dropping overload credits after the end of the add period does not reduce term bills.*

**Kingston and CCE Enrollment.** All undergraduate students who are full time because of combined enrollment at both the College of Continuing Education and the Kingston Campus (12 credits and over) are assessed the following fees at the standard full-time rate when enrolled for at least seven credits on the Kingston Campus: Memorial Union fee, Student Activity fee, Accident and Sickness insurance, Student Health fee. Students enrolled at the Kingston Campus for less than seven credits are charged the fees at the part-time rate. *Note: Dropping credits after the end of the add period does not reduce term bills.*

**Resident Student Status.** A student who is a resident of the state of Rhode Island pays the in-state fee, but a student from another state or a foreign country who is in Rhode Island primarily for educational purposes, even though he or she remains in the state during vacation periods, is considered a nonresident and pays the out-of-state fee.

The parents or legal guardians of a minor student must have been residents of the state for one year immediately preceding the first class day of the first term of a student's registration for that student to claim resident student status. A nonresident student who reaches 18 years of age while a student does not by virtue of that fact alone become a resident student.

An "emancipated student" must establish the same bona fide residency for in-state tuition exemption. An emancipated student is one who has attained the age of 18, and whose parents have entirely surrendered the right to the care, custody, and earnings of the student and have not claimed the student as a dependent for tax purposes for two years. If any of these conditions is not met, he or she is presumed to be an unemancipated student.

Dependents of members of the armed forces, as well as members of the armed forces stationed in the state on military orders, are entitled to classification as resident students.

The dean of admissions classifies each student admitted to the University as a resident or nonresident student on the basis of all relevant information available to him. A student may appeal the decision to the Board of Residence Review. The preceding information is merely a summary of the regulations governing student classifications for tuition purposes. The complete text of the regulations adopted by the Board of Governors for Higher Education may be obtained from the Office of Admissions.

**Tuition Waiver for Senior Citizens.** Permanent residents of Rhode Island who are 60 years of age or older are entitled to take courses at the University without paying tuition, although other fees and charges are still applicable. Admission to particular courses will be granted on a space-available basis. Eligible persons should contact the Office of the Registrar.

**Tuition Waiver for the Unemployed.** Any individual who submits evidence of currently receiving unemployment benefits from the state of Rhode Island will be allowed to pursue course work at any public institution of higher education in Rhode Island with tuition and the registration fee waived. Individual students will be responsible for all other costs of attendance. Admission into particular courses will be granted on a space-available basis and at the discretion of the particular institution. This waiver also applies to any Rhode Island resident who submits evidence of residency and of currently receiving unemployment benefits in another state.

**New Student Fees.** A nonrefundable fee of \$30 must accompany each application for admission. Students requesting reconsideration must pay an application fee when two semesters have passed since their first application. See page 18 for application procedures.

An enrollment deposit is required from every accepted student and is applied to the first term bill. In-state students pay a \$150 deposit. Out-of-state and regional students pay a \$300 deposit. The enrollment deposit is 50 percent refundable until June 1, or 25 percent refundable until August 1, provided that the Admissions Office is notified in writing of the student's intention not to enroll.

Students returning after an absence of one or more semesters are subject to the same application fee and advance deposit as entering freshmen.

**Student Assessments.** Each student is assessed \$68 per year which is distributed by the Student Senate to support a wide variety of student programs and activities. A Memorial Union fee of \$176 per year is also assessed.

**Late Fees and Special Fees.** A late registration fee is charged to students whose registration is not completed before the first day

<sup>1</sup> See page 20 for a description of the New England Regional Student Program.



of classes. The fee is \$20 during the week in which classes begin and \$55 thereafter.

Expenses connected with class trips and practice teaching are charged to the students concerned.

**Applied Music Fees.** Students taking performance courses in music are charged an additional fee of \$95 each semester for MUS 050, and \$190 for MUS 231, 241, 242, 251, 261, 451, 461, 551, and 561, for private lessons associated with these courses.

**Student Nurses' Fees.** Beginning in the sophomore year, student nurses must purchase authorized uniforms and nursing equipment. The approximate cost is \$175.

**Transcripts.** Each student who graduates from the University is entitled to one official transcript without charge. Students may obtain a copy of their transcripts by submitting a written request to the Office of the Registrar. A \$3 fee is charged for each individual transcript request.

Transcripts will not be issued to students who have any unpaid financial obligation to the University.

**Student Health Services Fee.** The University of Rhode Island Student Health Services fee is mandatory for all full-time undergraduates, all international students and their spouses, and all full-time graduate students. Part-time students at the Kingston Campus may elect to pay the Health Services fee. The fee covers all outpatient care and health services with the exception of laboratory, X-ray services, special OB/GYN procedures, orthopedic appliances, and certain pharmacy services. Outpatient care consists of all nursing, physician, and health education services, plus certain pharmacy services.

**Student Health Insurance Plan.** It is the policy of the University of Rhode Island that all students have current health insurance in order to provide coverage for unexpected, extended, and expensive care resulting from accidents and illnesses which are not included in the University Student Health Services fee. All international students, their spouses, and their dependents must enroll in the Student Health Insurance plan. All other students are required to enroll in this plan unless evidence of comparable coverage in another plan is provided and the student completes, signs, and returns a waiver card to Student Health Services prior to the end of the add period (normally the first two weeks of school). Unless the insurance is

waived, the student will be billed. Waiver forms are normally mailed to the student by Health Services. They are also available at Health Services in the Potter Building. Please refer to the Student Health Insurance plan brochure for an explanation of benefits associated with Student Health Insurance.

**Health Questionnaire.** Every newly entering student is provided a health questionnaire from Health Services. These questionnaires must be completed and returned promptly. They provide Health Services with basic health information prior to the student's arrival on campus. Questionnaires are distributed only after admission to the University and play no part in the process of acceptance to the University.

**Measles Immunization Requirement.** In accordance with Section 16-38-2 of the General Laws of Rhode Island, the University must have a certificate signed by a licensed physician giving the dates of immunizations to protect against rubella (German measles) and rubeola (measles) for all incoming students. This certificate is included with the questionnaire which is mailed to students. Students failing to comply with this requirement may have their registration sanctioned.

**Refunds.** Refunds of payments made or credits against amounts due to the University shall be made to students who officially withdraw or take a leave of absence according to the following scale: during the first two weeks, 80 percent; during the third week, 60 percent; during the fourth week, 40 percent; during the fifth week, 20 percent; after five weeks, none.

The attendance period in which withdrawal or leave of absence occurs begins on the first day of classes and includes weekends and holidays.

Coverage under the University Sickness and-Accident Insurance terminates when the student withdraws for any reason other than graduation or incapacitating disability. Students whose coverage has terminated due to withdrawal may request a prorated refund of their premium from the insurance company. (For further information, refer to the current Student Sickness and Accident Insurance brochure.)

**Housing Rates.** Following are the rates for University housing for the year 1992-93. For complete information write to the director of Residential Life, Roger Williams Center. All rates are for double rooms. For single rooms, where and when available, \$150 per

year is added to the double room rate. Board is mandatory for students living in residence halls.

#### *Residence Halls*

\$2,684 Adams, Barlow, Bressler, Browning, Butterfield, Hutchinson, Merrow, Peck, Tucker, Weldin  
\$2,984 Aldrich, Burnside, Coddington, Dorr, Ellery, Fayerweather, Gorham, Heathman, Hopkins

The average projected room rate for fraternities and sororities for 1992-93 is \$2,230.

**Housing and Dining Contract.** University housing is contracted for the *entire academic year*. A deposit of \$100 is required at the time of application for a room in the residence hall. This deposit will be applied on the first semester bill. A cancellation of the housing application will result in a prorated credit on the semester bill according to the following schedule: from date of deposit to June 15, \$100; from June 16 to the opening of the residence halls for the academic year, \$62; after that time, no refunds will be made.

All residence hall rates are quoted for the period specified in the contract. Payments are due in full by the published term bill due date each semester or upon receipt of the bill from the Office of Residential Life. Checks and money orders are payable to the University of Rhode Island and should be remitted to the Office of the Bursar.

A student vacating his or her assigned quarters before the end of the period under contract will be held responsible for the total charges for the entire period. No refund will be given when a student moves from University quarters to a private home or decides to commute.

The University is a nonsectarian institution, and resources are not available to construct special diet kitchens for religious, health, or personal reasons. Extreme medical problems are reviewed by a nutritionist. Some medical problems may be accommodated. Students requesting a medical variance from the meal plan must submit for approval a medical variance report from their physician to Dining Services prior to the first day of classes. Application forms may be obtained by contacting the Dining Services central office at Lippitt Hall at 401-792-2055.

The University dining system operates on a computerized entry system utilizing the student ID card. This card must be brought to all meals.

Students who withdraw from the residence halls may obtain Dining Services refunds based on the University refund policy.

**Indebtedness to the University.** Failure to make full payment of all required fees or to resolve other debts to the University (for example, unreturned athletic equipment, overdue short-term or emergency loans, lost library books, debts to the Office of Residential Life for damages, obligations required by the University Judicial System) may result in denial of registration for the following semester and/or disenrollment. Appropriate University departments will provide the student with notice of the debt, reason for it, and a review, if requested. A student must fulfill all financial obligations to the University before receiving transcripts or a diploma.

## Student Financial Aid

Financial aid is money made available from federal, state, local, or private sources which helps students attend the post-secondary institutions of their choice. At the University of Rhode Island, these varied sources are administered by the Student Financial Aid Office in Roosevelt Hall. The financial aid programs are designed to serve students from the widest possible range of society, and all students are encouraged to apply.

In most cases, financial aid will be awarded in a "package" of grants (which do not have to be repaid), loans (which have to be repaid), and student employment opportunities (part-time jobs while attending school). The purpose is to assist the students in meeting the costs of attending the University. To continue receiving financial aid, it is necessary to reapply and demonstrate sufficient financial need each year as well as to maintain satisfactory academic progress.

Financial aid to students is awarded without regard to race, sex, religion, age, color, creed, national origin, handicap, or sexual orientation, and without discrimination against disabled and Vietnam era veterans.

**Financial Need.** A student does not have to be from a low-income family to qualify for financial aid, but does have to have "financial need." "Need" is the difference between what it costs to attend the University and what the student and family can contribute from financial resources. Parents, insofar as they are able, are expected to bear primary responsibility for financing their son's or daughter's college education, and the student is also expected to earn a portion of the resources for college expenses, usually through summer employment.

**Eligibility.** Only citizens, nationals, or permanent residents of the United States are eligible to apply for financial aid. Foreign students desiring information about financial assistance should contact the Office of International Student Services at the University.

To be considered for financial aid, a person must have been accepted and enrolled as a matriculated student at the University. Enrolled students must be making satisfactory progress toward their degree according to the University's policy on satisfactory progress (see page 25).

**Application Procedure.** Residents of Rhode Island, Maine, or New Hampshire should complete a Financial Aid Form (FAF) specifically printed for their state. Residents of other states should complete the national FAF, and check with their state scholarship or grant authority to inquire if another form is needed to apply for state scholarship funds. Students should apply for a Pell Grant by checking the appropriate box on the FAF.

The awarding of financial aid for the current academic year may require validation and documentation of all information submitted to the Student Financial Aid Office. Therefore students must provide signed copies of their own and their parents' last U.S. Income Tax Returns 1040/1040A/1040EZ; when and if requested by the Student Financial Aid Office, all tax schedules must also be included.

**Application Priority Dates.** The FAF should be mailed to the College Scholarship Service in Princeton, New Jersey, after January 1, but before March 1. Students should complete the 1992-93 URI Student Financial Aid Application and return it to the Student Financial Aid Office immediately after receiving it. Applications completed on or before the above priority dates will receive first consideration for financial aid awards; however, we will continue to process applications as long as funds remain available.

### Federal Aid Available

**Pell Grants.** The Pell Grant is designed to form the foundation of all financial aid received. Each applicant is mailed a set of Student Aid Reports which must be forwarded to the Student Financial Aid Office. The amount of the Pell Grant is calculated according to the cost of attendance, the number of credits for which the student enrolls, and the Pell Grant Index printed on the Student Aid Report.

**Supplemental Educational Opportunity Grant.** This program is intended to assist undergraduate students with financial need. First priority is given to students receiving Pell Grants. These awards are available in amounts ranging from \$100 to \$4,000 per year.

**Carl Perkins Loan.** Eligibility is based on need. Undergraduates are limited to borrowing \$4,500 for the first two years of their program with a maximum of \$9,000 for four years. Graduate students may borrow up to \$18,000 including undergraduate loans. These loans have a simple interest rate of five percent annually. Interest does not accrue until nine months after graduation, termination of studies, or enrollment for less than half time. Minimum payments of \$30 per month are required, and the repayment period may extend up to 10 years. Deferrals and cancellations of principal are allowed in certain circumstances.

**Nursing Student Loan Program.** This program is available to students enrolled in the College of Nursing. The long-term, low-interest loans become due and payable nine months after graduation or termination of nursing studies. The loans are designed to assist financially needy students attain careers in nursing.

**Health Professions Student Loan Program.** This loan program is restricted to students with financial need majoring in pharmacy.

**College Work-Study Program.** This federally supported program provides part-time employment during the school term and full-time employment during vacation periods. The jobs may be either with University departments, or with off-campus, nonprofit, nonsectarian, nonpolitical agencies. Other institutionally funded employment is also available. A list of these jobs is available in the Student Financial Aid Office.

**Stafford Loan Program.** To participate in the Stafford Loan Program a student must have financial need as determined by the Student Financial Aid Office based on the Financial Aid Form. Interest on loans, until six months after graduation, withdrawal, or drop in enrollment status to less than half time, will be paid by the federal government in most cases. For new borrowers who receive loans, the interest rate is eight percent for the first four years of repayment and 10 percent thereafter.

Eligible freshman or sophomore students may borrow up to \$2,625, eligible juniors and seniors may borrow up to \$4,000, and eligible graduate students may borrow up to \$7,500 per year. The maximum total Stafford Loan debt an undergraduate may have is \$17,250. The total for graduate or professional study is \$54,750, including any loans made at the undergraduate level.

*Parents Loans for Undergraduate Students (PLUS) and Supplemental Loans for Students (SLS).* Independent undergraduates, graduate students, and parents of undergraduate and graduate dependents may apply for loans of up to \$4,000 per year. A variable interest rate is calculated annually based on a federal formula. The new rate begins every year, but cannot exceed 12 percent. Additional information may be obtained from local lending institutions.

#### University Aid Available

*University Grant.* The University provides grants to over 1,000 students. To be awarded a University Grant, the student must have demonstrated financial need and a satisfactory academic record.

*Arthur L. Hardge Memorial Grant.* This grant is awarded to economically and socially disadvantaged residents of Rhode Island who participate in the Special Program for Talent Development.

*T.A. Suddard International Grant.* A limited number of partial tuition awards are made to international students, based on financial need. Recipients are awarded by the International Scholarship Committee.

*University Scholarships.* Scholarship awards require not only financial need, but evidence of high academic potential. Some scholarships have specific restrictions, such as place of residence, major, class year, etc. A list of available scholarships may be found in the Appendix on page 194.

*Athletic Grants.* These grants are made on the recommendation of the Department of Athletics to athletes who meet the established qualifications. These awards, rather than being based on need, are based on athletic ability. Students interested in such assistance should contact the Department of Athletics.

*Regular Student Employment.* Positions funded by the University are available to more than 1,500 students. Job postings are available in the Student Financial Aid Office.

*University Loans.* Emergency loans ranging from \$10 to \$200 are available to full-time students. These loans are short-term in nature (14–90 days), and can be made only when there is a means of repayment. Application forms are available in the Student Financial Aid Office.

#### Other Sources of Aid

*Rhode Island State Scholarships and Grants.* Undergraduate residents of Rhode Island are encouraged to apply for Rhode Island State Scholarships or Grants. While both are based on need, the scholarships also require a strong academic record in high school. The Rhode Island State Scholarship and Grant Program is administered by the Rhode Island Higher Education Assistance Authority, 560 Jefferson Boulevard, Warwick, RI 02886. Other states offer similar programs; for more information, contact your state's scholarship agency.

There are many additional sources of financial aid available to students who qualify: scholarships from private organizations, clubs, labor unions, fraternities, sororities, and businesses. Students should apply directly to the source if they believe they qualify.

A list of scholarships and loans may be found on page 195. For veterans' benefits see page 21.

#### Policy on Satisfactory Academic Progress

The Education Amendments of 1980, P.L. 96-374, October 3, 1980, state that "a student is eligible to receive funds from federal student financial aid programs at an institution of higher education if the student is maintaining satisfactory progress in the course of study he or she is pursuing according to the standards and practices of that institution."

To maintain satisfactory progress at the University of Rhode Island for federal financial aid purposes, the student must be enrolled in a degree-granting program on at least a half-time basis (six credits for undergraduates) for each semester that aid is received. Students enrolled full-time may receive aid for 10 semesters in completing what is normally a four-year program. Students completing what is normally a five-year program are permitted to receive aid for the equivalent of 12 full-time semesters. Part-time students may receive equivalent aid, with an accumulation of 12 credits corresponding to a full-time semester. Two full-

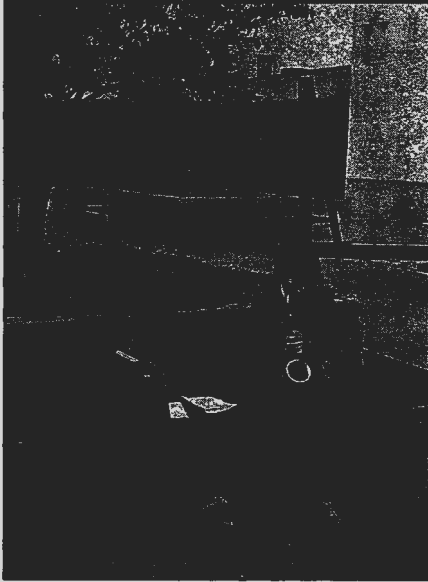
time (six credits) summer sessions are considered the equivalent of one semester. The determination of a transfer student's eligibility includes the semesters of federal financial aid received prior to attendance at the University of Rhode Island.

Satisfactory progress standards will conform to the University's academic standards, as delineated in the *University Manual*. Students who are placed on academic probation will be notified of the possibility of their loss of federal financial aid eligibility. Students on academic probation for two consecutive semesters and students who are academically dismissed will be ineligible to receive federal financial aid. Criteria for probation and dismissal appear in the *University Manual*. A student who is declared ineligible to receive aid for not maintaining satisfactory academic progress may appeal the decision to the Satisfactory Progress Appeals Committee. Readmission to a program or removal from probation does not automatically constitute eligibility for federal financial aid.

Failure to maintain satisfactory progress for two consecutive semesters will result in the loss of federal financial aid eligibility until the student is determined by the Student Financial Aid Office to be once again making satisfactory academic progress.

If there are unusual circumstances which result in the student's inability to make satisfactory progress, the student should write a letter of appeal documenting the unusual circumstance(s) and submit the letter to the Satisfactory Progress Appeals Committee, c/o the assistant dean of student financial aid.

## STUDENT LIFE AND SERVICES



**A**n enriching college life includes a well-balanced mix of academic and extracurricular activities. The University offers a unique blend of student organizations and activities with an emphasis on student-run services and businesses.

### New Student Orientation

Orientation programs which facilitate the students' entry into the campus community are administered by the dean of University College. New students are charged a nominal fee to cover such expenses as room, meals, and materials associated with their orientation program.

**Summer Orientation Workshops.** All students who are beginning University careers are encouraged to attend a two-day workshop to plan their academic programs, to register for fall classes, to learn what to expect of the University, and to begin to acquire the skills essential for successful transition from high school and home to the University community. These programs are planned to personalize the student's first experience with the University as each one participates, with a group of approximately 15 classmates, in workshop projects. Admitted students receive workshop registration materials in May.

Special programs are planned for parents of new students to coincide with some of

the workshop dates. Programs are also provided for older or nontraditional students and other students with special needs.

**Transfer Orientation Programs.** Students transferring to the University from another institution are encouraged to attend workshops planned especially to acquaint them with some of the unique features and procedures of this University. These workshops differ substantially from beginning student programs since they deal with the issues and problems specifically associated with transferring from another educational institution to the University of Rhode Island. Orientation information and reservation materials are mailed separately to students admitted with advanced standing.

**Orientation for International Students.** Programs held just prior to the formal beginning of the academic year assist the international student to function effectively, comfortably, and with reasonable initial success in the new environment. Because successful transition to American culture, values, and institutions as well as to American academic life is crucial, new international students are required to attend the program. Full information regarding arrival dates and orientation program costs are mailed to students in the spring.

**Multicultural Student Orientation.** A special one-day supplemental information program is held at the beginning of the fall semester. Presented by Multicultural Student Services, this orientation complements the summer orientation workshops and explores multicultural issues and concerns in more detail.

### Lifestyles

**Residence Halls and Dining Centers.** Residence halls and boarding facilities are available to students during both the regular academic year and the summer sessions. There are 19 residence halls on campus offering a variety of living accommodations including coeducational housing, two all-female halls, a wellness hall, and an all-freshman hall. Priority consideration for residence hall assignments will be given to returning students who have submitted a housing deposit by March 9, and all other students who have submitted a housing deposit by May 1. All transfer students will be assigned on a space-available basis. Assignments of incoming students are made in the order in which their deposits are received. Every effort is

made to honor the roommate request. For rates and contracts, see pages 22-23.

Applications for residence hall living should be made to the Office of Residential Life.

Three dining centers and two cash restaurants offer a wide variety of food items and are operated by the University for the convenience of the students. The centers were constructed with bond funds. In order to guarantee payment of these bonds, the University requires that all students living in residence halls purchase a meal plan.

**Fraternities and Sororities.** About 1,950 students participate in the fraternity-sorority system which sponsors 21 houses designed for congenial small-group living. The staff of the Office of Campus Life advises these groups. The Greek houses promote scholarship, citizenship, and small-group living. Purchasing and business management for these houses is provided by a private corporation controlled by the fraternity and sorority members. The average room and board charge for fraternities and sororities is approximately \$200 less than for University residence halls and dining centers.

**Commuting from the Family Home.** Some students commute to the University from their family home. The advantages of home cooking, privacy, and lower costs are balanced against numerous challenges and opportunities: acquiring information about all aspects of the University; coping with transportation problems; balancing old and new relationships; budgeting one's time between academics, work, and home; and taking advantage of evening events on campus. Various services are coordinated by the Office of Student Life to meet commuter needs. Dining Services offers special meal plans for commuters; Health Services provides a satellite clinic of preventive services; the Commuter Center is a clearinghouse of information providing quick and accurate answers to questions about University life. A car pool matching service is available in the Memorial Union Commuter Lounge.

**Commuting from "Down-the-Line."** A number of students live in houses or apartments in the southern Rhode Island area known as "down-the-line." Juniors and seniors often choose to move off campus and live within a 10-mile radius of the campus where summer homes are rented to students for the school year. Typically, a student will pay from \$300 to \$350 a month, plus utilities, for each bedroom in a furnished house.

The majority of winter residents in these down-the-line summer communities are students who patronize nearby supermarkets, laundries, restaurants, shopping centers, and recreational facilities. Many commute by car pool or bus. An off-campus housing listing service is maintained in the Office of Residential Life. For a description of other commuter services, read "Commuting from the Family Home."

**Older Students.** Over 1,000 students on the Kingston Campus are over 25 years old. There is a student organization called Older Student Association (OSA) for these men and women who chose not to, or were unable to, attend college right after high school. Some are married, with family responsibilities. Some also have jobs and are part-time students. Some older students are attending school with G.I. Bill benefits. Some have retired from a first career and want to prepare for a second. The OSA plans a variety of social and educational programs and provides space in the Memorial Union for studying, taking breaks, or meeting with other students. Services coordinated by the Office of Student Life include an orientation designed to meet the needs of nontraditional students.

**Women Students.** Women students make up more than half of the student population. A Women's Center, administered by the Office of Student Life, provides specific resources to help women grow to their full potential. In addition, it coordinates lectures, programs, and activities of special interest to women. The Women's Center is located on campus at the corner of Alumni Avenue and Plains Road and has a lounge, a library, and meeting rooms. A free monthly newsletter is available upon request from the Women's Center.

**Multicultural Students.** Approximately 800 students use the variety of services for multicultural students. African-American, Native American, Asian, Latino, and Cape Verdean students have formed special interest groups to further meet their needs. The Multicultural Student Center (formerly the Uhuru SaSa House) serves as a gathering place for leisure, meetings, workshops, and various cocurricular activities. Counseling, programming, and other services are provided by the director and staff of Multicultural Student Services in the Office of Student Life.

**International Students.** Approximately 900 international undergraduate students, graduate students, visiting scholars, faculty, and

their dependents, are advised and served by International Student Services, Office of Student Life. Assistance is provided in the social, financial, housing, and immigration areas. All communications from international faculty and scholars concerning nonimmigrant visas are also handled by this office. The International Student Association and a number of national student organizations provide students with the opportunity to participate in cultural activities, and the University's International Student Center serves as a meeting place for study, social events, and other cocurricular activities.

**Students with Disabilities.** Approximately 250 students have identified themselves as disabled. A full range of services is offered by the University through the Office of Student Life. Individuals who need disability assistance, sign language interpretation, or use of an FM personal sound system for University programs or activities should call 401-792-2285 (TDD/voice) 72 hours in advance. For more information about individualized services and accommodations, please contact the assistant director of student life for disability services.

## Student Government

The Student Senate is a legislative body which represents the students to the administration and faculty and supervises extracurricular activities. It also distributes the Activity fee among the various student organizations through its tax committee. Individual residence halls form their own governments. The Interfraternity Council supervises fraternity affairs and the Panhellenic Association governs sorority life. The Commuter Association provides social and other assistance to commuter students.

## University Judicial System

Administered by the Office of Student Life, the University Judicial System is designed to promote student growth and to preserve the atmosphere of learning necessary to the well-being of all students. Community standards of behavior and University policies for students are published in the *Student Handbook*. The Judicial System receives complaints or allegations from aggrieved parties, the available facts are gathered and evaluated, and the case may be referred for formal judicial action by one of the University judicial boards or by administrative action (if the student admits guilt and chooses administrative action). Sanctions range from

"no further action" to suspension or dismissal from the University and may include education, counseling, fines, or other conditions relating to the nature of the violation.

## Student Activities

Eighty-two student organizations are advised by the Student Activities Office staff. Thousands of students participate in the activities sponsored by these organizations.

**Lectures and Arts Programs.** Lectures and arts programs are presented throughout the year to enrich the more formal academic program of the University. Lectures of general and specialized interest are presented by visiting scholars. The URI Arts Council plans programs that include music and dance concerts, film programs, and theatre presentations. Student organizations sponsor a popular entertainment series and bring speakers of national or international prominence to campus. These are funded by student funds.

**Student-Run Businesses.** The Memorial Union offers a number of opportunities to run businesses under full-time supervision but with a large amount of independence. Such enterprises as the food service units, the flower and gift shop, and the copy center allow for management training and for excellent work experience. Other student-controlled businesses include the fraternity and sorority cooperative buying service and the various residence hall cooperatives for purchasing food and sundry items.

**Athletics.** The Department of Athletics and Recreation is committed to providing recreational opportunities to students, faculty, staff, and alumni. The department seeks to complement the University's academic goals by enhancing physical, emotional, and social well-being through leisure activities and lifetime involvement in sports.

The Mackal-Keaney-Tootell Athletic and Recreation Complex provides a wide range of facilities in the Mackal Fieldhouse, Keaney Gymnasium, and Tootell Physical Education Center. The Mackal Field House offers a six-lane, 200-meter indoor track; four multipurpose courts for basketball, tennis, and volleyball; motorized court-divider netting enabling simultaneous use of the track and courts; a gymnastics training center with two in-ground, foam-filled pits; and three fitness rooms containing a complete circuit of Cybex/Eagle variable resistance weight training machines, plate-loading machines, Lifecycles, stair climbers, treadmills, and rowing machines. Keaney Gymnasium offers

a 4,000-seat arena and men's and women's locker rooms. And the Tootell Physical Education Center offers an aquatic center with competitive, instructional, and diving pools; East and West Gymnasium with basketball, volleyball, and badminton courts; football and weight rooms; and a dance studio.

Outdoor facilities include the Meade Football Stadium, 12 tennis courts, softball and baseball fields, an all-weather track, varsity field hockey and soccer fields, two beach volleyball courts, and numerous practice fields for recreation, intramural, club sport, and intercollegiate athletic activities.

Women's intercollegiate teams participate in Division I basketball, field hockey, gymnastics, soccer, softball, volleyball, cross country, indoor and outdoor track, swimming and diving, and tennis.

Men's intercollegiate teams participate in Division I-AA football, and in Division I baseball, basketball, golf, soccer, swimming, tennis, cross country, and indoor and outdoor track.

Competitive club sport teams participate in sailing, crew, ice hockey, men's volleyball, water polo, rugby, lacrosse, cycling, fencing, skiing, equestrian riding, and cricket. The Intramural Sports Program offers approximately 20 different sport activities and leagues throughout the year for all-male, all-female, and coeducational teams.

In addition to membership in the Atlantic Ten Conference, the University holds membership in the Yankee Conference (football), the National Collegiate Athletic Association, the Eastern College Athletic Conference, and the New England Intercollegiate Athletic Association.

**Honor Societies.** The University has chapters of a number of national honor societies, election to which is a recognition of accomplishment. The Society of the Sigma Xi is the scientific honor society, Phi Beta Kappa is a national liberal arts honor society, Phi Eta Sigma is a national honor society for freshmen, Phi Kappa Phi and the Golden Key are national honor societies for general scholarship, and Mortar Board recognizes scholarship and leadership. In more specialized areas are the following: Alpha Delta Sigma (advertising), Alpha Sigma Lambda (continuing education), Alpha Kappa Delta (sociology), Alpha Zeta (agriculture), Beta Alpha Psi (accounting), Beta Gamma Sigma (business), Kappa Delta Pi (education), Delta Pi Epsilon (business education), Dobro Slovo (Slavic), Eta Kappa Nu (electrical engineering), Lambda Kappa Sigma (women's pharmacy), Lambda Tau (medical technology), Omicron

Delta Epsilon (economics), Omicron Nu (home economics), Phi Alpha Theta (history), Phi Sigma (biological science), Phi Sigma Iota (foreign languages, literature, and linguistics), Pi Delta Phi (French), Pi Mu Epsilon (mathematics), Pi Sigma Alpha (political science), Pi Tau Sigma (mechanical engineering), Psi Chi (psychology), Rho Chi (pharmacy), Sigma Delta Pi (Spanish), Sigma Phi Alpha (dental hygiene), Sigma Pi Sigma (physics), Sigma Theta Tau (nursing), and Tau Beta Pi (engineering).

**Other Organizations.** In addition to intercollegiate athletic teams, a number of organizations represent the University in competition, exhibitions, and public performances. The University Band, Chorus, and Orchestra are under music department direction, and students may receive credit for participation in any one of these. The University Theatre, under theatre department direction, presents several plays each year. The URI Debate Council is directed by members of the speech department and participates in intercollegiate debates. The Cheerleaders are active at varsity football and basketball games and rallies.

On campus there are about 30 professional organizations related to the academic areas, and there are a number of groups serving social, recreational, cultural, religious, and political interests.

Students publish a newspaper four times a week, a biweekly gazette, a yearbook, and a literary publication. Radio station WRJU, with local AM and FM reception that reaches all of Rhode Island and parts of Connecticut and Massachusetts, is student run and operates 365 days a year.

## Student Services

**Career Services.** The Office of Career Services in Roosevelt Hall helps students assess goals, develop skills, and implement career objectives. All students, including freshmen, may seek information and assistance at this office. It is staffed by professional career advisors and planning specialists who provide individual advising, noncredit workshops, and on-campus interviews with a broad range of potential employers. The Career Services staff helps students with job and career inquiries, resume and cover letter writing, job search methods, and research concerning potential employers.

The Career Resources Center at the Office of Career Services houses written materials, videotapes, self-assessment tools, computer programs, brochures, and company litera-

ture. A variety of materials provide information concerning specific careers, job openings, graduate programs, internships, and training programs. Individual publications, such as the *Career Steps* series, are available upon request. Through the Office of Career Services, students may also attend special programs on careers and informational briefing sessions offered by employers. Both current URI students and alumni are welcome to use the services provided.

**Counseling Services.** The Counseling Center is staffed by professional counselors, psychologists, and social workers. It offers short-term individual counseling and a variety of skill-building and support groups to help students cope successfully with felt demands. The Counseling Center provides assistance to students in areas such as adjusting to university life, coping with stress, building satisfying relationships, and developing more self-esteem.

The Counseling Center also administers professional examinations such as the Miller Analogies Test, the Graduate Record Examinations, the Law School Admissions Test, the Medical College Admission Test, the National Teacher Examinations, and the Graduate Management Admission Test.

**University Chaplains.** The University chaplains are active in providing religious services, in counseling, advising campus groups, teaching, and programming. The chaplains are available to all students, staff, and faculty on a 24-hour basis. The six chaplains represent the Roman Catholic, Jewish, Episcopal, and Protestant communities; referrals are available to representatives of other faiths.

**Memorial Union.** The center for campus activities, the Union houses a wide variety of educational, social, cultural, and recreational services and facilities. These include meeting and conference room, lounges, browsing room, study rooms, dark room, radio station, campus newspapers, games room, offices for student organizations, student technical services, flower and gift shop, convenience store, games room, cafeteria, restaurant, private dining rooms, ballroom, and party room.

Among the services provided are a travel agency, unisex hair salon, credit union, copy center, pizza shop, bookstore, flower shop, and a scheduling and information office.

A student board of directors working with the director and staff of the Memorial Union and Student Activities Office deter-

mines policy for the union and plans a full program of social, cultural, intellectual, and recreational activities.

**Health Services.** Located in the Potter Building, University Health Services include special clinics in gynecology, family planning, internal medicine, surgery, orthopedics, nutrition, psychiatry, and dermatology, as well as generalist and nursing care, laboratory, X-ray, and pharmacy. Allergy injections are given, provided the vaccines are supplied.

Outpatient services during the academic year are available seven days a week, 24 hours a day, except for certain holidays or periods when the University is closed. Physicians are available either for direct services or on call. Nurses are on duty at all times during the academic year. Specialists are available by appointment only at specific times.

Hospital care is available in the local community. All medical expenses incurred outside the University's Health Services are the responsibility of the student. Therefore, you are required to have adequate health insurance coverage (see Health Services brochure, *To Your Health*). Students who choose their own private physician must assume responsibility for expenses incurred.

The Health Promotion and Education Department of Health Services is also located in the Potter Building. The department is concerned with teaching students to care for themselves and to become informed consumers of health care services. Designed to provide a variety of services enhancing personal health, the department sponsors wellness clinics, outreach activities, counseling, and health awareness days. Educational and prevention activities provide students with information and material promoting a healthy lifestyle. Various dorm and Greek workshops are also offered in conjunction with a highly successful peer education program.

**Learning Assistance Center.** The Learning Assistance Center, located in Roosevelt Hall, assists students seeking to improve their study techniques. Services are offered to students on an individual basis, in group workshops, and through peer tutoring. Individual sessions and workshops cover a range of topics including time management, strategies for improving reading and memory, test anxiety, and systems for taking notes. Peer tutoring in high-risk courses is offered at regularly scheduled times throughout the semester.

## Confidentiality of Student Records

Procedures for the release and disclosure of student records maintained by the University are in large measure governed by state and federal laws. Where the law is silent, the University is guided by the principle that the privacy of an individual is of great importance and that as much information in a student's file as possible should be disclosed to the student on request. A current or former student has the right to inspect and review official records, files, and data directly related to that student. This right does not extend to applicants, those denied admission to the University, or those who were admitted but did not enroll. Some records are not available to students.

Third parties do not have access to personally identifiable records or information pertaining to a student without the written consent of the student who specifies that the records be released. Parents are considered third parties.

Detailed guidelines for the release and disclosure of information from the student records are available from the Office of Student Life. These guidelines comply with the legal requirements of the Family Educational Rights and Privacy Act of 1974, as amended.

## UNIVERSITY COLLEGE

Diane W. Strommer, *Dean*  
 Everett T. Harris, *Assistant Dean*  
 Eric J. Jolly, *Assistant Dean*  
 Sarah H. Rockett, *Academic Counselor*  
 Winifred P. Kelley, *Academic Counselor,*  
*Athletes*

**U**niversity College offers incoming students a broad range of advising services and the opportunity to explore the variety of courses and programs available at the University before they commit themselves to a major in a degree-granting college. All entering students are enrolled in University College except registered nurses and students in special two-year programs. University College grants no degrees. Through its strong program of academic advising by faculty, its purpose is to assist new students in making a smooth transition to the University and to provide special assistance, programs, and events for freshmen and sophomores.

Advisors, who have regular office hours at University College in Roosevelt Hall, are faculty members who represent each of the majors in the degree-granting colleges. Each student is assigned an academic advisor who is a specialist in the area in which the student intends to major or who has a particular interest in working with students who are undecided about their choice of a major. Advisors help students to select and schedule the right courses, become familiar with University procedures and programs, and obtain whatever assistance may be needed.

If more students seek access to a program than can be accommodated due to limited facilities or faculty, those students who have shown the highest promise for academic success in the program will be admitted first. Where such limitations exist, the student must apply for acceptance in the program under conditions established by the specific department or college. This applies specifically to programs which have been declared "oversubscribed" by the vice president for Academic Affairs. Students who cannot be admitted to the program of their first choice may request entry into another program for which they have satisfied the entrance requirements, or spend one or two additional semesters in University College preparing to qualify for another program.

## COLLEGE OF ARTS AND SCIENCES



Steffen H. Rogers, *Dean*  
Winifred Brownell, *Associate Dean*  
Jerry L. Cohen, *Associate Dean*  
Joyce P. Allen, *Student Affairs*  
Jonathan L. Blaney, *Business Manager*

**T**he College of Arts and Sciences has two main objectives: first, to enable all students to understand our intellectual heritage, the physical and biological world in which we live, and our social, economic, and political development; and second, to provide programs of professional education in selected fields as well as a strong foundation for graduate study.

The college has programs of study leading to the following degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Fine Arts, and Bachelor of Music.

For information on premedical, pre-dental, prelaw, pre-physical therapy, pre-veterinary, and teacher education programs see pages 11-14.

### Curriculum Requirements

In order to earn a degree in the College of Arts and Sciences, the student must meet requirements in three main areas: 1) the major, 2) Basic Liberal Studies, 3) electives. These areas are described below.

**1. The Major.** Every student is required to specialize in a particular area or discipline; this area of specialization is called the major. The requirements for each major vary from field to field, and are described on pages 31-46. Any student who has met the requirements for two separate majors within the Bachelor of Arts, the Bachelor of Science, or the Bachelor of Music degree in the College of Arts and Sciences has earned a double major and may have both fields listed on the transcript.

A student must maintain a 2.00 quality point average in his or her major to meet graduation requirements. One-half of the total number of credits needed in a given major must be earned at the University of Rhode Island.

**Curricular Modifications.** In consultation with the advisor, and with the approval of the department and dean, a student may be permitted to modify the normal requirements of the department in which the student is majoring. Students may modify any curricular requirement except course level, minimum quality point average, total credits, and the Basic Liberal Studies requirements. These may be modified only with approval of the Scholastic Standing and Petitions Committee of the College of Arts and Sciences. Petition forms are available in the Office of the Dean.

**2. Basic Liberal Studies.** In the College of Arts and Sciences, General Education requirements are called Basic Liberal Studies, and are required of all students. This series of courses is intended to ensure that students have educational experiences which will help them to become informed and responsible participants in society and contribute to the full development of their individual capabilities. The Basic Liberal Studies program embodies the philosophy and fundamental knowledge which characterizes an arts and sciences education.

The following courses are approved by the College of Arts and Sciences to fulfill Basic Liberal Studies requirements.

#### *Fine Arts and Literature*

**Fine Arts:** ARH 120, 251, 252, 265, 284, 285, 359, 364, 374; ART 101, 103, 203, 207, 215, 231, 233; HPR 101; LAR 201; MUS 101, 106, 111; SPE 231; THE 100, 181, 351, 352, 381, 382, 383.

**Literature:** CLA 391, 395, 396, 397; CLS 160, 250, 335; ENG 160, 241, 242, 243, 247, 248, 251, 252, 260, 263, 264, 265, 280; FRN 327, 328, 391, 392, 393; GER 325, 326, 392; ITL 325, 326, 391, 392, 395; RUS 325, 326, 391, 392; SPA 305, 306, 307, 308, 325, 391, 392, 393.

#### *Letters*

APG 327; CLS 235; HIS 105, 111, 112, 113, 114, 115, 116, 118, 123, 125, 132, 141, 142, 143, 145, 150, 171, 176, 177, 180, 304, 305, 306, 307, 309, 310, 311, 315, 321, 322, 323, 324, 327, 332, 333, 340, 341, 342, 346, 353, 354, 372, 376, 377, 381, 382, 383, 384, 398; HPR 104, 203; JOR 110; LAR 202; LET 151, 351; NES 200; PHL 103, 204, 210, 212, 217, 235, 314, 318, 319, 321, 322, 323, 324, 325, 328, 331, 346, 355; PSC 240, 341, 342; PSY 310; RLS 111, 125, 126, 131; SPE 200, 205, 210; WMS 333.

#### *Natural Sciences*

APG 201; AST 108; AVS 101; BIO 101, 102; BOT 111; CHM 100, 101, 102, 103, 105, 112, 114, 124, 191, 192; FSN 207; GEL 100, 102, 103; HPR 103; OCG 123; PHY 109, 110, 111, 112, 130, 140, 185, 186, 213, 214, 285, 286; ZOO 111, 286.

#### *Social Sciences*

APG 200, 202, 203, 220, 319; ECN 125, 126, 300, 361; EDC 102, 312; ENG 232, 330; FSN 150; GEG 100, 102, 104; HCF 220; HPR 102; LIN 200, 202, 220; NRS 100; PSC 113, 116, 201, 221, 288; PSY 103, 113, 232, 235, 254; REN 105; SOC 100, 102, 204, 206, 212, 214, 216, 224, 238, 240, 241, 242, 316, 330, 336; SPE 220; WMS 200.

#### *Mathematics*

CSC 201; EST 220; MTH 107, 108, 111, 131, 132, 141, 142; QBA 101, 102.

#### *English Communication*

**Writing (Cw)**—CMS 101; ENG 103; WRT 101, 103, 112, 122, 123, 201, 227, 301, and 333.  
**General (C)**—CMS 101; PHL 101; SPE 101 and 103.

#### *Foreign Language and Culture*

See the chart on page 31.

**3. Electives.** Electives are courses not included in the Basic Liberal Studies or major requirements which students may freely select to earn the total number of credits required for graduation. Many students use their elective credits to develop a minor field (see page 10).



**Course Load.** No student may take more than 18 credits per semester without permission from the advisor and the dean.

**Graduation.** It is the responsibility of the student to be familiar with University and college requirements and to file for graduation by submitting a graduation work sheet, signed by his or her advisor, to the Office of the Dean. Deadlines for submission are as follows:

May Graduation—November 1

August Graduation—April 1

December Graduation—August 1

Seniors completing their final course work off-campus must file a Senior Off-Campus Study Form with the Office of the Dean.

## Bachelor of Arts

The Bachelor of Arts curriculums provide a general cultural background and an opportunity to major in any one of 31 fields of study.

**Curriculum Requirements.** Each candidate for a Bachelor of Arts degree must meet certain minimum curricular requirements in quantity and quality. These requirements in-

clude: at least 120 passed credits which include at least 42 credits in courses numbered 300 or above, and an overall quality point average of at least 2.00.

At least half the credits in the major must be earned at the University of Rhode Island.

In addition to meeting the requirements of the Basic Liberal Studies program, each candidate must complete a major and a number of elective courses. The major totals 27–33 credits.

**B.A. Major.** The major is the discipline or subject area in which the degree is granted. It may include not only required courses

## Basic Liberal Studies Requirements

Courses used to fulfill these requirements must be selected from the list approved by the College of Arts and Sciences. Basic Liberal Studies requirements are designed only for students in the College of Arts and Sciences, but also fulfill the University's General Education requirements.

Students may use *only two courses per discipline* (as identified by the course code) to fulfill requirements in Fine Arts and Literature, Letters, Social Sciences, and Natural Sciences.

Courses in a student's major may not be used to fulfill requirements in Fine Arts and Literature, Letters, Social Sciences, and Natural Sciences. Students completing a double major, however, may use courses from one major to fulfill these requirements.

### Basic Liberal Studies Requirements

#### BACHELOR OF ARTS

#### BACHELOR OF SCIENCE BACHELOR OF FINE ARTS BACHELOR OF MUSIC

### Fine Arts and Literature

9 credits (at least 3 in Fine Arts; at least 3 in Literature)

6 credits (3 in Fine Arts; 3 in Literature)

### Letters

9 credits

6 credits

### Social Sciences

9 credits

6 credits

### Natural Sciences

9 credits

6 credits

### Mathematics

3 credits

3 credit

### Communication Skills

6 credits (3 must be in a writing course; the other 3 may be in another writing course or may be selected from the general communications courses.)

6 credits (3 must be in a writing course; the other 3 may be in another writing course or may be selected from the general communications courses.)

### Foreign Language and Culture

Choose one of the following options:

- Coursework through the intermediate level (104 for modern languages; 302 for classical languages).
- Demonstration of competence through the intermediate level by examination.
- Study abroad in an approved academic program for one semester.

Choose one of the following options:

- Two-course sequence in a language studied for two or more years in high school through at least the 103 level in a modern language or 301 in a classical language.
- Demonstration of competence through the intermediate level by examination or by successful completion of 104 in a modern language or 302 in a classical language.
- A two-course sequence in a language not previously studied (or studied for less than two years in high school) through the beginning level (102).
- Study abroad in an approved academic program.
- Two courses selected from *within a single culture cluster* taken, if possible, in the same or consecutive semesters. See page 9 for a list of approved culture clusters.

within the major department but also courses in related subjects. The student should declare this major before the end of the fourth semester.

The major comprises no fewer than 27 nor more than 33 credits. These, however, are exclusive of any credits which are outside the major department but may be required by that department as prerequisites. Including such prerequisites, the major may not exceed 36 credits.

The student may earn up to 45 credits in course work offered by the major department as identified by the course code, counting as electives those credits earned in excess of the major requirements. Any credits in excess of 45 earned in the major department increase correspondingly the minimum number of credits required for graduation.

At least half of the credits in the major must be earned at the University of Rhode Island.

*Majors include:* anthropology, art (history and studio), biology, chemistry, classical studies, comparative literature studies, economics, English, French, geology, German, history, Italian, journalism, Latin American studies, linguistics, marine affairs, mathematics, music, philosophy, physics, political science, psychology, Russian, sociology, Spanish, speech, theatre, urban affairs (urban social processes, policy formation, and spatial development), and women's studies.

## Bachelor of Science

The Bachelor of Science curriculums are professionally oriented and, in general, meet the accreditation standards of national professional associations.

**Curriculum Requirements.** All candidates for the Bachelor of Science degree must fulfill the requirements of the Basic Liberal Studies program and complete a major of 30–45<sup>1</sup> credits within a department or program. In addition, a department may require for its major certain courses in other departments, with the stipulation that this will not preclude their application to the Basic Liberal Studies program requirements. No more than 130 credits can be required in a program.

At least half the credits in the major must be earned at the University of Rhode Island.

Each major within the B.S. curriculum has certain more specific requirements, as listed on the following pages.

*Majors include:* applied quantitative economics, applied sociology, botany, chemistry, chemistry and chemical oceanography, computer science, geology, geology and geological oceanography, mathematics, medical technology, microbiology, physics, physics and physical oceanography, statistical science, and zoology.

## Bachelor of Fine Arts

The curriculums provide the opportunity to discover and develop creative capacities in the fine arts. The emphasis is on richness of program and quality of experience rather than the development of isolated skills. Applicants registering for work toward the Bachelor of Fine Arts degree must receive permission of their major department by arranging for an interview with a departmental representative. Further details and appointments may be obtained through the University Admissions Office.

**Curriculum Requirements.** All candidates for the Bachelor of Fine Arts degree are required to meet the requirements of the Basic Liberal Studies program.

At least half the credits in the major must be earned at the University of Rhode Island.

*Majors include:* art and theatre.

## Bachelor of Music

The Bachelor of Music degree is designed to prepare qualified students for careers in the field of music. Students may select one of the seven majors depending on their aims and abilities. See page 67 for admission requirements for teacher education programs.

**Curriculum Requirements.** All candidates for the Bachelor of Music degree are required to meet the requirements of the Basic Liberal Studies program.

At least half the credits in the major must be earned at the University of Rhode Island.

Students are encouraged to attend department-sponsored events each semester.

*Majors include:* classical guitar, voice, piano or organ, orchestral instrument, music history and literature, theory and composition, and music education.

All areas provide for a good background in academic subjects, and each curriculum contains basic courses for the development of sound musicianship. An audition conducted by members of the music department staff is required for permission to register for work toward the Bachelor of Music degree.

The music education curriculum includes courses in educational psychology, methods, and a teaching internship which leads to state certification for teachers.

The total number of credits for graduation is 125 (126 for music education majors).

## African and Afro-American Studies Program

*Director:* Assistant Professor Amadife

The African and Afro-American studies program is an interdisciplinary program which offers a minor to undergraduate students. Its objective is to broaden students' intellectual and global experiences through the study of Africa and African diaspora. See page 10 for a description of the requirements for this minor.

## Anthropology

The Department of Sociology and Anthropology offers the degree of Bachelor of Arts (B.A.) in anthropology.

*Faculty:* Professor Poggie, *chairperson*. Professors Loy, Pollnac, and Turnbaugh; Assistant Professors LaVelle and Lynch.

Students desiring to major in anthropology must complete a total of 30 credits (maximum 45 credits) in that subject. This total must include at least one course (three credits) from each of the five subdisciplines of anthropology as follows: *Cultural Anthropology* includes APG 203, 309, 322, 326, 405, and 413; *Culture Areas* includes APG 311, 313, 315, 319, and 325; *Physical Anthropology* includes APG 201, 300, 327, 350, 390, 400, and 412; *Archaeology* includes APG 202, 303, and 317; *Anthropological Linguistics* includes APG 200.

In addition, each student majoring in anthropology must complete APG 401 and one of the following methodology courses: APG 302, 317, or 350. The remaining nine credits may be selected from course offerings in anthropology.

It is recommended that the first course in each subdiscipline be at the 200 level. These 200-level courses are prerequisites for upper division courses in the subdisciplines, although prerequisites may be waived by the instructor.

It is strongly recommended, but not required, that anthropology majors take at least one course in inferential statistics.

<sup>1</sup>The student majoring in chemistry, for ACS accreditation purposes, will be allowed 48 credits.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Art

The Department of Art offers a Bachelor of Arts (B.A.) degree with a major in either art history or art studio, and a Bachelor of Fine Arts (B.F.A.) degree in studio.

*Faculty:* Professor Onorato, *chairperson*. Professors Calabro, Holmes, Keller, Klenk, Leete, Parker, Richman, Rohm, and Roworth; Assistant Professors Hollinshead and Pagh.

### BACHELOR OF ARTS

**Art History.** It is recommended that students intending to major in art history plan to complete a minimum of six credits in the history of art by the end of the sophomore year. For graduation, students must complete 30 credits (maximum 45 credits) in art history, including ARH 251 and 252 (6). At least 12 credits must be taken from ARH 354, 356, 359, 363, 365. An additional six credits must be taken from the preceding group or one or more of the following: ARH 284, 285, 364, 374, 375. An additional six credits must be taken on the 400 level. At least three of these credits must be taken from ARH 461, 462, 480. It is recommended that students who expect to pursue graduate studies in art history take ARH 469 or 470.

It is recommended that students majoring in art history achieve intermediate level proficiency in at least one foreign language. Students anticipating graduate study in art history may need proficiency in a second foreign language. Students are also encouraged to enroll in courses in art studio, history, literature, music, and philosophy.

A total of 120 credits is required for graduation. Students must fulfill the requirements of the Basic Liberal Studies program and take 30–45 credits in art history. Students may use courses in art studio to satisfy Basic Liberal Studies requirements. Of the 120 credits required for graduation, 42 credits must be in courses numbered 300 or above.

**Art Studio.** It is recommended that students intending to major in art studio plan to complete a minimum of nine credits in studio by the end of the sophomore year. For graduation, a minimum of 30 credits in art (maximum 45 credits) must be completed, including: studio courses—ART 101, 103,

and 207; art history courses—ARH 251, 252, and one art history elective at the 200-level or above.

If students plan to take ART 405, 406 in their senior year, they must participate in ART 003 Junior Review during their junior year.

An additional six credits must be selected from one of the following sequences of studio courses: ART 213, 314; 215, 316; 221, 322; 231, 332; 233, 334; 243, 344. This sequence must be completed by the end of the junior year.

In the senior year, an additional six credits must be selected from 300- or 400-level studio courses (except 309 and 310).

It is recommended that art majors elect at least three credits in the allied fields of music or theatre.

A total of 120 credits is required for graduation. Students must fulfill the requirements of the Basic Liberal Studies program and take 21–36 credits in art studio and nine credits in art history. Students may use additional approved BLS courses in art history to satisfy Basic Liberal Studies requirements. Of the 120 credits required for graduation, 42 credits must be in courses numbered 300 or above.

### BACHELOR OF FINE ARTS

It is recommended that students intending to enter the B.F.A. program in art plan to complete ARH 120 in the freshman year and to have completed an additional three credits in art history and a minimum of 24 credits in studio by the end of the sophomore year.

Students in the B.F.A. program must complete a minimum of 72 credits in art. Studio courses required of all majors include: ART 101 (3), 103 (3), 207 (3), 208 (3), either 213 or 215 (3), 405 (3), and 406 (3).

An additional 12 credits must be selected from 200-level studio courses, and an additional 21 credits must be selected from 300-level studio courses.

All B.F.A. students must participate in ART 003 Junior Review in the first semester of their junior year.

ARH 120 is required of all students, and an additional nine credits must be selected in art history, three credits of which must be numbered 300 or above.

An additional six credits of art electives must be selected at the 300 level or above in either studio or art history.

A minimum of 120 credits is required for graduation, including the following: major requirements in studio (54), art history (12),

studio and/or art history electives (6). Students must meet the requirements of the Basic Liberal Studies Program.

## Biological Sciences

Programs in biological sciences are administered by the Departments of Botany, Microbiology, and Zoology. A student may earn either the Bachelor of Arts (B.A.) degree in biology or the Bachelor of Science (B.S.) degree in botany, microbiology, or zoology. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees, also offered by these departments, are described in the *Graduate School Bulletin*.

*Botany Faculty:* Professor Goos, *acting chairperson*. Professors Beckman, Hargraves, Harlin, Killingbeck, Koske, Smayda, and Swift; Associate Professor Mottinger; Assistant Professors Norris and Roberts; Adjunct Associate Professor Thursby; Adjunct Assistant Professors Lum (Hammen) and Roberts; Emeriti Professors Albert, Caroselli, Hauke, Lepper, and Palmatier.

*Microbiology Faculty:* Professor Laux, *chairperson*. Professors Cabelli, P.S. Cohen, H.W. Fisher, Hufnagel, Sieburth, Traxler, and N.P. Wood; Associate Professors Nelson and Sperry; Assistant Professors Fischl and Norris; Emeritus Professor Carpenter.

*Zoology Faculty:* Professor Bibb, *chairperson*. Professors Bullock, Cobb, Costantino, Goertemiller, Hammen, Heppner, Hill, Hyland, Kass, Shoop, and Winn; Associate Professors Goldsmith, Krueger, Mottinger, and Specker; Assistant Professor Twombly; Research Assistant Professor Bengtson; Adjunct Professors Mather, Miller, Sharma, and Turner; Emeriti Professors Harrison, Wilde, and Zinn; Emeritus Associate Professor Mathewson.

### BACHELOR OF ARTS

Students selecting a major in biology must complete a minimum of 28 credits (maximum 45 credits) in biological sciences including the following basic courses: BIO 101 and 102 or BOT 111 and ZOO 111 (6–8), MIC 211 (4), plus BOT electives (6), and ZOO electives (6).

The remaining four to six credits may be selected from courses in botany, microbiology, or zoology. Students in this major must elect a year of chemistry. Those wishing to prepare for a professional career in the life sciences should enroll in a Bachelor of Science curriculum described below.

A total of 120 credits is required in the B.A. program. At least 42 credits must be in courses numbered 300 or above.

### BACHELOR OF SCIENCE

This curriculum provides specialization in the fundamental principles of botany, microbiology, or zoology, and is concerned with the application of biological science to problems of modern life. It also provides preparation for graduate work in biological fields including aquatic, environmental and marine biology, molecular, cellular and developmental biology, biological oceanography, genetics, immunology, limnology, and physiology, and for admission to professional schools of medicine, dentistry, and veterinary medicine.

Students who know their professional goals are encouraged to declare their major as soon as possible to take advantage of skilled advising in botany, microbiology, or zoology. Students *must* declare their major when leaving University College.

Each concentration requires a total of 130 credits.

#### *Freshman Year*

*First semester: 17–18 credits*

Introductory biology requirement (see Botany, Microbiology, Zoology), CHM 101, 102 or 103, 105 (4), math requirement (3–4) (see Botany, Microbiology, Zoology), modern language or elective (3), and Basic Liberal Studies requirement or free elective (3).

#### *Freshman Year*

*Second semester: 17–18 credits*

Introductory biology requirement (see Botany, Microbiology, Zoology), CHM 112, 114 (4), math requirement (3–4) (see Botany, Microbiology, Zoology), modern language or elective (3), and Basic Liberal Studies requirement or free elective (3).

#### *Sophomore Year*

*First semester: 16 credits*

MIC 211 (4),<sup>2</sup> CHM 227 (3), and nine credits of Basic Liberal Studies requirements or free electives<sup>3</sup> for a total of 16 credits.

#### *Sophomore Year*

*Second semester: 17–18 credits*

Curriculum requirement (3–4), Basic Liberal Studies requirements or free electives (9), and the remaining chemistry requirements CHM 226,<sup>4</sup> 228 (5).

**Botany.** A minimum of 30 credits in botany is required and must include BOT 111, 262, 321, 352, and 445. The remaining 14 credits will be selected to complete a particular subdisciplinary path. In addition, the student must take MIC 211; CHM 101, 102, or 103, 105, 112, 114, 226,<sup>4</sup> 227, 228 or 124, 126 and BCP 311; PHY 213, 285, 214, 286 or 111 and 112, 185 and 186; ZOO 111; WRT 101; SPE 101; MTH 131; CSC 201 or MTH 132; a modern language is recommended.

Students are strongly urged to consult faculty advisors to obtain guidance on the various subdisciplinary paths available.

**Microbiology.** A minimum of 30 credits in microbiology is required, including MIC 333, 413, 414, 415, 416, and 495 or 496, and one course selected from MIC 412, 422, 432, or 576. The student majoring in microbiology may include any course in microbiology; BOT 432, 465, 534, 542; PCG 536; ZOO 327, 331, 341, 437, and 512. A student who plans to attend graduate school is advised to take MTH 131 and 132 or 141 and 142, and BCP 435. In addition the student must take BOT 111 and 352; ZOO 111; CHM 101, 102, or 103, 105, 112, 114, 212, 226,<sup>4</sup> 227, and 228; BCP 311; PHY 213, 214, 285, and 286 or 111, 112, 185, and 186; and MTH 131 or 141 and one semester from the following: MTH 111, 132, 142; CSC 201 or EST 407.

**Zoology.** A minimum of 30 credits in zoology is required and must include ZOO 101, 102, 104, 201, 202, and 203. A maximum of six credits in ZOO 391, 392, 491, and 492 may be used toward the required 30 credits. In addition the student must take BOT 111; CHM 101, 102 or 103, 105; CHM 112, 114, 226,<sup>4</sup> 227, 228 or 124, 126, and BCP 311;<sup>4</sup> MTH 131, 132 or 141, 142; PHY 111, 112, 185, and 186 or PHY 213, 214, 285, 286; and a modern language through the intermediate level. Study abroad does not satisfy the departmental language requirement. ZOO 111 is not required for a major in zoology but may be applied toward the 30 credits required. Students are encouraged to become involved in the department's varied research activities by arranging to register for assigned work for guided research.

Students are strongly urged to consult the zoology advisors and obtain from them detailed programs of the various subdisciplinary paths through the department most suited to their particular career goals.

## Chemistry

The Department of Chemistry offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in chemistry are described in the *Graduate School Bulletin*.

*Faculty:* Professor Fasching, *chairperson*. Professors C.W. Brown, P.R. Brown, Cheer, Dain, Fisher, Freeman, Kirschenbaum, Nelson, Rosen, Rosie, Vittimberga, and Yang; Associate Professors Euler, Forcé, and Peterson.

### BACHELOR OF ARTS

Students selecting this field must complete a minimum of 29 credits (maximum 45 credits) in chemistry by taking either 10 credits as CHM 191, 192; or 12 credits as CHM 101, 102, 112, 114, and 212; and 16 credits as CHM 291, 292, 335, 431, and 432. One additional course must be chosen from 401, 412, or 427. CHM 226, 227, 228 may be substituted for the 291, 292 sequence.

MTH 141 and 142, one year of physics (PHY 213, 214, 285, and 286, or PHY 111, 112, 185, and 186)<sup>5</sup> are required.

A total of 120 credits is required for the B.A. degree. At least 42 of these must be in courses numbered 300 or above.

### BACHELOR OF SCIENCE

Designed to prepare the student for a career in chemistry, this curriculum provides a thorough training in both theories and practices in the fields of analytical, physical, organic, and inorganic chemistry. Those who complete this curriculum are prepared to continue with graduate study leading to an advanced degree, to teach or to enter specialized fields in development, control, technical sales, and research either in the chemical industry or in industries involving chemical processes.

The curriculum has been approved by the American Chemical Society Committee on the Professional Training of Chemists. Graduates receive a certification card issued by the society and are eligible for senior membership after two years of experience in

<sup>2</sup> Not required of zoology majors.

<sup>3</sup> Botany and zoology majors are strongly advised to begin taking required major courses at this time.

<sup>4</sup> CHM 229, 230, which is offered in summer only, may be substituted for CHM 226.

<sup>5</sup> PHY 203, 204, 205, 273, 274, and 275 may be substituted for PHY 213, 214, 285, 286.

the field of chemistry. It is strongly recommended that WRT 101 or 201 be taken in the freshman year. CHM 425, 427 should be taken in the junior year by students planning research or advanced course work in organic chemistry.

A total of 130 credits is required for the B.S. degree.

This sample program can easily be adapted for transfer students and for premedical and preveterinary programs.

#### *Freshman Year*

*First semester: 17 credits*

CHM 191 (5),<sup>6</sup> MTH 141 (4), language<sup>7</sup> or free elective (3), Basic Liberal Studies requirements (5).

#### *Freshman Year*

*Second semester: 17 credits*

CHM 192 (5),<sup>6</sup> MTH 142 (4), language<sup>7</sup> or free elective (3), Basic Liberal Studies requirements (5).

#### *Sophomore Year*

*First semester: 17 credits*

CHM 291 (4), MTH 243 (3), PHY 213 (3) and 285 (1),<sup>5</sup> language<sup>7</sup> or Basic Liberal Studies requirements (6).

#### *Sophomore Year*

*Second semester: 17 credits*

CHM 292 (4), MTH 244 (3), PHY 214 (3) and 286 (1),<sup>5</sup> language<sup>7</sup> or Basic Liberal Studies requirements (6).

#### *Junior Year<sup>8</sup>*

*First semester: 14 credits*

CHM 431 (3), 335 (2), physics elective (3), Basic Liberal Studies requirement (3), free elective (3).

#### *Junior Year*

*Second semester: 17 credits*

CHM 432 (3), 412 (3), 414 (2), Basic Liberal Studies requirements (6), free elective (3).

#### *Senior Year*

*First semester: 16 credits*

CHM 401 (3), 425 (2), 427 (3), curriculum<sup>9</sup> requirements (3-5), free electives (3-5).

#### *Senior Year*

*Second semester: 15 credits*

CHM 492 (1), 402 (2), curriculum<sup>9</sup> requirement (0-3), free electives (8-11).

## Chemistry and Chemical Oceanography

The Department of Chemistry and the Graduate School of Oceanography offer a Bachelor of Science (B.S.) degree in chemistry and chemical oceanography.

*Coordinator:* Professor James L. Fasching (chemistry).

The faculty consists of the members of the Department of Chemistry and the chemical oceanography faculty of the Graduate School of Oceanography.

The program is designed to prepare the student for a career either in chemistry or in chemical oceanography. This curriculum provides a thorough training in both theory and practice in the fields of analytical, physical, organic, inorganic, and oceanographic chemistry. Those who complete this curriculum are prepared to continue with graduate study leading to an advanced degree in chemistry or in chemical oceanography, to teach, or to enter specialized fields in development, control, technical sales, and research in the chemical or oceanographic industries.

The curriculum has been approved by the American Chemical Society Committee on the Professional Training of Chemists. Graduates receive a certification card issued by the society and are eligible for senior membership after two years of experience in the field of chemistry. It is strongly recommended that WRT 101 or WRT 201 be taken in the freshman year.

A total of 130 credits is required for graduation.

#### *Freshman Year*

*First semester: 17 credits*

CHM 191 (5),<sup>6</sup> MTH 141 (4), language<sup>7</sup> or free elective (3), Basic Liberal Studies requirements (5).

#### *Freshman Year*

*Second semester: 17 credits*

CHM 192 (5),<sup>6</sup> MTH 142 (4), language<sup>7</sup> or free elective (3), Basic Liberal Studies requirements (5).

#### *Sophomore Year*

*First semester: 17 credits*

CHM 291 (4), MTH 243 (3), PHY 213 (3) and 285 (1),<sup>5</sup> language<sup>7</sup> or Basic Liberal Studies requirements (6).

#### *Sophomore Year*

*Second semester: 17 credits*

CHM 292 (4), MTH 244 (3), PHY 214 (3) and 286 (1),<sup>5</sup> language<sup>7</sup> or Basic Liberal Studies requirements (6).

#### *Junior Year*

*First semester: 14 credits*

CHM 431 (3), 335 (2), OCG 501 (3), Basic Liberal Studies requirement (3), free elective (3).

#### *Junior Year*

*Second semester: 15 credits*

CHM 432 (3), OCG 521 (3), Basic Liberal Studies requirements (6), free electives (3).

#### *Senior Year*

*First semester: 16 credits*

CHM 401 (3), 425 (2), 427 (3), OCG 493 (3), free electives (5).

#### *Senior Year*

*Second semester: 17 credits*

CHM 412 (3), 414 (2), OCG 494 (3), free electives (9).

## Classical Studies

The Department of Modern Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a concentration in classical studies.

*Faculty:* Assistant Professor Suter, *section head.*

Students selecting classical studies as a major complete a minimum of 30 credits: a) 18 credits from either LAT 301, 302, 497, 498, or GRK 301, 302, 497, 498; b) six credits from the other language at any level; c) six additional credits from any courses offered by the Classics Section. Either LAT 101, 102 or GRK 101, 102 sequence may count toward the major; the other 100-level sequence, not counting toward the major, will serve as a prerequisite for advanced courses.

<sup>5</sup> PHY 203, 204, 205, 273, 274, and 275 may be substituted for PHY 213, 214, 285, 286.

<sup>6</sup> Students can take CHM 101, 102, 112, 114, and 212 instead of 191-192.

<sup>7</sup> Students planning to attend graduate school should take Russian or German through the intermediate level.

<sup>8</sup> See comments above concerning CHM 425, 427.

<sup>9</sup> CHM 353, 354, or with permission of department, any 500-level chemistry course.

Certification in secondary education in Latin is available through the Department of Education.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Clinical Laboratory Sciences

See Medical Technology, page 41.

## Comparative Literature Studies

The Department of English and the Department of Modern and Classical Languages and Literatures offer jointly the Bachelor of Arts (B.A.) degree in comparative literature. The Master of Arts (M.A.) degree is described in the *Graduate School Bulletin*.

*Coordinator:* Associate Professor Dvorak (English).

The choice of courses in a student's major and in the area of special interest must have both sufficient range (genre, period, and at least two literatures) and a specific focus. It must be approved by an advisor and the Comparative Literature Advisory Committee consisting of members from the Department of English and the Department of Modern and Classical Languages and Literatures. It must also be filed with the Office of the Dean.

Students in the Comparative Literature Studies program fulfill the Fine Arts and Literature requirement by taking six credits in Fine Arts and three credits in Literature which are over and above their major requirements.

Students must complete a minimum of 30 credits in one of the three major options:

**English and one foreign literature in the original language.** nine credits in English and/or American literature, 300 level or above; nine credits in one foreign literature; three credits in literary theory or criticism (CLS 350). The remaining credits are to be taken from the comparative literature core courses or the literature courses in the Departments of English or Modern and Classical Languages and Literatures.

**Two foreign literatures in the original language.** nine credits in each of two foreign literatures; three credits in literary theory or criticism (CLS 350). The remaining courses are to be taken from the comparative literature core courses or the literature courses in the Departments of English or Modern and Classical Languages and Literatures.

**World literature in English translation.** three credits in the nature of language from APG 200, 409; LIN 202, 220; or PHL 440; three credits in literary theory or criticism (CLS 350). The remaining credits are to be taken from the comparative literature core courses and the literature courses in the Department of English, and the literature in English translation courses offered by the Department of English and the Department of Modern and Classical Languages and Literatures. In addition, a student choosing this option must have proficiency in a foreign language through the intermediate level.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Computer Science

The Department of Computer Science and Statistics offers the Bachelor of Science (B.S.) degree in computer science. The Master of Science (M.S.) program in computer science and the Doctor of Philosophy (Ph.D.) in applied mathematical sciences with a specialization in computer science are described in the *Graduate School Bulletin*.

*Faculty:* Associate Professor Lamagna, *chairperson*. Professor Carney; Associate Professors Baudet, Carrano, Kowalski, and Ravikumar; Assistant Professors Peckham, and Wolfe; Adjunct Associate Professor Arnold; Adjunct Assistant Professor Rubin.

The curriculum is designed to provide a broad introduction to computer science fundamentals including software and systems, programming languages, machine architecture, and theoretical foundations of computing. The required mathematics preparation provides a basis for advanced work. Students will be well prepared for graduate study in computer science or computer-related areas.

Students in the computer science curriculum must complete a minimum of 39 credits as follows: CSC 211 (3), 212 (3), 301 (3), 311 (3), 331 (3), 340 (3), 411 (3), 412 (3); 15 additional credits chosen from CSC 312 (3), 320 (3), 402 (3), 406 (3), 420 (3), 436 (3), 440 (3), 445 (3), 450 (3), 481 (3), ELE 405 (3), including at least three credits from among CSC 440, 445, 450.

The student will also complete MTH 141 (4), 142 (4), 215 (3), 243 (3); PHY 213, 285 (4), 214, 286 (4); one SPE course (3); one WRT course (3); and one course from among the following: MTH 316 (3), 322 (3), 382 (3), MTH/CSC 447 (3), PHL 451 (3).

In addition, one of the following two-course sequences in applied mathematics is required: EST 409, 412; EST 409, 413; IME 411, 412; IME 432, 433; MTH 451, 452; MTH 451, 456; MTH 471, 472.

Students majoring in computer science who leave the University and are subsequently readmitted must follow the computer science curriculum requirements in effect at the time of their readmission, unless an exception is granted by the department and approved by the dean.

A total of 124 credits is required for graduation. A possible course of studies follows:

### First Year

*First semester: 16 credits*

MTH 141 (4), WRT 101 (3), Basic Liberal Studies requirements or electives (9).

### First Year

*Second semester: 16 credits*

CSC 211 (3), MTH 142 (4), SPE 101 (3), Basic Liberal Studies requirements or electives (6).

### Second Year

*First semester: 15 credits*

CSC 212 (3), MTH 243 (3), Basic Liberal Studies requirements or electives (9).

### Second Year

*Second semester: 15 credits*

CSC 301 (3), 340 (3), MTH 215 (3), Basic Liberal Studies requirements or electives (6).

### Third Year

*First semester: 16 credits*

CSC 331 (3), PHY 213, 285 (4), math elective (3), Basic Liberal Studies requirements or electives (6).

### Third Year

*Second semester: 16 credits*

CSC 311 (3), computer science electives (3), PHY 214, 286 (4), Basic Liberal Studies requirements or electives (6).

### Fourth Year

*First semester: 15 credits*

CSC 411 (3), computer science electives (6), applied math elective (3), Basic Liberal Studies requirement or elective (3).

### Fourth Year

*Second semester: 15 credits*

CSC 412 (3), computer science elective (3), applied math elective (3), Basic Liberal Studies requirements or electives (6).

## Economics

The Department of Economics offers a Bachelor of Arts (B.A.) degree in economics and a Bachelor of Science (B.S.) degree in applied quantitative economics. The Master of Arts (M.A.) in economics is described in the *Graduate School Bulletin*.

*Faculty:* Associate Professor Ramsay, *chairperson*. Professors Barnett, Burkett, and Starkey; Associate Professors Lardaro, McIntyre, Mead, Ramstad, Sharif, and Suzawa; Assistant Professors Latos and Miller.

### BACHELOR OF ARTS

Students selecting this field must complete a minimum of 30 credits (maximum 45 credits) in economics, including ECN 125 and 126 (6), 361 (3), 327, 328 (6), and at least one quantitative course—374 (3), 375 (3), 376 (4).

In addition, at least 12 credits must be completed from economics courses numbered 300 or above. Students may substitute up to six credits from other departments; three credits from statistics—QBA 201 (3), 202 (3), EST 308 (3), 409 (3), or 412 (3)—and three credits from another related course approved by the department chairperson. These substitutions must be filed with the Office of the Dean.

Students planning to do graduate work in economics are encouraged to take ECN 375, 376, and at least one semester of statistics.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

### BACHELOR OF SCIENCE IN APPLIED QUANTITATIVE ECONOMICS

Students selecting this field must complete a minimum of 30 credits in economics, including ECN 125 and 126 (6), 323 and 324 (6), 361 (3), 376 (4), 444 (3), and at least three credits selected from 400- and 500-level courses.

In addition, students in this curriculum must complete the following courses outside the department: MTH 141, 142, 215 (11); EST 409 (3) or QBA 201 and 202 with a grade of B or better; CSC 201 (3); SPE 101 (3); and WRT 333 (3).

A total of 120 credits is required for graduation.

## English

The Department of English offers a Bachelor of Arts (B.A.) degree. The Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) programs in English are described in the *Graduate School Bulletin*.

The Department of English offers jointly with the Department of Modern and Classical Languages and Literatures the Bachelor of Arts degree in comparative literature studies (see page 36).

*Faculty:* Professor Stineback, *chairperson*. Professors Barber, Campbell, Cuddy, Donnelly, Dvorak, Goldman, Kunz, Leo, MacLaine, Mathews, Neuse, Pearlman, Schwegler, Seigel, Stein, R.M. Tutt, and S. White; Associate Professors Arakelian, Burke, Cane, M. Hills, Jacobs, Malina, Martin, McCabe, Reaves, Schoonover, Shamoan, K. Stein, Swan, and R.H. Tutt; Assistant Professors Capello, Gitti, Mensel, Okeke-Ezigho, Reynolds, Shugar, and Vaughn; Adjunct Professor Strommer.

Students selecting this field must complete a minimum of 30 credits (maximum 45 credits), including ENG 241, 251, and 252. Of the remaining 21 credits, three credits must be selected from each of the following groups: *Literature or Language Theory* (232, 310, 330, 336, 337, 350); *Genre* (243, 263, 264, 265, 362, 364, 366, 367, 446, 447, 448, 458, 468, 469, 477); *Major Figure* (280, 380, 384, 472, 485, 486); *Historical Period* (242, 270, 340, 347, 348, 349, 370, 371, 372, 374, 376, 377, 379); six credits selected from *Parallel Studies* (205, 247, 248, 260, 300, 305, 335, 346, 360, 385, 445, 474; WRT 301, 333) and three credits from any ENG course. At least 18 of the 30 credits must be at the 300 level or above.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## French

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a concentration in French. The Master of Arts (M.A.) program in French is described in the *Graduate School Bulletin*.

*Faculty:* Associate Professor Joseph Morello, *section head*. Professors Chartier, Rogers, and Rothschild; Associate Professors Kuhn and Toloudis; Assistant Professors Driver and Hammadou.

Students selecting this field are required to complete at least 30 credits (maximum 45 credits) in French, not including FRN 101, 102, 131, 391, 392, 393, or 394. They may elect either a language-civilization option requiring six credits in civilization and a minimum of six credits in literature, or a language-literature option with a minimum of nine credits in literature. Courses in literature may be selected from among FRN 327, 328, courses at the 400 level, and, with permission of the instructor, courses at the 500 level.

Additionally, students with proven competence in French language and literature, with permission of the advisor, the section head, the department chairperson, and the dean of the College of Arts and Sciences, may take courses toward their concentration in related fields such as history, linguistics, art, or philosophy.

Students in secondary education with an academic sequence in French (see page 69) must take 36 credits and cannot count FRN 101, 102, 131, 391, 392, 393, 394, or any course in linguistics other than 201 which may be taken if approved by the French Studies Section.

Approval must be filed with the Office of the Dean.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Geography and Marine Affairs

See Marine Affairs on page 40.

## Geology

The Department of Geology offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree in geology and a Bachelor of Science (B.S.) degree in geology and geological oceanography. The Master of Science (M.S.) degree in geology is described in the *Graduate School Bulletin*.

*Faculty:* Professor Hermes, *acting chairperson*. Professors Boothroyd and Cain; Associate Professors Fastovsky, Frohlich, and Murray; Assistant Professor Veeger.

### BACHELOR OF ARTS

Students selecting this field must complete a minimum of 30 credits (maximum 45 credits) in geology, including GEL 103 (4) and 488 (3).

The B.A. curriculum provides more flexibility than the B.S. curriculum in the choice

of courses and offers the possibility of highly individualized programs in consultation with the faculty advisor. The B.A. curriculum can provide an appropriate background for geology-related fields dealing with natural resources, environmental studies, conservation, resource management, and others. Students intending to pursue graduate studies in the geosciences should consider the B.S. curriculum in geology or complement the B.A. curriculum with a broad background in basic sciences. The federal government identifies GEL 210, 240, 320, 321, 370, 450, and supporting sciences as a minimum background for geologists.

Students interested in teaching earth science should contact the Department of Geology for details about a cooperative program with the Department of Education.

A total of 120 credits is required in the B.A. program. At least 42 of these must be in courses numbered 300 or above.

#### BACHELOR OF SCIENCE

This curriculum is designed as a foundation for careers in the earth sciences. Students in the curriculum may elect one of the following options: general geology, environmental geology, geophysics, hydrogeology, petrology, or sedimentology geology. These options offer preparation for further work in areas such as environmental geology, mineral and energy resources, hydrology, sedimentology, coastal geology, paleontology, paleoecology, igneous and metamorphic petrology, geochemistry, structural geology, and tectonics.

All B.S. majors are required to complete the following geology courses: 103 (4), 320 (4), 321 (4), 370 (4), 450 (4), 488 (3), and an approved summer field camp (GEL 480) for a minimum of four credits. The field camp is normally undertaken following the junior year.

Students must also complete the following supporting course work: MTH 131 (3) or 141 (4); MTH 132 (3) or 142 (4); BIO 101 (3) or BOT 111 (4); BIO 102 (3) or ZOO 111 (4);<sup>10</sup> CHM 101, 102 (4), and 112, 114 (4); CSC 201 or EST 308 (3); PHY 111, 185 (4) or 213, 285 (4); and PHY 112, 186 (4) or 214, 286 (4).

A total of 126 credits is required for graduation.

**General Geology Option.** Emphasizes a broad approach to earth science and incorporates introductory courses in each of the major earth science disciplines. This option includes all of the geology and supporting

science courses recognized by the federal government as a minimum background for geologists. Students selecting this option are required to complete the following geology courses: GEL 210 (4), 240 (4), 422 (3), and 465 (3).

**Environmental Geology Option.** Emphasizes the study of geology as it pertains to the environment, including the recognition and reduction of effects of geologic hazards (coastal erosion, volcanic eruptions, earthquakes). Students selecting this option are required to complete the following geology courses: GEL 100 (3), 210 (4), and 301 (3), and must take two of the following: GEL 468 (3), 483 (3), 485 (3), 515 (3), 550 (3), 577 (3), NRS 410 (3), 423 (4), 424 (4), 461 (4), and CPL 434 (3).

**Geophysics Option.** Emphasizes applied geophysics, particularly the use of near-surface geophysical methods such as geoelectrics, gravity, and seismic refraction. Students selecting this option are required to complete the following geology courses: GEL 465 (3), 485 (3), 487 (3). Students must also take two of the following: GEL 422 (3), 468 (3), 483 (3), 565 (3), 570 (3).

**Hydrogeology Option.** Emphasizes the study of groundwater and its interaction with earth materials. This option includes all of the hydrology and supporting science courses recognized by the federal government as a minimum background for hydrologists. Students selecting this option are required to complete the following geology courses: GEL 210 (4), 468 (3), 483 (3). Students must also take two of the following: GEL 422 (3), 485 (3), 515 (3), 550 (3), 568 (3), 583 (3), NRS 412 (3), 461 (4) or CVE 475 (3); NRS 514 (3); and CPL 434 (3).

**Petrology Option.** Emphasizes study of the genesis and natural history of rocks through geochemistry, petrography, and structural analysis. Student selecting this option are required to complete the following geology courses: GEL 422 (3), 530 or 531 (3). Students must also take two of the following: GEL 401 (3), 465 (3), 468 (3), 530 or 531 (3), 554 (3), 565 (3), 570 (3), 580 (3), and CHM 431 (3).

**Sedimentary Geology Option.** Emphasizes the study and interpretation of depositional environments, both in the present and in the geologic record, including the study of sedimentary processes, paleontology, the reconstruction of paleoenvironments, and stratigraphy. Students selecting this option

are required to complete the following geology courses: GEL 210 (4), 240 (4), and 468 (3). Students must also take two of the following: GEL 422 (3), 465 (3), 515 (3), 550 (3), 554 (3), NRS 423 (4), and NRS 424 (4).

#### Geology and Geological Oceanography

The Department of Geology and the Graduate School of Oceanography offer a Bachelor of Science (B.S.) degree in geology and geological oceanography.

*Coordinator:* Professor O.D. Hermes (geology). The faculty consists of the members of the Department of Geology and the marine geology and geophysics faculty of the Graduate School of Oceanography.

This demanding program includes a comprehensive background in geology and a solid introduction to geological oceanography. The curriculum includes the full set of chemistry, physics, biology, and mathematics courses required for a B.S. in geology. Students in the program will be advised jointly by geology and oceanography faculty members.

A senior research project will be taken in the Graduate School of Oceanography as OCG 493 or 494, under the direction of a GSO faculty member. Three core courses in oceanography—OCG 401, OCG 541, and OCG 542—will provide the student with a good overview of his or her intended field, and also relieve the student of two required courses if he or she continues on to study oceanography at the graduate level at the University of Rhode Island. In addition to this, the student may find opportunities for summer employment or participation in oceanographic research cruises after his or her junior year.

Students completing this program of study will be well prepared to pursue either conventional geology career options or careers in geological oceanography. Technical positions in private or government oceanographic laboratories are available for geological oceanographers with bachelor's degrees. Students who pursue graduate studies can expect to find a high demand for geological oceanographers with advanced degrees. Stu-

<sup>10</sup> Students electing the petrology, hydrogeology, or geophysics options may, with the chairperson's approval, take GEL 240 or an additional semester of mathematics, chemistry, or physics in lieu of a second semester of biological sciences. Completion of these courses fulfills the Natural Sciences and Mathematics requirements of the Basic Liberal Studies Program.



dents entering the URI Graduate School of Oceanography from this program will have a significant head start compared with those entering from most other undergraduate institutions.

The following core courses are required: GEL 103 (4), 210 (4), 240 (4), 320 (4), 321 (4), 370 (4), 422 (3), 450 (4), 465 (3), 480 (4), 488 (3); OCG 401 (3), 541 (4), 542 (4); and OCG 493 or 494 (3). Students must also complete the following supporting course work: MTH 131 (3) or 141 (4) and 132 (3) or 142 (4); CSC 201 (3) or EST 308 (3); BIO 101 (3) or BOT 111 (4); BIO 102 (3) or ZOO 111 (4); CHM 101, 102 (4) and 112, 114 (4); PHY 111, 185 (4) or 213, 285 (4); PHY 112, 186 (4) or 214, 286 (4).

A total of 126 credits is required for graduation.

## German

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a major in German.

*Faculty:* Professor Grandin, *section head*. Professor Dornberg; Assistant Professor Hedderich; Lecturers Crossgrove, Einbeck, and Von Reinhart.

Students selecting this major complete at least 30 credits (maximum 45 credits) in German, not including GER 101, 102, or 392. At least six credits must be taken at the 400 level in literature.

Students in secondary education (see pages 68–69) must take 36 credits in German.

Students in the international engineering program may use six credits of German literature toward the Fine Arts and Literature requirement.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## History

The Department of History offers a Bachelor of Arts (B.A.) degree. The Master of Arts (M.A.) program in history is described in the *Graduate School Bulletin*.

*Faculty:* Professor Briggs, *chairperson*. Professors Cohen, Costigliola, Findlay, Gutchen, Honhart, Kim, Klein, Strom, Thurston, and Weisbord; Associate Professor Honhart; Assistant Professors Daniel, Marmon, Parker, and Schwartz; Adjunct Associate Professor Klyberg.

Students selecting this field must complete a minimum of 30 credits (maximum 45 credits) in history, including a minimum of six and a maximum of 12 credits in courses numbered 100 to 299.

The balance of required credits is in courses numbered 300 or above, including one undergraduate seminar, HIS 395 or 396. Under unusual circumstances, with permission of the department chairperson, a student may substitute, in place of the seminar, HIS 391 leading to a substantial research paper.

Undergraduates wishing to take courses on the 500 level must secure the permission of the department.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Italian

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a major in Italian.

*Faculty:* Professor Trivelli, *section head*. Professor Viglionese; Associate Professor Sillanpoa.

Students selecting this field complete at least 30 credits (maximum 45 credits), not including ITL 101, 102, 391, 392, 393, or 395. ITL 325, 326 are required for the major.

Students in secondary education (see pages 68–69) must take 36 credits.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Journalism

The Department of Journalism offers the Bachelor of Arts (B.A.) degree.

*Faculty:* Associate Professor Luebke, *chairperson*. Assistant Professors DeHoyos, Levin, and Silvia; Instructor Moritz.

The Department of Journalism offers a course of study that is strongly grounded in the liberal arts. The department also requires that students explore the theoretical and practical aspects of contemporary American journalism. The focus is on reporting, writing, editing, and producing the news for print and broadcast. In addition, the department offers several public relations courses. Students can choose their journalism courses to provide them depth in one medium or breadth across the media. The emphasis in

all courses is on critical thinking and effective communication to a mass audience.

Students majoring in journalism must complete a minimum of 30 credits (maximum 45 credits) in journalism. All journalism majors must complete JOR 115, 220, 310, and 410. In addition, students must select nine credits from skills courses: JOR 230, 320, 321, 325, 330, 331, 340, 341, 420, 430, 441; and three credits from theory courses: JOR 210, 311, 415. Any journalism courses may be chosen for the remaining six credits. Students are encouraged to consult with their advisors about the mix of journalism courses that best meets their goals.

Journalism majors must fulfill some of their Basic Liberal Studies requirements by choosing from the following list of courses. The department has identified these courses as better preparation for students to both study and practice journalism.

*Fine Arts and Literature:*<sup>11</sup> ARH 120 or MUS 101 or THE 100 and ENG 160 or 241 or 242 or 251 or 252 or 280.

*Letters:*<sup>11</sup> HIS 142 or 341 or 354 and PSC 240 or 341 or 342 or PHL 103 or 204 or 217.

*Social Sciences:*<sup>11</sup> PSC 113 or 116 or 201 and SOC 102 or 240 or 242 or 336 or WMS 200.

*Natural Sciences:*<sup>11</sup> BIO 101 (or BOT 111) or BIO 102 (or ZOO 111) or CHM 101 and 102 or GEL 103 or PHY 111 and 185 or PHY 112 and 186.

*Communications:*<sup>11</sup> PHL 101.

The only journalism courses open to freshmen are JOR 110 (for nonmajors) and JOR 115 (for majors). Journalism majors are urged to concentrate on their Basic Liberal Studies requirements during their freshman and sophomore years. In addition to the aforementioned required courses, other Basic Liberal Studies courses are recommended as useful for journalism majors. Students should consult with their advisors about complete Basic Liberal Studies requirements and about other courses that meet their individual goals.

Students must earn a grade of C or better in a “skills” course (including JOR 220) to enroll in the next level course. Only three credits of JOR 220 may be used to satisfy graduation requirements.

The Department of Journalism, in conjunction with the Department of Marketing and the Department of Speech Communication, has developed a minor in public relations.

<sup>11</sup> Students must complete all additional Basic Liberal Studies requirements with courses approved by the College of Arts and Sciences (see page 31).

Students majoring in journalism are encouraged to pursue a minor or a double major.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Languages

See Modern and Classical Languages and Literatures, page 42.

## Latin American Studies

The Departments of Sociology and Anthropology, History, and Languages offer a Bachelor of Arts (B.A.) degree in Latin American studies.

*Faculty:* Associate Professor Morin, *LAS Committee chairperson.* *LAS Committee members:* Professors McNab and Poggie; Assistant Professors Gitti, Parker, and White.

Some faculty members in the College of Arts and Sciences, who do not appear as members of the LAS Committee, also offer courses which are accepted in fulfilling the requirements leading to the B.A. in Latin American studies.

Students selecting this field must complete a minimum of 36 credits as follows: APG 315, HIS 381, 382, and one additional history course dealing with the major; six credits in Spanish or Portuguese from the approved list; LAS 397; PSC 201; ECN 363; and nine credits of electives from the approved list of courses.

Students must file their program of study with the Office of the Dean.

Credits leading to the B.A. in Latin American studies may also be taken at foreign universities or other universities in the United States with Latin American studies programs with the approval of the Latin American Studies Committee, as long as 15 credits in the major are taken at URI.

Students are highly encouraged to participate in study abroad programs in Latin America.

A list of required and suggested courses acceptable for this program can be found on page 119. Courses not listed are not necessarily excluded from this program, provided that the subject matter deals in some way with Latin America. The Latin American Studies Committee must approve the student's program including any course substitutions.

The Latin American Studies Committee will assist students in the formulation and

approval of their programs. The current coordinator is Thomas Morin, associate professor of Hispanic studies in the Department of Modern and Classical Languages and Literatures.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Linguistics

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a major in linguistics.

*Faculty:* Professor Rogers, *section head.*

Students selecting this field must complete a minimum of 27 credits, as follows: at least 12 credits from LIN 202, 220, 302, 320, 330, 497, 498; and the remaining credits necessary to complete the minimum requirement from APG 200; ENG 232, 330, 337, 530, 534, 536; FRN 503; ITL 408; LIN 414, 420; PHL 440; CMD 373, 375; PSY 388; SPE 410.

Students must also attain competence equivalent to the terminal level of 206 in at least one language other than English.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Marine Affairs

The Department of Marine Affairs offers a Bachelor of Arts (B.A.) degree. The Master of Marine Affairs (M.M.A.) and Master of Arts in Marine Affairs (M.A.M.A.) programs are described in the *Graduate School Bulletin*.

*Faculty:* Professor Juda, *chairperson.* Professor West; Associate Professors Burroughs, Marti, and Nixon; Assistant Professors Gordon and Krausse; Lecturer Aquarone; Emeriti Professors Alexander, Knauss, and Michel.

Students selecting this field are required to complete at least 30 credits (maximum 45 credits) in marine affairs as follows.

All of the following courses (12 credits): MAF 100, 120, 410, 482.

One of the following courses (three credits): MAF 220, 221.

Five of the following courses (15 credits): MAF 312, 315, 320, 330, 413, 456, 461, 471, 472, and 499.

In addition to the above marine affairs requirements, students must also take REN 105 (which may be used toward fulfilling the Basic Liberal Studies Social Science requirement) and OCG 401.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

Students in other New England states may enroll in the marine affairs program under the New England Regional Student Program. See details on page 20.

## Mathematics

The Department of Mathematics offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in mathematics are described in the *Graduate School Bulletin*.

*Faculty:* Professor Montgomery, *chairperson.* Professors Beauregard, Datta, Driver, Fraleigh, Grove, Ladas, Lewis, P.T. Liu, Sine, Shisha, Suryanarayan, and Verma; Associate Professors Clark, Finizio, Kaskosz, and Pakula; Assistant Professors Eaton and Roberts; Emeriti Professors Roxin and Schwartzman; Emeritus Associate Professor R. Caldwell.

### BACHELOR OF ARTS

Students in this curriculum may tailor a program to suit their individual needs and interests. They should meet with their advisor no later than the end of the first semester of the sophomore year to plan a complete program. This program, and any subsequent changes in it, must be approved by the advisor and the department chairperson. It must contain at least 32 credits (maximum 45 credits) in mathematics, and include MTH 141, 142, 215, 243, 307, and 316, plus 12 or more additional credits in mathematics, at least six credits of which should be at the 400 level.

MTH 107, 108, and 111 may not be taken by students majoring in mathematics.

A total of 120 credits is required in the B.A. curriculum. At least 42 of these must be in courses numbered 300 or above.

### BACHELOR OF SCIENCE

Students in this curriculum may elect either the general program or the applied mathematics option.

**General Program.** This program stresses basic theories and techniques, and includes an introduction to the principal areas of mathematics. It is recommended for students considering graduate study in mathematics.

Students in this program must complete MTH 141, 142, 215, and 243. These courses should normally be taken in the freshman and sophomore years. Students must complete an additional 27 credits in mathematics, including MTH 307, 316, 425, 435, 436, and 462. MTH 107, 108, and 111 may not be taken by students majoring in mathematics. The student must take PHY 213, 285 (which may be counted toward the student's Basic Liberal Studies requirements) and PHY 214, 286 (which also serve to fulfill the student's Basic Liberal Studies requirements). CSC 211 and 212 are recommended.

**Applied Mathematics Option.** This program is intended for the student who anticipates a career as an applied mathematician or mathematical consultant with an organization such as an industrial or engineering firm, or a research laboratory. The student learns the mathematical ideas and techniques most often encountered in such work. Although a theoretical foundation is developed, the applications are emphasized.

The student must take MTH 141, 142, 215, and 243, preferably by the end of the sophomore year. The student must complete MTH 307 and 435, 436 or 437, 438, and also CSC 211, 212. In addition, the student must select nine credits from Group I (Mathematics), and nine credits from Group II (Applications).

**Group I:** MTH 143, 244, 316, 322, 418, 441, 444, 451, 452, 456, 461, 462, 471, and 472. Other courses may be used for this group with prior permission of the department.

**Group II:** CSC 301, 311, 331, 350, 411, 450; ECN 323, 324, 375, and 376; ELE 210; EST 409, 412; IME 432, 433; MCE 162, 263; MGS 445, 465, 466, 475; PHY 213 and 285, 214 and 286, 322, 331, 341; ZOO 460. Other courses may be used for this group with prior permission of the department.

The Office of the Dean must be informed of any substitutions.

Both programs require 130 credits for graduation.

**Minor in Mathematics.** Students who wish to declare a minor in mathematics must earn credit for MTH 141, 142, 215, 243, and two three-credit mathematics courses chosen from MTH 307, 316, 322, or any 400-level course. At least one of these two courses must be at the 400 level.

## Medical Technology (Clinical Laboratory Sciences)

The medical technology curriculum is administered by the Department of Microbiology and offers a Bachelor of Science (B.S.) degree in medical technology. The Master of Science (M.S.) degree in clinical laboratory sciences is described in the *Graduate School Bulletin*.

**Faculty:** Professor Laux, *chairperson*; Gregory Paquette, *coordinator*. Clinical Assistant Professors Heelan and Lewandowski; Adjunct Clinical Professors Allegra, Lee, Nayak, and Micolonghi; Adjunct Clinical Associate Professors Kessiman, Roberti, and Schwartz; Adjunct Clinical Assistant Professors Campbell, Gmuer, Howard, and Mello.

Medical technology is the health profession concerned with the diagnosis, treatment, and prevention of disease using biological, chemical, and physical methods in the clinical laboratory. During the first three years, the emphasis is on Basic Liberal Studies requirements and basic courses in biology, chemistry, mathematics, and physics needed for background in the applied sciences. The courses of the senior year are taught off campus by the staff members of affiliated hospital schools of medical technology. These schools are accredited by the National Accreditation Agency in Clinical Laboratory Science. The senior year is a 12-month program of study and starts in late July, soon after the completion of the third year of the curriculum. It is taken at one of the following hospitals which are about 30 miles from the main campus of the University: Rhode Island Hospital and St. Joseph Hospital in Providence; the Memorial Hospital of Rhode Island in Pawtucket; or the Rhode Island Medical Center in Cranston. The clinical program includes lecture and laboratory instruction in the various areas of clinical laboratory science—clinical chemistry, clinical microbiology, hematology, immunology, and immunohematology—and prepares the student for the national certification examinations.

Applicants to this curriculum should have completed 60 credits by June of the sophomore year and should have taken most of the courses listed below during the first two years. Students are selected by the University Committee on Medical Technology and by program officials of the hospital

schools. Since the number of students admitted to this professional curriculum is limited, interested students should consult early in their college career with the coordinator so that they will be familiar with the requirements and application procedures. Flexibility in the curriculum permits the student who is not accepted to fulfill requirements for the Bachelor of Science degree in another concentration such as microbiology, zoology, or certain related health sciences.

Students with a degree in health or a science discipline may also apply to the clinical internship as a fifth year of study.

A total of 130 credits is required for graduation.

### *Freshman Year*

*First semester: 15–16 credits*

CHM 101, 102 or 103, 105 (5); BOT 111 or ZOO 111 (4); MTC 102 (1); MTH 111 or 131 (3) or 141 (4), and one Basic Liberal Studies requirement (3).

### *Freshman Year*

*Second semester: 14 credits*

CHM 112, 114 (4), ZOO 111 or BOT 111 (4), CSC 201 (3), and one Basic Liberal Studies requirement (3).

### *Sophomore Year*

*First semester: 17 credits*

CHM 227 (3), PHY 111, 185 (4), MIC 211 (4), and Basic Liberal Studies requirements (6).

### *Sophomore Year*

*Second semester: 17 credits*

CHM 226, 228 (5), MTC 202 (3), ZOO 242 (3), and Basic Liberal Studies requirements (6).

### *Junior Year*

*First semester: 18 credits*

MIC 333 (3), MTC 483 (3), EDC 102 or 312 (3), and Basic Liberal Studies requirements (9).

### *Junior Year*

*Second semester: 17 credits*

MIC 432 (3), BCP 311 (3), EST 308 or 407 (3), MGT 300 or 301 (3), and electives (5).

### *Senior Year*

*First semester: 16 credits*

MTC 401 (8), 403 (4), 405 (2), and 407 (2).

### *Senior Year*

*Second semester: 16 credits*

MTC 402 (8), 404 (6), and 406 (2).

## Military Science (Army ROTC)

The Department of Military Science conducts the Reserve Officer Training Corps (ROTC) program for students who desire to earn commissions as officers in the United States Army. Students must complete the equivalent of eight semesters of military science subjects. Completion of the four-year military science program qualifies students to petition their academic college for a minor in military science. Participation in the program during the first two years (freshman/sophomore) is without any obligation to the military. After completing University degree requirements and departmental requirements, students are eligible to be commissioned as Second Lieutenants in the United States Army in either the Active Army, Army Reserve, or National Guard.

*Faculty:* Professor FitzHarris, *chairperson*. Assistant Professors Moylan, Muilenberg, and Philbrook.

## Modern and Classical Languages and Literatures

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree in classical studies, French, German, Italian, linguistics, Russian, and Spanish, which are described in alphabetical order, as well as courses in Portuguese.

*Faculty:* Professor Dornberg, *chairperson*.

The Department of Modern and Classical Languages and Literatures offers jointly with the Department of English the Bachelor of Arts degree in comparative literature studies (see page 36).

## Music

The Department of Music offers a Bachelor of Arts (B.A.) degree and a Bachelor of Music (B.Mus.) degree. The Master of Music (M.M.) degree is described in the *Graduate School Bulletin*.

*Faculty:* Professor Lee, *acting chairperson*. Professors J.S. Ceo, Dempsey, Fuchs, Gibbs, Kent, Pollart, and Rankin; Associate Professors Glaze and Ladewig; Assistant Professor Livingston; Special Instructors Hemberger, Key, and Parillo; Artist Instructors Buttery, J.H. Ceo, Cobb, Dean, Djokic, Forgey, Hieken, Hemenway, Heroux, Marinaccio, Mitchell-Velasco, Murray, Noreen, Salazar, Sparks, Stabile, Sturm, and Swanson.

## BACHELOR OF ARTS

Students selecting music as a major will complete 32 credits (maximum 45 credits) as follows: MUS 113, 114 (8), 215, 216 (6), 221, 222 (6), 251 (6), 317 (3), and upper-division music history and literature (3).

Transfer credits in music theory and performance must be validated by placement examination.

To conform with the requirements of the National Association of Schools of Music of which the department is a member, it is strongly recommended that at least six and up to 15 elective credits be taken in upper-level music courses. An audition is required for the study of performance.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## BACHELOR OF MUSIC

Students can be admitted to the Bachelor of Music degree program only by audition and should contact the Department of Music for specific requirements.

All students in this degree program must take the following music courses: MUS 113, 114 (8), 172 (1), 215, 216 (6), 221, 222 (6), 250 (0), and 317 (3) for a total of 24 credits. Students may meet the requirement of MUS 172 by passing the piano proficiency examination before accumulating 60 credits. Students who have not passed the piano proficiency examination by the end of MUS 172 will be expected to take MUS 181, 182 as needed. Seven semesters of MUS 250 are required of all Bachelor of Music students.

All students except guitar performance majors are expected to enroll in one of the following ensembles each semester: MUS 290, 291, 293, 294, 295, 390. No student should participate in more than three ensembles of any kind in a single semester.

Transfer credits in music theory and performance must be validated by placement examination.

All Bachelor of Music students will take the piano proficiency examination at the conclusion of one year of study or by the end of the second semester of the sophomore year. Failure to pass the proficiency examination or any portion of it requires reexamination in succeeding semesters. No one will graduate with a Bachelor of Music degree until this requirement is fulfilled.

In addition, each student selects one of the following majors.

A total of 125 credits is required for graduation (126 for music education).

**Classical Guitar.** Students selecting classical guitar must complete MUS 261 (12), 312 (2), 293 or 295 (4), 299H (4), 420 (3), 441–tablature (3), 442 (1), 461 (16), 465 (0), and upper-division music history/literature (3).

**Voice.** Students selecting voice must complete MUS 171 (1), 181, 182 (2), 261 (12), 242 (8), 283, 284 (4), 311 (2), 293 or 295 (8), 460 (12), 465 (0), 483, 484 (4), and upper-division music history (3).

Students majoring in voice must also take 15 credits of foreign language in any three or more languages at any level. This requirement may be modified or satisfied by advanced placement.

Student registered for MUS 261A and 461A must attend a weekly two-hour performance–master class laboratory.

**Piano or Organ.** Students selecting piano or organ must complete MUS 261 (12), 293 or 295 (2), 299A or 390 (6), 420 (3), 461 (16), 465 (0), MUS 481, 482 (4), and upper-division music history and literature (3 or 4).

**Orchestral Instrument.** Students selecting orchestral instrument must complete MUS 261 (12), 312 (2), 321 (3), 290, 291, or 294 (8), 293 or 295 (2), 299 (2), 420 (3), 442 (2), 461 (16), 465 (0), and upper-division music history/literature (3).

**Music History and Literature.** Students selecting music history and literature must complete MUS 251 (8), 290, 291, 293, 294, 295, or 390 (6), 293 or 295 (2), 407 (3), 408 (3), 420 or 423 (3), 430 (3), 431 (3), 432 (3), 433 (3), 434 (3), 441 (3–6), and 451 (8).

Students concentrating in music history and literature must take nine credits of foreign language and must have proficiency through 104 in either French or German.

**Music Theory and Composition.** Students selecting music theory and composition must complete 251 (8), MUS 241 (8) for piano majors, MUS 173, 175, 177, 179, and four elective credits (8) for nonpiano majors, 321 (3), 290, 291, 293, 294, 295 or 390 (6), 293 or 295 (2), 418 (3), 420 (3), 423 (3), 441 (3), 451 (8), and upper-division music history/literature (3 or 4).

Students majoring in composition must take MUS 117, 419, and 422.

**Music Education.** See pages 68–69 for admission requirements for teacher education programs. Students majoring in music education must complete the following. For all students: MUS 171 *pianists exempt* (1), 251 (8), 311, 312 (4), 321 (3), 339 (3), 340 (3),

451 (8), 455 (0), EDC 102 (3),<sup>12</sup> 250 (1), 312 (3), and 484 (6).

Students registered for MUS 261A and 461A must attend a weekly two-hour performance-master class laboratory.

In addition, students must select one of the following three options.

*General (vocal and instrumental preparation):* MUS 173, 174 *vocalists exempt* (2), 169, 170, 175, 176, 177, 178, 179, 180 (8),<sup>13</sup> 290, 291 or 294 (2), 293 or 295 (2), and four additional credits selected from 290, 291, 293, 294 (wind and percussion majors must include two credits of MUS 291 and two credits of MUS 294), 295, or 390 (4).

*Vocal specialization:* MUS 170 *guitarists exempt* (1), 173, 174 *vocalists exempt* (2), 181, 182 *pianists exempt* (2), 242 *pianists exempt* (2), and 293 or 295 (8). Up to four credits of MUS 390 may be substituted for 293 or 295.

*Instrumental specialization:* MUS 169, 175, 176, 177, 178, 179, 180 (7),<sup>13</sup> 290, 291, 294 (wind and percussion majors must include two credits of 291 and two credits of 294) (8), and 293 or 295 (2). Up to four credits of MUS 390 may be substituted for 290, 291, or 294.

Students must meet the Basic Liberal Studies Foreign Language/Culture requirement by completing six credits in one of the following: Italian, French, or German (one not studied in high school).

The piano proficiency examination must be completed a calendar year before student teaching. EDC 102, 312, and all the courses listed above, with the exception of MUS 321 and senior-level courses in performance, instrumental classes and major ensembles, must also be completed before entering supervised student teaching. The practice teaching schedule must be preceded by a period of observation.

## Philosophy

The Department of Philosophy offers a Bachelor of Arts (B.A.) degree. The Master of Arts (M.A.) program in philosophy is described in the *Graduate School Bulletin*.

*Faculty:* Professor Johnson, *chairperson*. Professors Y.C. Kim, Peterson, Schwarz, Wernisch, and Zeyl; Associate Professors Kowalski and Pasquerella; Assistant Professors Foster and Roberts.

Students selecting this field must complete no less than 30 credits (maximum 45 credits) in philosophy. Students must take at least one course from each of the following: logic (101, 451) and ethics (212, 314, 414).

They must take both metaphysics (341) and epistemology (342), plus at least two history of philosophy courses (321–324), and at least one course at the 400 level or above. The remaining nine credits may be chosen freely from the list of PHL courses offered by the department. However, students planning graduate work are advised to take PHL 451.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Physics

The Department of Physics offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in physics are described in the *Graduate School Bulletin*.

*Faculty:* Professor Malik, *chairperson*. Professors Bonner, Desjardins, Hartt, Kahn, Kaufman, Letcher, Meyerovich, Muller, Nightingale, Northby, Nunes, Penhallow, Pickart, and Steyerl; Assistant Professor Heskett; Adjunct Professors Cuomo and Goodman; Adjunct Assistant Professor Forbes; Emeriti Professors Stone and Willis.

## BACHELOR OF ARTS

Students selecting this field must complete a minimum of 40 credits (maximum 45 credits) in physics, mathematics, and computer science, including: PHY 203, 204, 205, 273, 274, 275 (12), 322 (3), 331 (3), 381, 382 (6), 401 or 402 (1), 451 (3), 491, 492 (3), MTH 244 (3), CSC 201, 212 (6).

It is strongly recommended that students take MTH 141 and 142 in the freshman year. If the student is considering graduate study, it is recommended that courses in French, German, or Russian be elected.

A total of 120 credits is required in the B.A. program. At least 42 of these must be in courses numbered 300 or above.

## BACHELOR OF SCIENCE

This curriculum provides a general background in both theoretical and experimental physics. It forms an adequate foundation for further study at the graduate level toward an advanced degree, and also prepares the student for a career as a professional physicist in industry or government.

Initiative, independent solution of laboratory problems, and research are encouraged in the advanced laboratory courses.

In addition to the major, students are encouraged to use the large block of elective credits to develop a program of study as a minor (described under Curriculum Requirements on page 30) in applied or interdisciplinary fields, such as acoustics, geophysics, optics, energy, astronomy/astrophysics, atmospheric science, computational physics, mathematical physics, physics education, chemical physics, ocean physics, and engineering physics. As with all minors, it will be recorded on the student's grade transcript.

The following courses will usually be required for the B.S., but exceptions and/or substitutions are possible, and may be arranged by consulting the department. For example, a well-prepared student may enroll for physics in the first semester of the freshman year; or courses in a related discipline may be taken instead of physics courses.

A total of 129 credits is required for graduation.

### Freshman Year

*First semester: 15 credits*

MTH 141 (4), PHY 203, 273 (4), and Basic Liberal Studies requirements and electives (7).

### Freshman Year

*Second semester: 16 credits*

MTH 142 (4), PHY 204, 274 (4), CSC 201 (3), Basic Liberal Studies requirements and electives (5).

### Sophomore Year

*First semester: 16 credits*

MTH 243 (3), PHY 205, 275 (4), CSC 212 (3), Basic Liberal Studies requirements (6).

### Sophomore Year

*Second semester: 15 credits*

MTH 244 (3), PHY 331 (3) and 306 (3), and Basic Liberal Studies requirements (6).

### Junior Year

*First semester: 18 credits*

PHY 322 (3) and 381 (3), MTH 215 (3), Basic Liberal Studies requirements (6), and free electives (3).

### Junior Year

*Second semester: 15 credits*

Mathematics elective at the 300 or 400 level (3), PHY 382 (3) and 420 (3), and free electives (6).

<sup>12</sup> EDC 102 may also be counted toward the social sciences requirement in the Basic Liberal Studies Program.

<sup>13</sup> One course in the student's major instrument area is exempt.

**Senior Year***First semester: 15 credits*

PHY 451 (3), 483 (3), MTH 461 (3), and free electives (6).

**Senior Year***Second semester: 16 credits*

PHY 402 (1), 452 (3), 455 (3), 484 (3), and free electives (6).

**Physics and Physical Oceanography**

The Department of Physics and the Graduate School of Oceanography offer a Bachelor of Science (B.S.) degree in physics and physical oceanography.

*Coordinator:* Professor S.S. Malik (Physics). The faculty consists of the members of the Department of Physics and the physical oceanography faculty of the Graduate School of Oceanography.

This program includes a comprehensive background in physics and a solid introduction to physical oceanography. The curriculum includes a full set of physics and mathematics courses required for a B.S. in physics, with extra emphasis on classical physics, plus additional upper-division or graduate-level courses in fluid dynamics and physical oceanography.

The senior physics research project (PHY 483 and 484) will be undertaken in the Graduate School of Oceanography (GSO) under the supervision of a GSO faculty member. In addition, students may find summer employment or participate in oceanographic research cruises after their junior year.

Students graduating in this course of study will be well prepared to pursue either conventional physics career options or careers in physical oceanography. Technical positions in private or government oceanographic research laboratories are available for physical oceanographers at the B.S. level. Students who continue on to graduate studies should expect to find high demand for physical oceanographers with advanced degrees. It is recommended that students planning to attend an oceanography graduate school take PHY 520 (Classical Dynamical Theory); students wishing to keep open the option of physics at the graduate level should take PHY 452 (Quantum Mechanics). Students entering the URI Graduate School of Oceanography from this program will have a significant head start compared to

those entering from most other undergraduate institutions.

A total of 129 credits is required for graduation.

**Freshman Year***First semester: 15–17 credits*

MTH 141 (4), PHY 203, 273 (4), CHM 101, 102 (4), Basic Liberal Studies requirements (3–5).

**Freshman Year***Second semester: 17 credits*

MTH 142 (4), PHY 204, 274 (4), CSC 201 (3), Basic Liberal Studies requirements (6).

**Sophomore Year***First semester: 16 credits*

MTH 243 (3), PHY 205, 275 (4), CSC 212 (3), Basic Liberal Studies requirements (6).

**Sophomore Year***Second semester: 15–18 credits*

MTH 244 (3), PHY 306 (3), 331 (3), Basic Liberal Studies requirements (6–9).

**Junior Year***First semester: 18 credits*

PHY 322 (3), 381 (3), 425 (3), MTH 215 (3), 461 (3), EST 409 (3).

**Junior Year***Second semester: 15 credits*

MCE 354 (3), MTH 300- or 400-level elective (3), PHY 382 (3) and 420 (3), free elective (3).

**Senior Year***First semester: 18 credits*

OCG 501 (3), PHY 451 (3), 483 (3), 520 (3) (optional), free electives (6).

**Senior Year***Second semester: 13–16 credits*

OCG 510 (3), PHY 402 (1), 452 (3) (optional), 455 (3), 484 (3), free electives (3).

**Political Science**

The Department of Political Science offers the Bachelor of Arts (B.A.) degree. The Master of Arts (M.A.) in political science and Master of Public Administration (M.P.A.) programs are described in the *Graduate School Bulletin*.

*Faculty:* Professor Rothstein, *chairperson*. Professors Hennessey, Killilea, Leduc, Stein, Wood, and Zucker; Associate Professor Tyler; Assistant Professors Genest, Moakley, and Petro; Emeriti Professors Milburn, Warren, and Wood.

Students selecting this field must complete a minimum of 30 credits (maximum 45 credits) in political science, including PSC 113 (3) and 116 (3).

The remaining 24 credits will reflect the student's emphasis, though at least one course in four of the following six fields must be selected: American politics and public administration, public law, comparative government, international relations, political theory, and political behavior.

Students completing both the Bachelor of Arts degree in political science and the Bachelor of Science degree in engineering may use courses in the political science major to satisfy Basic Liberal Studies requirements for the Bachelor of Arts degree. The College of Engineering and the Department of Political Science have established a curriculum which allows for the completion of the two degrees and a public-sector internship in five years.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

**Portuguese**

The Department of Languages offers a number of undergraduate courses in Portuguese.

*Faculty:* Professor McNab, *section head*. Special Lecturer, Perdigao.

**Psychology**

The Department of Psychology offers the Bachelor of Arts (B.A.) degree. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degree programs in psychology are described in the *Graduate School Bulletin*.

*Faculty:* Professor A. Lott, *chairperson*. Professors Berman, Biller, Cohen, Collyer, Grebstein, Gross, Kulberg, B. Lott, Prochaska, Quina, Silverstein, Smith, Stevenson, Velicer, Vosburgh, and Willoughby; Associate Professors Brady, Florin, Harlow, Morokoff, Valentino, and Willis; Lecturer Wells; Visiting Professor Faust; Emeriti Professor Merenda.

Students in this field may follow either a general program or a preparatory program for an advanced degree.

The general program requires a minimum of 30 credits (maximum 45 credits) to be distributed as follows: PSY 113 (3); at least one course from the group—PSY 232 (3), 235 (3), 254 (3); both PSY 300 (3) and 301 (3); plus additional psychology electives to total 30 credits, with the exception of PSY 499. Stu-

dents interested in careers at the B.A. level should consult the department's *Psychology Undergraduate Manual* and their academic advisors to select additional courses.

The preparatory program for those considering graduate school adds to the requirements listed above: PSY 232 (3), 235 (3), and 254 (3); at least four courses from the group—PSY 310 (3), 335 (3), 361 (3), 381 (3), 384 (3), 385 (3), 388 (3), 391 (3), and 434 (3). Additional courses should be selected only after consultation with an advisor.

A total of 120 credits is required for graduation. At least 42 of these credits must be in courses numbered 300 or above.

## Russian

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a major in Russian.

*Faculty:* Professor Aronian, *section head*. Professor Rogers; Assistant Professor Driver.

Students selecting this field must complete at least 30 credits (maximum 45 credits), not including RUS 101, 102.

Students in secondary education (see pages 68–69) must take 36 credits in Russian.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Sociology

The Department of Sociology and Anthropology offers the Bachelor of Arts (B.A.) degree in sociology and the Bachelor of Science (B.S.) degree in applied sociology. The Master of Arts (M.A.) program in sociology is described in the *Graduate School Bulletin*.

*Faculty:* Professor Poggie, *chairperson*. Professors Carroll, Gelles, Peters, and Reilly; Associate Professors Albert, Danesh, and Travisano; Assistant Professors Mederer and Shea; Lecturers Chabot and Sullivan.

## BACHELOR OF ARTS

Students selecting this curriculum must complete a minimum of 32 credits (maximum 45 credits) in sociology, including: SOC 201 (3), 301 (3), 302 (3), 303 (1), 304 (1), and 401 (3).

SOC 301, 302, 303, and 304 should be taken in the junior year; SOC 401 is to be taken during the senior year whenever possible. In addition to the above requirements, majors must complete one 400-level sociol-

ogy course, and at least two of the remaining five courses must be at the 300 level or above. SOC 100 and 102 cannot be taken for major credit. Students interested in anthropology are referred to the anthropology major previously described in this bulletin.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## BACHELOR OF SCIENCE IN APPLIED SOCIOLOGY

Students in this curriculum may elect either the Public Policy option or the Organizational Analysis option. Students must tell the Office of the Dean which option they are choosing.

**Public Policy Option.** A minimum of 32 credits in sociology is required including SOC 201, 301, 302, 303, 304, 401, 402, 505 (20), one 400-level sociology course, and six credits in sociology at the 300 level or above.

In addition, students selecting this option must complete ECN 125 and 126 (6); MTH 107 or 108 or 111 or QBA 102 (3); EST 308 and 412 (6); CSC 201 (3);<sup>14</sup> WRT 333 (3); HSS 350 (3); PSC 113 (3); PSC 221 and 422 or PSC 304 and 466 or PSC 460 and 466 (6); PSC 369 and 483 (6).

A total of 126 credits is required for graduation.

**Organizational Analysis Option.** A minimum of 32 credits in sociology is required including SOC 201, 241, 301, 302, 303, 304, 320, 401 (20), one 400-level sociology course, and six credits in sociology at the 300 level or above.

In addition, students selecting this option must complete ECN 125 and 126 (6); MTH 107 or 108 or 111 or QBA 102 (3); EST 308 and 412 (6); CSC 201 (3);<sup>14</sup> WRT 333 (3); MGT 301, 302, 306, 380, 407, and either BSL 333 or MGT 408 or MGT 453 (18).

Due to limited staff and facilities, admission to the organizational analysis option is open to only 15 students per graduating class. Applications for admission will be reviewed only once each year, usually on or about March 1. Students must apply by the end of February by submitting their names to the University College advisor for sociology or to the chairperson of the Department of Sociology and Anthropology. To be considered for the organizational analysis option, students must have earned a minimum of 45 credits by the application deadline and must have at least a 2.00 quality point average. Preference for admission will be given

to those individuals with the highest quality point averages.

A total of 126 credits is required for graduation.

## Spanish

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a major in Spanish. The Master of Arts (M.A.) program in Spanish is described in the *Graduate School Bulletin*.

*Faculty:* Professor Trubiano, *section head*. Professors Gitlitz, Manteiga, and Navascues; Associate Professor Morin; Assistant Professor White.

Students selecting Spanish as a major will complete a minimum of 30 credits (maximum 45 credits), including SPA 325 and three 400-level courses (excluding SPA 421). SPA 421 may be used as part of the remaining 18 required credits. SPA 101, 102, 121, 391, 392, and 393 cannot be counted toward the major. LIN 202 and 220 and, with permission of the advisor, the section head, the department chairperson, and the dean of the college, courses in allied fields such as history, art, and anthropology may also be selected. These requirements are the same for the secondary education major.

A summer field workshop (SPA 310) in Spain or Spanish America is occasionally offered for three to six credits. For information, see the section head.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Speech Communication

The Department of Speech Communication offers the Bachelor of Arts (B.A.) degree with curriculums in speech communication studies.

*Faculty:* Associate Professor Wood, *chairperson*. Professors Bailey, Brownell, Devlin, Doody, and Schultz; Associate Professor Ketrow; Assistant Professors Chen and Mundorf; Instructor Quainoo.

Speech communication studies provide maximum flexibility in planning for a variety of academic and occupational goals. The

<sup>14</sup> QBA 201 and 202 may be substituted for EST 308 and 412, and QBA 207 may be substituted for CSC 201 if these courses are already completed when the student transfers into the B.S. program.

curriculum is personalized for each student. Although the student will play an important role in curriculum planning, his or her program is closely supervised by the advisor. Specific curricular, extracurricular, and internship programs are planned as integral parts of each student's program. Departmentally approved courses provide the student diversity or a more focused approach, depending on the student's needs and goals. Courses outside the department that relate to the student's needs and goals are also encouraged.

Courses in speech communication also can count as an option area in the B.S. degree program in the College of Human Science and Services. Other courses can count toward a minor in public relations when taken in conjunction with specific journalism and marketing courses.

Students selecting this major may pursue studies in business and professional communication, communication theory, oral interpretation, rhetoric and public address, or public relations.

**Speech Communication Studies.** This major requires a minimum of 30 credits (maximum 45 credits) in speech communication, including SPE 101, 103, and 206. The remaining 21 credits will be distributed as follows: at least two courses at the 200 level (excluding 216); three courses at the 300 level; and two courses at the 400 level (excluding SPE 471-472, 491-492). The student and an advisor will design an appropriate selection of courses.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## Statistical Science

The Department of Computer Science and Statistics offers the Bachelor of Science (B.S.) degree in statistical science. The Master of Science (M.S.) in statistics and the Doctor of Philosophy (Ph.D.) in applied mathematical sciences with a specialization in statistics are described in the *Graduate School Bulletin*.

**Faculty:** Professor Hanumara, *section head*. Professors Carney and Heltshe; Associate Professor Lawing; Assistant Professor Kelly; Emeriti Professors Hemmerle, Merenda, and Smith.

The program in statistical science emphasizes the applications of statistics to day-to-day problems in our society. Students are required to take courses in mathematics and

computer science. Training in an applications area is also required. Students graduating from this program are well trained to function in positions such as junior analyst, statistical analyst, statistical programmer, and consultant programmer, or to continue with graduate study in statistics.

Students must complete a minimum of 42 credits as follows: EST 220 (3), EST 409 (3), EST 412 (3), EST 413 (3), EST 415 (3), EST 416 (3), MTH 451 (3), MTH 452 (3), CSC 211 (3), CSC 212 (3), CSC 331 (3), CSC 406 (3) or CSC 450 (3); six additional credits chosen from IME 432 (3), 433 (3), 435 (3), or any computer science, mathematics, or statistics courses at the 300 level or above.

Also required are MTH 141 (4), 142 (4), 215 (3), 243 (3), one SPE course (3), and one WRT course (3) or CMS 101 (6).

For training in an applications area, 12 credits at the 200 level or above in an area other than computer science, mathematics, or statistics are required. Examples of applications areas include physics, psychology, English, sociology, and zoology. The courses will be selected by the student and the student's advisor from a list prepared by the Department of Computer Science and Statistics in consultation with the applications area chairperson.

A list of courses approved for an applications area must be filed with the Office of the Dean.

A total of 130 credits is required for graduation.

### First Year

*First semester: 16 credits*

MTH 141 (4), WRT elective (3), Basic Liberal Studies requirements or electives (9).

### Second Year

*Second semester: 16 credits*

EST 220 (3), MTH 142 (4), SPE elective (3), Basic Liberal Studies requirements or electives (6).

### Third Year

*First semester: 15 credits*

CSC 211 (3), MTH 243 (3), applications elective (3), Basic Liberal Studies requirements or electives (6).

### Fourth Year

*Second semester: 15 credits*

EST 409 (3), CSC 212 (3), MTH 215 (3), applications elective (3), Basic Liberal Studies requirement or elective (3).

### Third Year

*First semester: 18 credits*

EST 412 (3), MTH 451 (3), MTH 361 (3), applications elective (3), Basic Liberal Studies requirements or electives (6).

### Fourth Year

*Second semester: 16 credits*

EST 413 (3), MTH 452 (3), CSC 450 (3), applications elective (3), Basic Liberal Studies requirements or electives (4).

### Fourth Year

*First semester: 18 credits*

EST 415 (3), CSC 331 (3), IME 432 (3), EST 491 (3), Basic Liberal Studies requirements or electives (6).

### Fourth Year

*Second semester: 16 credits*

EST 416 (3), EST 492 (3), IME 433 (3), Basic Liberal Studies requirements or electives (7).

## Theatre

The Department of Theatre offers a Bachelor of Arts (B.A.) degree and a Bachelor of Fine Arts (B.F.A.) degree. Permission to register for work toward the B.F.A. in theatre must be obtained through a departmental review.

**Faculty:** Professor Swift, *chairperson*. Professor Emery; Associate Professors Armstrong, McGlasson, Wheelock, and Wittwer; Staff: Technical Director Galgoczy; Costume Shop Manager Tschantz-Dwyer; guest artists supplement the regular faculty in all areas of theatre.

Productions at the University cover the range of theatre forms, ancient to modern, with an emphasis on contemporary and experimental work. All members of the University community may participate in productions.

## BACHELOR OF ARTS

The B.A. program in theatre is intended for students who wish to receive a general education in theatre within a liberal arts framework. A total of 33 credits (maximum 45 credits) is required as follows: THE 111 (3), 117 (3), 161 (3), 181 (3), 221 (3), 250 (3), 261 (3), 321 (3), 381 and 382 (6), 383 or 384 or 481 (3). B.A. candidates are required to take ENG 472. Potential B.A. candidates are urged to complete THE 111, 117, 161, and 181 by the end of their freshman year.



B.A. candidates may elect up to 12 more credits in theatre with the approval of their department advisor.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## BACHELOR OF FINE ARTS

The B.F.A. program in theatre is intended for highly motivated students who wish their education to emphasize a major theatrical field of interest. The program offers concentrated study in acting, design and theatre technology, and stage management. All B.F.A. students are required to complete 35 hours in core courses distributed as follows: THE 111 (3), 161 (3), 181 (3), 221 (3), 250 (3), 261 (3), 291 (2), 321 (3), 350 (1), 351 or 352 (3), two courses from 381 (3), 382 (3), 383 or 384 or 481 (3) to total six credits, and 391 (2). All B.F.A. candidates are urged to take ENG 472 and to complete THE 111, 161, and 181 by the end of their freshman year. Entrance into the B.F.A. program requires approval from the Department of Theatre.

In addition to the core requirements each student selects one of the following areas of specialization. Students must tell the Office of the Dean which area of specialization they have selected.

**Acting.** Students selecting acting must complete an additional 31 credits distributed as follows: THE 117 (3), 211 and 212 (4), 213 and 214 (2), 300 or 301 (3), 311 and 312 (6), 313 and 314 (2), 400 or 401 (3), 411 and 412 (6), 417 and 418 (2). Recommended electives include courses in related fields such as anthropology, art, music, literature, psychology, history, speech, and sociology.

**Design and Theatre Technology.** Students selecting design and theatre technology must complete an additional 30 credits distributed as follows: THE 300 (3), 301 (3), 351 or 352 (3) to complete the sequence begun in the core curriculum; 355 (3), 365 (3), 371 (3); and 12 credits selected from 362 (3), 400 (3), 401 (3), 415 (12), 451 (3), 455 (3), 463 (3), 465 (3), 475 (3). Recommended electives include ART 207, 251, 252, and courses in related fields.

**Stage Management.** Students selecting stage management must complete an additional 30 credits distributed as follows: MGT 300 (3); SPE 320 (3); THE 300 (3), 301 (3), 341 (3), 355 or 365 (3), 371 (3), 400 (3), 401 (3), 441 (3).

B.F.A. students selected for an internship program may substitute up to 12 credits from theatre courses in their area of specialization, subject to departmental approval. Transfer students, late entries into the theatre major, and others wishing to modify this schedule of B.F.A. requirements may do so in consultation with their faculty advisor and with the permission of the department.

A total of 124 credits is required for graduation.

## Urban Affairs

The Urban Affairs Program is administered by the graduate program in community planning. The Coordinating Committee offers three majors in the College of Arts and Sciences for the Bachelor of Arts (B.A.) degree: urban social processes in the urban environment, policy formation in the urban environment, and spatial development in the urban environment. The courses that comprise these majors are offered by colleges throughout the University.

The Urban Affairs Program is described on page 11.

Students who select one of these three majors must complete seven courses in the common core and four courses chosen from the specialization courses. Common core: URB 210 and 498 or 499 (six credits); one course selected from CSC 201; EST 220, 308, or 409; QBA 201; PSY 300; SOC 301 (3); three courses selected from CNS 340; CPL 410; ECN 401, 402; HIS 339, 363; PSC 221, 495; SOC 214, 240 (9); and one course selected from HSS 222, 350; MGT 301; PSC 491, 498 (3). It is also recommended that students complete CPL 410.

Each of the majors requires a minimum of 33 credits. Courses applied to fulfilling the core requirements may not be applied to a specialization requirement, nor may courses applied to Basic Liberal Studies requirements be used in the core or specialization areas.

Students majoring in urban affairs must file a program of study with the Office of the Dean.

Students who wish to major in one of these should consult the appropriate member of the Urban Affairs Program Coordinating Committee or the director of the graduate program in community planning for assistance in the formulation and approval of their majors.

A total of 120 credits is required for graduation. At least 42 of these credits must be in courses numbered 300 or above.

**Urban Social Processes.** This major focuses on the interaction between the individual and the urban social system with a concern for careful theoretical analysis, empirical study, and modification through active intervention. It is designed to examine urban social systems, explore urban social issues, and investigate individual and systems-change strategies. Students who choose this concentration gain an understanding of the systemic forces that act on individuals in urban societies to produce both positive and negative outcomes. Poverty and social class, the welfare system, race, crime, rapid environmental change—all generate social issues which take on particular significance in an urban setting and have a dramatic impact on the lives of urbanites. In addition to a thorough grounding in conceptual approaches, students are directed toward research and intervention techniques which they may extend, with graduate training, into the social sciences, criminology, social work, community planning, and other urban-oriented fields. Students seeking jobs at the baccalaureate level may work in social agencies (e.g., welfare, youth development, the criminal justice system), the governmental departments which sponsor and monitor these agencies, or specialized educational facilities (e.g., halfway houses, preschool enrichment programs, alternative high schools).

Students are expected to satisfy the common core requirements. Urban social processes majors must take SOC 214 as part of the common core and are strongly urged to take ECN 402. In addition, students are also required to select four courses from the following: APG 319; CNS 401; ECN 403; HCF 220, 434; HIS 339, 343; MGT 301; PSC 420, 483, 486, 495; PSY 335; SOC 240, 241, 314, 316, 320, 330, 336, 438; SPE 315.

A total of 120 credits is required for graduation. At least 42 of these must be in course numbered 300 or above.

**Policy Formation.** This major is designed to identify the decision-making processes within the metropolis, examine the ways in which public policies are formulated and implemented, and consider ideas about the substance as well as the outcome of the policy-formation processes. An understanding of such decision-making processes requires knowledge of the political, administrative, managerial, planning, and economic aspects of urban life. Students completing the major should be prepared for entry-level administrative jobs in government agencies,

business firms and community organizations, or for activist careers in politics. They might undertake graduate work in law, public administration, community planning, business, or related disciplines.

Students are expected to satisfy the common core requirements. Policy formation majors must take PSC 221 as part of the common core. They are also expected to select four courses from the following: CPL 410; ECN 342, 402, 403, 464; FIN 331, 341; HIS 339, 341, 363; MAF 516; MGT 321, 422, 423; PSC 483, 495, 498; SOC 214, 340. Practicum or internship experience is optional for this major. It may be obtained through URB 302 or 397.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

**Spatial Development.** This major gives the student an interdisciplinary viewpoint of the spatial structure and environmental character of the city. The curriculum is designed to focus special attention on the arrangement, allocation, and interrelationships of human and physical resources. Man's relation to the urban ecosystem is examined in terms of the processes, patterns, networks, and activities that produce the spatial and temporal organization of urban communities. Analytical and methodological skills may be acquired from courses in cartography, remote sensing, and statistics. The structure of the major should prepare the student to deal more effectively with the increasing problems of rapid urban growth and environmental deterioration. These problems have increased the need for a better understanding of the complex metropolis.

Students in the spatial development major can work in a variety of public and private enterprises. Career choices and employment opportunities are available in such activities as urban systems analysis, economic impact studies, cartographic drafting and air photo analysis, industrial location and regional development, and urban environmental problems. Spatial development majors should be prepared for work in organizations or agencies that handle questions such as equal allocation of resources, reduction of regional disparities in goods and services, and developing effective alternatives to problems in housing, poverty, pollution, and other human concerns. These organizations can be in both the private and public sector.

Students are expected to satisfy the common core requirements. Spatial development

majors must take CPL 410 as part of the common core. They are also required to select four courses from the following: BSL 333; CPL 410, 434, 530; CVE 315; ECN 402; FIN 341; INS 313; MAF 212, 516; PSC 466, 495; SOC 214; ZOO 262. Practicum or internship experience is strongly recommended for this major. It may be obtained through URB 302 or 397.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

### Women's Studies

This interdepartmental program in the College of Arts and Sciences leads to a Bachelor of Arts (B.A.) degree in women's studies. The aim of the program is to provide an option for students who are interested in the interdisciplinary study of the culture and experiences of women.

The women's studies program requires 30 credits for a major. Four required courses are: WMS 200, 300, 400; and one course in statistics (e.g., EST 220, PSY 300) or methodology (e.g., ENG 310, SOC 301, SPE 206) approved by the Advisory Committee. Six courses needed to complete the concentration may be selected from: ARH 285; CNS 401; ECN 404; ENG 260, 385; FSN 308; HCF 330, 430, 432, 433, 437, 505, 559; HIS 118, 145, 351, 352, 376; LET 151E; MGT 401; NUR 150; PED 475; PHL 210; PSY 470A, 470B, 470C, 479K, 480, 625A, 625C; SOC 212, 242, 316, 413, 420, 430; SPE 310 (Topics: Rhetoric of the Women's Movement and Rhetoric of Reproductive Rights); SPE 420 (Topic: Rhetoric of Early Women Suffragists); WMS 333, 350, 450. In addition to this list, there are special courses offered by various departments each year which may also be selected with prior approval of the Advisory Committee and some additional preapproved topics courses not offered on a regular basis.

Students must file a program of study with the Office of the Dean.

The Women's Studies Advisory Committee also strongly recommends that majors take an additional 18 credits in a specialized area as a minor.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

## COLLEGE OF BUSINESS ADMINISTRATION



Sydney V. Stern, *Dean*  
Jane M. Stich, *Assistant Dean*

**T**he eight majors in the College of Business Administration allow the student to develop competence in a special field of interest and prepare him or her to meet the changing complexities of life and leadership in the business community. Majors are offered in accounting with emphasis possible on governmental, private, and public accounting; finance; general business administration; management; management information systems; management science; marketing; and production and operations management.

Basic courses required of all undergraduates at the University introduce the student to the humanities, social sciences, physical and biological sciences, letters, foreign language and culture, and the arts. The business curriculums develop the student's professional capabilities through a broad group of business courses with specialization in one area of study. Business programs provide a strong foundation in accounting, information systems, marketing, organization and management theory, industrial relations, operations management, and statistics. The college emphasizes behavioral studies and computer technology to meet the needs of the business community and society as a

whole. Emphasis is placed on the total business environment as a part of the national and world economic structure. Theory, analysis, and decision making are stressed in all areas of learning.

The College of Business Administration is a professional school and has divided its courses into lower and upper divisions. The lower-division courses constitute those taught in the freshman and sophomore years; the upper-division courses constitute those taught in the junior and senior years. Courses taken by transfer students at the lower-division level may be applied to satisfying upper-division requirements only after successful completion of a validating examination. All 500- and 600-level courses offered by departments in the College of Business Administration are open to matriculated graduate students only.

A student enrolled in this college must complete the curriculum in one of the majors and must obtain a cumulative quality point average of 2.00 or better for all required courses in the major. Students wishing permission to substitute required courses or waive other requirements may petition the college's Scholastic Standing Committee. Petition forms are available in the dean's office.

Due to limited staff and facilities, transfers from University College to the undergraduate degree programs in business administration must be limited to approximately 300 a year. The competitive admission policy that has been established to deal with student demand consists of required courses, a minimum number of credits, and a cumulative quality point average requirement determined for each class at the end of the freshman year. During the summer following the freshman year, students are notified where they stand in relation to the quality point average requirement. Enrollment in sophomore business courses is restricted to those who stand in the highest 300. Those below the cutoff are advised to choose a different major and should be prepared to select new courses for the fall. In recent years, the cutoff has ranged from 2.40 to 2.70. Course requirements include mathematics, accounting, economics, statistics, and management information systems. Students apply for transfer after completion of 45 credits, therefore, the earliest a student may apply is the second semester of the sophomore year. Students who have not satisfied entrance requirements may petition the Scholastic Standing Committee of the college for a waiver of those requirements during their fourth or succeeding semesters. However,

transfer after the fifth semester is most unlikely. Students in the University College business programs who have not met entrance requirements to the College of Business Administration are permitted to enroll only in 100- and 200-level business courses and in nonbusiness courses.

To ensure that students in business majors have access to required courses, a strict registration policy will be followed with regard to business courses. Highest priority will be given to students for whom a course is a program requirement as stated in the *Undergraduate Bulletin*, followed by any student in the College of Business Administration. Students in other colleges who have been approved by the College of Business Administration as minors will also be given priority in registration for business courses.

### Curriculum Requirements

The following two years are common to all majors.

**The Freshman Year Program** is 15 credits in each semester. The sequence QBA 101-102 is begun in the first semester and finished in the second with the balance of credits in General Education.

**The Sophomore Year Program** is 15 credits in each semester. The ACC 201, 202, ECN 125, 126, and QBA 201, 202 sequences are begun in the first semester and completed in the second. QBA 207 and WRT 227 are taken in alternate semesters. The balance of credits is made up of General Education and free electives.

**General Education Requirements.** Students are required to select and pass 39 credits of course work from the General Education requirements as listed on page 9. Specific requirements of the College of Business Administration in each group are listed below:

*Group A.* A minimum of three credits in literature.

*Groups F, L, and N.* Any course for which prerequisites have been met.

*Group M.* QBA 101 in the freshman year.

*Group S.* ECN 125, 126 in the sophomore year.

*Group C.* SPE 101; WRT 101, 103, 201, or 333 in the freshman year; WRT 227 (Group Cw) in the sophomore year.

**Electives.** Professional electives are upper-level courses offered by departments in the College of Business Administration and the

Department of Economics. Liberal electives are courses offered by departments outside of the College of Business Administration.

Free electives may be either professional or liberal electives.

**Minors.** College of Business Administration majors are encouraged to develop a nonbusiness minor. Special permission may be given for business majors to pursue a business minor as long as the number of credits for the business minor falls within the American Assembly of Collegiate Schools of Business (AACSB) 50 percent rule. This rule requires that 50 percent of a student's curriculum is chosen from General Education requirements or courses in colleges other than the College of Business Administration.

**International Business Studies Minor.** In cooperation with the Department of Modern and Classical Languages and Literatures, the College of Business Administration offers an opportunity for students to include an international emphasis within their undergraduate business major. The business requirements include a major in finance, general business administration, management, or marketing with professional electives in multinational finance, international dimensions of business, and international marketing. The student also develops a language component, choosing from French, German, Italian, or Spanish. In addition, studies in international politics, European history, and courses in history and literature of the target country are included. Following the junior or senior year, students have the opportunity to compete for summer, semester, or year-long professional internship positions with firms in Europe.

**Business Minor for Nonbusiness Students.** The College of Business Administration has developed a minor for nonbusiness students which will provide them with an opportunity to gain some business career skills. The minor includes basic foundation courses that must be completed by all students and upper-level courses selected from the various functional areas. To be eligible for a minor in business administration, nonbusiness students must meet the quality point average requirement for admission to the College of Business Administration, must have completed a math course (M), and must have earned a grade of C or better in ECN 125, 126; QBA 201 or EST 308; QBA 207 and ACC 201, 202. The minor form will be signed after completion of the aforementioned courses and after verification of the quality point average and grade requirements. To

complete the minor, students will select courses at the 300 level from BSL 333, FIN 301, MGT 301, MKT 301, and OMT 309. Interested students should contact the director of undergraduate programs in the College of Business Administration for further information. Students are required to meet all prerequisites. FIN 301 and OMT 309 have a prerequisite of QBA 202. All 300-level courses in the College of Business Administration require junior standing in a degree-granting college.

## Accounting

The Department of Accounting offers a curriculum leading to the Bachelor of Science (B.S.) degree in accounting. The Master of Science (M.S.) degree, which provides the education recommended by the American Institute of Certified Public Accountants for the practice of public accounting, is described in the *Graduate School Bulletin*.

*Faculty:* Professor Martin, *chairperson*. Professors Matoney, Schwarzbach, and Vangermeersch; Assistant Professors Beckman, Boyle, Geiger, Hazera, Higgins, and Power.

The increased scope of governmental and business activities has greatly extended the field of accounting and has created an unprecedented demand for accountants both in government and industry. This curriculum has been designed to meet that demand.

In addition to providing a general cultural and business background, the curriculum offers specialized training in the fields of general accounting, cost accounting, and public accounting. It offers specific, basic training to students who wish to become industrial accountants, cost analysts, auditors, credit analysts, controllers, income tax consultants, teachers of specialized business subjects, certified public accountants, government cost inspectors, or government auditors.

The broad scope of the courses offered makes it possible for a student who is interested in any of the fields of accounting to obtain fundamental training in the field of his or her choice, whether this training is to be used as an aid to living or as a basis for graduate study.

### Junior Year

*First semester: 15 credits*

ACC 311 (3) and 321 (3), FIN 301 (3), MGT 301 (3), and one free elective (3).

### Junior Year

*Second semester: 15 credits*

ACC 312 (3), 443 (3), MKT 301 (3), OMT 309 (3) and one professional elective (3).

### Senior Year

*First semester: 15 credits*

ACC 431 (3) and 461 (3), BSL 333 (3), ECN or FIN elective (3),<sup>1</sup> and one free elective (3).

### Senior Year

*Second semester: 15 credits*

ACC 415 (3), MGT 410 (3), one professional elective (3), and two free electives (6).

*Note:* If not completed during the first two years, one free elective must be chosen from GMA 131; PSC 113; MGT 380; or PHL 312. Another must be chosen from PSY 113; SOC 100, 102, or 204.

## Finance

The Department of Finance and Insurance offers a curriculum leading to the Bachelor of Science (B.S.) degree in finance. The Master of Business Administration (M.B.A.) degree with an opportunity for specialization in finance is described in the *Graduate School Bulletin*.

*Faculty:* Associate Professor Dash, *chairperson*. Professors McLearey and Rhee; Associate Professors Chang, Lord, and Oppenheimer; Assistant Professors Kang, Lai, Lee, McNamara, and Yasuhara.

A major in finance prepares the student for managerial positions in the private, public, and nonprofit sectors of the economy. The curriculum emphasizes both financial decision making and implementation.

Careers in finance are found in: 1) commercial banking and other financial institutions; 2) security analysis, portfolio, and related investment management; 3) corporate financial management leading to positions as treasurer, controller, and other financial administrative positions; 4) financial administration tasks in federal and state agencies as well as in the nonprofit sector in hospitals, nursing homes, and educational institutions.

### Junior Year

*First semester: 15 credits*

FIN 301 (3) and 331 (3), MGT 301 (3), OMT 309 (3), and one liberal elective (3).

### Junior Year

*Second semester: 15 credits*

BSL 333 (3), FIN 322 (3), MKT 301 (3), one professional elective (3), and one liberal elective (3).

### Senior Year

*First semester: 15 credits*

Two finance electives (6), FIN 452 (3), one professional elective (3), and one free elective (3).

### Senior Year

*Second semester: 15 credits*

One finance elective (3),<sup>2</sup> MGT 410 (3), two professional electives (6), and one free elective (3).

## General Business Administration

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree in general business administration. The general business administration curriculum offers the student an opportunity to study all phases of business operation. It is particularly suitable for: 1) those students who are planning to operate their own businesses and are seeking a broad business background; 2) those who are preparing for positions in large organizations with training programs in which specialization is taught after employment; and 3) those who desire a general business background at the undergraduate level prior to taking more specialized graduate work.

Students who major in the general administration curriculum shall be limited to a maximum of nine credits of professional electives in a specific business or economics major. A general business administration student should take a broad spectrum of courses and not concentrate in one special field of study. For students interested in courses offered outside of the College of Business Administration, four professional electives may be taken from the 300- and 400-level courses offered in other colleges.

### Junior Year

*First semester: 15 credits*

FIN 301 (3), OMT 309 (3), MKT 301 (3), MGT 301 (3), and one free elective (3).

<sup>1</sup> This may be any 300- or 400-level ECN or FIN course except FIN 341.

<sup>2</sup> Finance electives must be drawn from FIN 401, 411, 420, 425, 431, 433, 441, 452, and 460.

*Junior Year**Second semester: 15 credits*

FIN elective (3), MKT elective (3), BSL 333 (3), INS 301 (3), and one free elective (3).

*Senior Year**First semester: 15 credits*

MGT 380 (3), two professional electives (6), and two free electives (6).

*Senior Year**Second semester: 15 credits*

MGT 410 (3), three professional electives (9), and one free elective (3).

*Note:* One professional elective must be chosen from ECN 338, FIN 452, MGT 453, or MKT 451.

**Management**

The Department of Management offers a curriculum leading toward the Bachelor of Science (B.S.) degree in management. The Master of Business Administration (M.B.A.) degree with an opportunity for specialization in management is described in the *Graduate School Bulletin*.

*Faculty:* Professor Sink, *chairperson*. Professors Coates, Comerford, deLodzia, Laviano, Overton, Schmidt, and Scholl; Associate Professors Beauvais, Cooper, Dunn, and Hickox; Assistant Professors Disney and Dugal.

This curriculum is intended to provide the student with a background in the conceptual, analytical, and applied aspects of the management of organizations. The areas of study focus on decision making from the perspective of the policy sciences. Courses tend to cluster in the areas of behavioral science, including organizational theory, business law, general business administration and policy, and industrial and labor relations. Courses are carefully integrated to include an overall introduction to business administration, with a number of complementary areas of study in organizational theory and behavior, the management of human resources, industrial and labor relations, personnel administration, general business administration, and business law.

Careers in business, government, hospitals, and other organizations are open to students who have successfully completed the curriculum. These studies also provide a good background for graduate programs in management.

*Junior Year**First semester: 15 credits*

OMT 309 (3), MKT 301 (3), MGT 301 (3), one liberal elective (3), and one free elective (3).

*Junior Year**Second semester: 15 credits*

FIN 301 (3), MGT 302 (3), 303 (3), one free elective (3), and one professional elective (3).

*Senior Year**First semester: 15 credits*

BSL 333 (3), MGT 306 (3), 380 (3), and 407 (3), and one free elective (3).

*Senior Year**Second semester: 15 credits*

MGT 410 (3), 423 (3), one professional elective (3), one free elective (3), and one liberal elective (3).

*Note:* One professional elective must be selected from ECN 338, FIN 452, MGT 453, or MKT 451.

**Management Information Systems**

The Department of Management Science and Information Systems offers a curriculum leading toward the Bachelor of Science (B.S.) degree in management information systems. The Master of Business Administration (M.B.A.) degree with an opportunity for specialization in management science is described in the *Graduate School Bulletin*.

*Faculty:* Professor Ebrahimpour, *chairperson*. Professors Armstrong, Budnick, Humphrey, Jarrett, Kim, Koza, Mangiamelli, Mojena, and Narasimhan; Associate Professors Ageloff, Chen, and Westin.

The field of information systems is concerned with the collection, storing, processing, structuring, retrieval, and reporting of information to assist managers in the operations, management, and decision-making functions of an organization.

The program provides a thorough grounding in computer technology, systems analysis, combined with business and management training.

*Junior Year**First semester: 15 credits*

BSL 333 (3), FIN 301 (3), MIS 307 (3), MIS 483 (3), and one liberal elective (3).

*Junior Year**Second semester: 15 credits*

MKT 301 (3), MGT 301 (3), MIS elective (3),<sup>3</sup> MIS 484 (3), and OMT 309 (3).

*Senior Year**First semester: 14 credits*

MIS 485 (3), MIS elective (3),<sup>3</sup> and three professional electives (9).

*Senior Year**Second semester: 15 credits*

MIS 488 (3), MGT 410 (3), one professional elective (3), and two free electives (6).

**Management Science**

Admissions to the Bachelor of Science (B.S.) degree program in management science have been suspended for the 1992-93 academic years, and no applications are being accepted.

**Marketing**

The Department of Marketing offers a curriculum leading to the Bachelor of Science (B.S.) degree in marketing. Elective courses in the department expose students to career opportunities in advertising, product management, sales management, marketing research, and other facets of marketing management. The Marketing-Textiles option, leading to the Bachelor of Science degree, may also be pursued in the Department of Marketing. This program is offered in conjunction with the Department of Textiles, Fashion Merchandising, and Design. The option is designed to prepare students for managerial positions in the textile industry. The Master of Business Administration (M.B.A.) degree with an opportunity for specialization in marketing is described in the *Graduate School Bulletin*.

*Faculty:* Professor Della Bitta, *chairperson*. Professors N. Dholakia, R. Dholakia, Johnson, and Venkatesan; Associate Professor Surprenant; Assistant Professors Harlam, Jain, and Schroeder; Instructor Rosen.

A major focus of marketing is the determination of product and service needs of consumers and industries. Marketing research, information systems, and analysis are used in the development and management of products and services as well as the

<sup>3</sup> MIS electives may be chosen from additional MIS course offerings; OMT 310, 311; or MGS 445, 470.

design and execution of communications, pricing, and distribution channels. Three unspecified but required marketing electives allow the student to plan, in consultation with his/her advisor, an arrangement of courses to meet individual career objectives. With prior permission of the advisor and chairperson, one marketing elective may be replaced by a course outside the department to enhance career objectives.

#### Junior Year

First semester: 15 credits

MGT 301 (3), MKT 301 (3), OMT 309 (3), one free elective (3), and one liberal elective (3).<sup>4</sup>

#### Junior Year

Second semester: 15 credits

BSL 333 (3), FIN 301 (3), MKT 311 (3), MKT 415 (3), and one free elective (3).

#### Senior Year

First semester: 15 credits

MKT 409 (3), one MKT elective (3), two professional electives (6), and one liberal elective (3).<sup>4</sup>

#### Senior Year

Second semester: 15 credits

MGT 410 (3), two MKT electives (6), one professional elective (3), and one liberal elective (3).<sup>4</sup>

Note: One professional elective must be selected from ECN 338, FIN 452, MGT 453, or MKT 451.

## Production and Operations Management

Admissions to the Bachelor of Science (B.S.) degree program in production and operations management have been suspended for the 1992-93 academic years, and no applications are being accepted.

## COLLEGE OF CONTINUING EDUCATION



Walter A. Crocker, Jr., *Dean*  
Gerald R. DeSchepper, *Associate Dean*

The College of Continuing Education offers courses and degree programs designed for adults whose family or work responsibilities have caused an interruption in their formal post-high-school education. Academic programs lead to Bachelor of Science degrees in business administration; nutrition and dietetics; food science technology; home economics; human development and family studies; industrial and manufacturing engineering; and textiles, fashion merchandising, and design. Bachelor of Arts degrees may be obtained in economics, English, history, and psychology. The Bachelor of General Studies degree offers majors in business institutions and human studies. Graduate-level programs include Master of Business Administration (including an option for experienced executives), Master of Library and Information Studies, Master of Marine Affairs, Master of Public Administration, Master of Science in clinical laboratory sciences, Master of Science in labor and industrial relations, and advanced and graduate-level courses in computer science, electrical engineering, and mechanical engineering and applied me-

chanics through special arrangement with several high-technology firms in the state. For curriculum requirements refer to the appropriate sections in this bulletin.

Certification programs for various professions as well as individual credit and non-credit Continuing Education Unit (CEU) courses are also offered. In addition, institutes and special courses are planned for business, industry, labor, government, and the professions.

Courses are offered on weekday mornings, afternoons, and evenings, and on Saturdays in the fall, spring, and summer. Students enrolling in a degree program may attend at times most convenient for them. The college also operates community centers in Kingston and Middletown.

**Summer Sessions.** The College of Continuing Education has administrative responsibility for developing, scheduling, and coordinating all summer offerings of the University of Rhode Island. Day and evening courses are offered in two five-week sessions at Kingston and Providence. In addition, a number of special programs, including study abroad, are offered at varying dates in the alternate session. Students may attend either or both campuses and enroll in day or evening courses offered in any summer session. Students expecting to apply summer credit to an academic degree program are advised to obtain prior approval from their academic dean before registering. Maximum course load is seven credits per summer session including simultaneous courses in the alternate session. Exceptions are allowed with permission of the student's academic dean.

## Bachelor of General Studies

The College of Continuing Education's own degree program, the Bachelor of General Studies (B.G.S.) is a special undergraduate program for adults who have had no formal schooling for at least five years. The B.G.S. program is useful both for students who have never been to college and for those who dropped out of college at some point in the past. For the latter group, B.G.S. offers a creative approach to bringing forward previous educational experience and applying it to this adult degree program. Because there are several ways to meet admission requirements for the program, the admissions process begins with an interview with a B.G.S. advisor in the Academic Services Office of the College of Continuing Education.

<sup>4</sup> One liberal elective is to be selected from the following: APG 203; PHL 312; PSY 113; SOC 100, 102, 204; SPE 103, 200, 210, 220; WRT 300 and 333.

The B.G.S. program consists of six required sections listed below.

**The Pro-Seminar.** (4 credits) This required reentry course (BGS 100) introduces adult students to the processes of academic thought and inquiry, builds confidence in their capacity to do college-level work, and helps them identify their scholastic strengths and interests. During the Pro-Seminar students are required to take the College Level Examinations Program (CLEP) General Examinations (for which there is a fee). CLEP credits may be applied toward the General Education requirements.

**General Education Requirements.** (39 credits) Students in the B.G.S. program must meet the University's General Education requirements as explained on page 8 of this bulletin. B.G.S. students may use BGS 390, 391, and 392 to fulfill General Education requirements or may take other approved General Education courses appropriate to their program. Students should consult frequently with B.G.S. advisors.

**Majors.** (45 credits) B.G.S. students have a choice of two multidisciplinary majors: business institutions and human studies. Each consists of 15 three-credit courses.

Both the human studies major and the business institutions major allow students to take courses in several disciplines to meet their educational goals in a nontraditional way. Although the business institutions major is carefully prescribed, the student will note that the human studies program encourages the student to work creatively with an advisor to design an individualized major that meets both student needs and the general goals of the program.

#### *Business Institutions Major*

ACC 201	Elementary Accounting I
ACC 202	Elementary Accounting II
BSL 333	Legal and Ethical Environment of Business I
CSC 201	Introduction to Computing I
ECN 125	Economic Principles I
ECN 126	Economic Principles II
FIN 301	Financial Management
MTH 111	Precalculus
MTH 131	Basic Calculus I
EST 220	Statistics in Modern Society
EST 308	Introductory Statistics
MGT 301	Fundamentals of Management
MKT 310	Marketing Principles
WRT 227	Business Communications

In addition to the above required courses, students must elect one liberal elective course offered by a department outside their major. Most courses that fulfill these major requirements are available in Providence in the evening. With careful planning, however, it is possible for students to complete approximately two-thirds of the program's requirements in evening courses at the Kingston Campus.

#### *Human Studies Major*

Students interested in the wide range of human studies or human services will be attracted to this major. It permits the student, working with an advisor, to design a major that will meet both personal and career goals. All human studies majors must have their program design approved in advance by an academic advisor and the program coordinator. It must include the following four parts:

**Social Science Core** (24 credits). Students are required to select 24 credits from three of the following social science departments in the College of Arts and Sciences: Economics, Geography, History, Political Science, Psychology, and Sociology and Anthropology. These departments determine which of their courses are suitable for the B.G.S. major.

The 24 credits must be distributed as follows: four courses from one department, two courses from a second department, and two courses from a third department. Only two prerequisite or introductory level courses are allowed in the major. Students should meet with an advisor for more information regarding these courses.

**Methodology Course** (3 credits). Students are strongly advised to fulfill this requirement by taking HSS 320. This course is offered in Providence during the spring semester only and is usually offered only every second year. Students are advised to plan accordingly. In exceptional cases students may be allowed to meet the methods requirement by taking one of the following courses: EST 220; HIS 395; PSY 300; or SOC 301.

**Major Seminar** (3 credits, BGS 397). Students will take this course near the end of their degree program. It will give them an opportunity to review and evaluate the skills and knowledge they have acquired through their major. It is offered only in the fall semester and in alternate years.

**Area of Emphasis** (15 credits). The area of emphasis provides the student an opportunity to select a group of courses which focuses on

a particular problem or population of interest. Once a particular focus is identified, students select 15 credits from the following list. All 15 credits must be at or above the 300 level.

African and Afro-American Studies	Journalism
Business Law <sup>1</sup>	Languages (Portuguese, Spanish, French)
Community Planning	Management <sup>1</sup>
Computer Science	Marine Affairs
Consumer Affairs <sup>1</sup>	Marketing <sup>1</sup>
Economics	Nursing <sup>1</sup>
Education <sup>1</sup>	Political Science
Food Science and Nutrition <sup>1</sup>	Psychology
Geography	Sociology, Anthropology, and Social Welfare
Health <sup>1</sup>	Speech Communication
History	Urban Affairs
Human Development and Family Studies	Women's Studies
Human Science and Services	

**Electives.** (27 credits) The electives permit students to complete the B.G.S. degree in a number of creative ways, either through carefully designed work experience internships, or previous but relevant educational experience, or both. Up to 15 credits may be taken in the University Year for Action program, or students may choose to take courses to fulfill this requirement. BGS 390, 391, and 392 may be counted as electives if they are not used to fulfill General Education requirements.

**B.G.S. Senior Seminars.** After completing at least 40 credits, a student may begin to take the sequence of three required six-credit senior seminars (BGS 390, 391, 392). The senior seminars may be applied either to the General Education requirement or to the elective requirement of the B.G.S. program.

**Senior Project.** (3 credits) All B.G.S. students must complete the BGS 399 Senior Project or a departmentally directed study. Students are required to meet with a B.G.S. advisor to plan a project proposal. This written proposal must meet with the approval of both an appropriate faculty advisor and the B.G.S. coordinator before the student can register for BGS 399.

A total of 118 credits is required for the Bachelor of General Studies degree.

<sup>1</sup> In these departments, only certain courses are appropriate for the human studies major. See an advisor for details.

## Fees and Finances

Charges and fees set forth in this listing are subject to change without notice. All charges are payable by the semester and are due at the time of registration. Checks or money orders should be made payable to the University of Rhode Island. For financial assistance, refer to "Financial Aid" in this section.

**Tuition and Fees.** Rhode Island resident undergraduates pay \$121 per credit. Out-of-state undergraduates pay \$388 per credit. Rhode Island graduate students pay \$170 per credit. Out-of-state graduate students pay \$385 per credit. There is also a \$10 registration fee and a \$10 student activity fee payable once each term. The student activity fee supports a student government, career services, and various lectures and cultural events determined by an activities board of elected CCE students.

**Refund Policy.** If a course is officially dropped before the first class meeting, a full refund of tuition will be authorized. After classes have begun, the following refund schedule applies:

<i>Fall and Spring Semesters</i>	<i>Refund</i>
Before first class	100%
Until the close of the add period	80%
After the add period	No refund
<i>Summer Session</i>	<i>Refund</i>
Before first class	100%
Until the close of the add period	70%
After the add period	No refund

The student activity fee is refundable according to the refund schedule. The registration fee is not refundable except when a course is cancelled or closed by the University. There is no charge for adding a course to replace one dropped or cancelled.

**Financial Aid.** Only matriculated students enrolled on at least a half-time basis (six credits) may be considered for an award. The Student Financial Aid Office determines eligibility for all grants, loans, and employment, which are awarded on an academic year basis. Financial aid will be awarded only after a student has applied for a Pell Grant and has submitted a Pell Student Eligibility Report to the Student Financial Aid Office. For more detailed information, contact a peer counselor.

## Services for Students

The College of Continuing Education provides a number of services for students in Providence and the community centers. Among these are free academic advising, peer counseling, health education, campus ministry and, at minimal cost, a testing service. Advisors are available to answer questions about registration, admissions, degree programs, and the College Level Examination Program. The peer counseling service provides students the opportunity to meet with other adult students who have been trained to help them with problem solving, including issues of minority groups and of the handicapped. In testing services, a staff of certified psychologists administers a number of psychological tests and evaluations to individuals and groups to help them make personal or career decisions.

The college also has at its Providence location a bookstore and library, plus a comfortable student center where students and faculty can meet, talk, and relax.

## Registration and Admission

Enrollment in University courses offered by the College of Continuing Education is accomplished by completing a registration form prior to the beginning of each semester. Being enrolled in a course is not the same as being admitted to the University. To apply for admission to an undergraduate degree program a student must follow the application procedure stated below. However, credits earned through successful completion of courses may eventually be applied toward a degree program after a student is accepted as a degree candidate.

Beginning students who have been away from school for some time and have little or no course work beyond high school are encouraged to register in the special entry course: BGS 100, the Pro-Seminar.

Any adult may enroll as a nonmatriculated student in the College of Continuing Education. All courses at the University are open to nonmatriculated students; however, day courses at the Kingston Campus are open only on a space-available basis.

All information and forms necessary for registration are included in the semester course list printed two to three weeks before each term begins. The lists, containing up-to-date course offerings and fees, are available during the registration periods, or they may be obtained through written or telephone request.

**Application Procedures.** A student wishing to enroll in an undergraduate degree program in the College of Continuing Education does so through the Academic Services Office. An initial interview is recommended so that program options may be explored as well as the student's capabilities. A student then files an Application for an Undergraduate Degree and provides the Academic Services Office with official transcripts.

Students admitted to undergraduate degree programs should consult with the appropriate faculty coordinator concerning their major. A work sheet of courses is prepared and maintained as a checklist toward graduation requirements. It is the strict responsibility of the student to file an Intention to Graduate form with the Academic Services Office three semesters in advance of the contemplated date.



## COLLEGE OF ENGINEERING



Thomas J. Kim, *Interim Dean*

**T**he College of Engineering offers undergraduate majors in chemical, chemical and ocean, civil, computer, electrical, industrial, materials, mechanical, and ocean engineering. In addition, ocean options are available in civil and in mechanical engineering. Because the same fundamental concepts underlie all branches of engineering, the freshman year courses are quite similar for all curriculums, and the choice of a specific branch of engineering may be delayed until the beginning of either the second term, or the second year of study. Students electing one of the programs that include ocean options follow the curriculums for chemical, civil, or mechanical engineering for two or three years and enroll in many ocean engineering courses in the junior and senior year.

All of the engineering curriculums are based on an intense study of mathematics, the basic sciences, and the engineering sciences common to all branches of the profession. On this base is built the in-depth study of the important principles and concepts of each separate discipline. These principles are applied to the understanding and solution of problems of current interest and impor-

tance in the field. Each curriculum is designed to provide the knowledge and ability necessary for practice as a professional engineer, or for successful graduate study, which may include law, business administration, or medicine as well as the normal engineering and science disciplines.

The goal of the college is to stimulate the students to become creative, responsible engineers, aware of the social implications of their work, and flexible enough to adjust to the rapid changes taking place in all branches of engineering. Engineers from all fields are heavily involved in the solution of technological and sociotechnological problems. The needs of industry are for balanced teams of both men and women from the different engineering areas.

Entering students who have chosen a specific major should follow the particular program listed below. Those who have decided to major in engineering, but have not selected a specific program, should select courses in general chemistry; General Education requirements; MTH 141, 142; MCE 162 and/or CHM 101 and 102.

Students who are undecided about engineering, but who wish to keep it open as an option, should take note that MTH 141 and 142; MCE 162 and/or PHY 213 and 285; and a course in chemistry are required for graduation from the College of Engineering, and are prerequisites for many engineering courses. They must be taken before transferring from University College to the College of Engineering.

To transfer from University College to the College of Engineering, students must not only have completed 24 credits with a quality point average of 2.00 or better, they must also have completed all of the required mathematics, science, and engineering courses of the freshman year with a quality point average of 2.00 or better.

To meet graduation requirements students enrolled in the College of Engineering must satisfactorily complete all courses of the curriculum in which they are registered and must obtain a quality point average of 2.00 or better in all required science, mathematics, and engineering courses (including professional electives).

**General Education Requirements.** Engineering students must meet the University's General Education requirements listed on page 9 of this bulletin, except that only three credits are required in the foreign language or culture component. In these courses students are exposed to and challenged by

concepts from the humanities and social sciences to ensure that the social relevance of their engineering activities will never be forgotten. In selecting courses to satisfy these requirements, students should consult with their advisors to be certain that they have chosen courses which satisfy both the University requirements and the requirements of the Accreditation Board for Engineering and Technology. The requirements in mathematics and natural sciences are satisfied by required courses in the engineering curriculums. Three credits must be taken in the Foreign Language and Culture group, and six credits each in English Communications, Fine Arts and Literature, Social Sciences, and Letters. In two of the latter three groups, both courses must be taken in the same department. The second course may not be at the 100 level, unless it has the first course as a prerequisite or is an obvious continuation of the first.

**Freshman Year.** All engineering curriculums have similar programs during the freshman year. This provides some degree of flexibility to those students who are uncertain about their choice of curriculum. Except for majors in chemical engineering, chemical and ocean engineering, computer engineering, and materials engineering, all engineering students take the following 17 credits in the first semester.<sup>1</sup>

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 3 ECN 125 Economic Principles I
- 3 CSC 201 Introduction to Computing I or General Education requirement
- 3 General Education requirement

Students who are still undecided about their choice of major after completing the first semester should review their choice of courses for the second semester with their advisor to be certain that they meet the prerequisites for the sophomore year.

**Accreditation.** The curriculums in chemical, civil, electrical, industrial, and mechanical engineering are currently accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

<sup>1</sup> In addition, students in the civil and industrial engineering programs also take EGR 102 (one credit) in the first semester.

## Biomedical Electronics Engineering

The undergraduate program in biomedical electronics engineering was suspended, effective June 1984. No new students are being accepted into the program.

The Bachelor of Science (B.S.) degree in biomedical electronics engineering is offered by the Department of Electrical Engineering. Specialization in biomedical engineering is also available within the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) programs in electrical engineering. See the *Graduate School Bulletin*.

Biomedical engineers design medical instruments such as electrocardiographs, electroencephalographs, blood analyzers, and X-ray machines for diagnosis of disease and equipment such as radiotherapy machines, pacemakers, and lasers for surgery, and develop artificial organs for prosthesis. They design computer systems to help physicians monitor critically ill patients, to correlate a multitude of disease symptoms in order to diagnose a disease, and to determine the best course of treatment.

Biomedical engineers are employed in: 1) the medical instrument industry, where they design, manufacture, sell, and service medical equipment; 2) hospitals, which employ engineers in increasing numbers to select, evaluate, and maintain complex medical equipment and to train the hospital staff in their use; and 3) medical and biological research centers, which use the specialized training of the biomedical engineer to apply engineering techniques in research projects.

The biomedical electronics engineering program combines study in the biological sciences with those areas of engineering which are particularly important for the application of modern technology to medicine. With a few minor elective changes the program also satisfies the entrance requirements of most medical schools, but students who plan to go on to medical school should consult the premedical advisor and the coordinator of the biomedical electronics engineering program.

For transfer from University College to the College of Engineering in the biomedical electronics engineering program, students must have completed *all science, mathematics, and engineering courses required during the first two semesters* with a quality point average of 2.00 or better.

The major requires 139 credits.

### Freshman Year

First semester: 17 credits

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 3 ECN 125 Economic Principles I
- 3 CSC 201 Introduction to Computing I
- 3 General Education requirement

### Freshman Year

Second semester: 19 credits

- 4 CHM 124 Introduction to Organic Chemistry
- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 PHY 213 Elementary Physics I
- 1 PHY 285 Physics Laboratory
- 4 ZOO 111 General Zoology
- 3 General Education requirement

### Sophomore Year

First semester: 16 credits

- 3 ELE 211 Linear Systems and Circuit Theory I
- 3 ELE 210 Introduction to Electricity and Magnetism
- 1 ELE 214 Circuits Laboratory I
- 3 MTH 243 Calculus for Functions of Several Variables
- 3 ZOO 345 Basic Animal Physiology
- 3 General Education requirement

### Sophomore Year

Second semester: 19 credits

- 3 ELE 205 Microprocessor Laboratory
- 3 ELE 212 Linear Systems and Circuit Theory II
- 1 ELE 215 Circuits Laboratory II
- 3 MCE 263 Dynamics
- 3 MTH 362 Advanced Engineering Mathematics I
- 3 PHY 223 Introduction to Acoustics and Optics
- 3 General Education requirement

### Junior Year

First semester: 18 credits

- 3 ELE 313 Linear Systems
- 3 ELE 322 Electromagnetic Fields I
- 3 MTH 363 Advanced Engineering Mathematics II
- 3 PHY 341 Introductory Modern Physics
- 6 General Education requirements

### Junior Year

Second semester: 16 credits

- 3 ELE 314 Linear Systems and Signals
- 3 ELE 323 Electromagnetic Fields II
- 4 ELE 342 Electronics I

- 3 PHY 420 Introduction to Thermodynamics and Statistical Mechanics (preferred) **or** MCE 341 Fundamentals of Thermodynamics
- 3 General Education requirement

### Senior Year

First semester: 18 credits

- 5 ELE 443 Electronics II
- 3 ELE 588 Biomedical Engineering I
- 1 ELE 481 Biomedical Engineering Seminar I
- 3 General Education requirement
- 3 Math elective
- 3 Professional elective

### Senior Year

Second semester: 16 credits

- 3 ELE 589 Biomedical Engineering II
- 1 ELE 482 Biomedical Engineering Seminar II
- 3 ZOO 442 Mammalian Physiology
- 6 Professional electives<sup>2</sup>
- 3 Free elective

## Chemical Engineering

The Department of Chemical Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree in chemical engineering that is accredited by ABET.<sup>3</sup> A curriculum leading to the Bachelor of Science degree in chemical and ocean engineering (unaccredited) is offered in cooperation with the Department of Ocean Engineering. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees, also offered by the department, are described in the *Graduate School Bulletin*.

*Faculty:* Professor Barnett, *chairperson*. Professors Bose, Brown, Estrin, Knickle, Rockett, and Rose; Associate Professors Gray and Gregory; Assistant Professor Rivero-Hudec.

The chemical engineer is concerned with the application and control of processes leading to changes in composition. These processes are most frequently associated with the production of useful products

<sup>2</sup> Select from approved list (see advisor). Professional electives approved for this program include: first semester—BCP 311, 403, 435; CHM 335, 431; CSC 311; ELE 331, 457, 581; MCE 354; MTH 244, 471; ZOO 441; second semester—BCP 302; CHM 336, 432; CSC 311, 400; ELE 436, 444, 458, 484, 581; MCE 354; MTH 244, 472.

<sup>3</sup> Accreditation Board for Engineering and Technology through its Engineering Accreditation Commission in cooperation with the Committee on Education and Accreditation of the American Institute of Chemical Engineers.

(chemicals, fuels, metals, foods, pharmaceuticals, paper, plastics, and the like), but also include such seemingly unrelated matters as removal of toxic components from the blood by an artificial kidney, environmental cleanup, and semiconductor processing. The chemical engineer's domain includes more efficient production and use of energy, processing of wastes, and protection of the environment.

Chemical engineers have a strong foundation in chemistry, physics, mathematics, and basic engineering. Chemical engineering courses include the use of digital computers, thermodynamics, transport phenomena, mass transfer operations, metallurgy, materials engineering, process dynamics and control, kinetics, and plant design. The student has the opportunity to operate small-scale equipment to determine efficiencies and operating characteristics, and to visit local industry. Intensive work in the solution of complex problems is given in which economics and optimization of engineering design are emphasized.

A chemical engineer with a background in both chemistry and engineering can apply his knowledge of research and development, design, production, and manufacturing not only to the areas listed above, but to many others such as textiles, dyes, petroleum, ceramics, paint, and rubber, as well as to biomedical, biochemical, ocean, space, nuclear energy, and environmental problems and processes.

About 25 percent of graduates work with environmental agencies. Many are employed by the Center for Pollution Prevention as undergraduates.

The major requires 133 credits.

#### Freshman Year

First semester: 16 credits

- 5 CHM 191 General Chemistry<sup>4</sup>
- 1 CHE 101 Foundations of Chemical Engineering
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 6 General Education requirements<sup>5</sup>

#### Freshman Year

Second semester: 17 credits

- 5 CHM 192 General Chemistry<sup>4</sup>
- 1 CHE 102 Introduction to Chemical Engineering
- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 PHY 213 Elementary Physics I
- 1 PHY 285 Physics Laboratory
- 3 ECN 125 Economic Principles I

#### Sophomore Year

First semester: 17 credits

- 3 CHE 212 Chemical Process Calculations
- 4 CHM 291 Organic Chemistry
- 3 MTH 243 Calculus for Functions of Several Variables
- 3 PHY 214 Elementary Physics II
- 1 PHY 286 Physics Laboratory
- 3 General Education requirements<sup>5</sup>

#### Sophomore Year

Second semester: 16 credits

- 3 CHE 272 Introduction to Chemical Engineering
- 3 CHE 332 Physical Metallurgy or approved professional elective
- 4 CHM 292 Organic Chemistry
- 3 ELE 220 Passive and Active Circuits
- 3 MTH 244 Differential Equations

#### Junior Year

First semester: 17 credits

- 3 CHE 313 Chemical Engineering Thermodynamics
- 3 CHE 347 Transfer Operations I
- 3 CHM 431 Physical Chemistry
- 2 CHM 335 Physical Chemistry Laboratory
- 3 Approved mathematics elective
- 3 General Education requirements<sup>5</sup>

#### Junior Year

Second semester: 17 credits

- 3 CHE 314 Chemical Engineering Thermodynamics
- 2 CHE 322 Chemical Engineering Microlaboratory
- 3 CHE 348 Transfer Operations II
- 3 CHE 425 Process Dynamics and Control
- 3 CHM 432 Physical Chemistry
- 3 General Education requirements<sup>5</sup>

#### Senior Year

First semester: 17 credits

- 1 CHE 328 Industrial Plants
- 2 CHE 345 Chemical Engineering Laboratory
- 2 CHE 349 Transfer Operations III
- 3 CHE 351 Plant Design and Economics
- 3 CHE 464 Industrial Reaction Kinetics
- 3 PHY 341 Introductory Modern Physics or approved professional elective
- 3 General Education requirements<sup>5</sup>

#### Senior Year

Second semester: 17 credits

- 2 CHE 346 Chemical Engineering Laboratory
- 3 CHE 352 Plant Design and Economics
- 3 Approved professional elective

- 3 CVE 220 Mechanics of Materials or approved professional elective
- 6 General Education requirements<sup>5</sup>

**Chemical and Ocean Engineering.** Students enrolled in this curriculum will follow the program of study for chemical engineering during the freshman, sophomore, and junior years. The senior year curriculum follows.

The major requires 135 credits.

#### Senior Year

First semester: 18 credits

- 1 CHE 328 Industrial Plants
- 2 CHE 349 Transfer Operations III
- 3 CHE 351 Plant Design and Economics
- 3 CHE 403 Introduction to Ocean Engineering Processes I
- 3 CHE 464 Industrial Reaction Kinetics
- 3 OCE 410 Basic Ocean Measurements
- 3 General Education requirements<sup>5</sup>

#### Senior Year

Second semester: 18 credits

- 3 CHE 352 Plant Design and Economics
- 3 CHE 404 Introduction to Ocean Engineering Processes II
- 3 CHE 534 Corrosion and Corrosion Control
- 3 OCG 401 General Oceanography
- 6 General Education requirements<sup>5</sup>

## Civil and Environmental Engineering

The Department of Civil and Environmental Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree in civil engineering and, in cooperation with the Department of Ocean Engineering, a curriculum leading to the Bachelor of Science (B.S.) degree in civil engineering with an ocean option. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees, also offered by the department, are described in the *Graduate School Bulletin*.

The Bachelor of Science program in civil engineering is accredited by the Accreditation Board for Engineering and Technology.

<sup>4</sup> For CHM 191 and 192 (10 credits), students may substitute CHM 101, 102, 112, 114, and 212 (12 credits).

<sup>5</sup> In order to meet accreditation requirements, these courses, together with at least 18 credits of the General Education requirements, must be chosen from a group approved by the chairperson, with the approval of an advisor designated by the chairperson.

**Faculty:** Professor Urish, *chairperson*. Professors Kovacs, McEwen, Poon, and Silva; Associate Professors Karamanlidis, Lee, Marcus, Thiem, Tsiatas, Veyera, and R. Wright; Assistant Research Professor Runge; Adjunct Professor T. Wright; Adjunct Associate Professors Huston and Shaw; Adjunct Assistant Professor Badorek.

Civil engineers are responsible for researching, developing, planning, designing, constructing, and managing many of the complex systems and facilities essential to our modern civilization. These include: water supply and pollution control systems; all types of transportation systems from pipelines to city streets; structural systems from residential buildings to city skyscrapers, power plants, and offshore platforms. Civil and environmental engineers play important roles in planning and administration with government agencies at all levels, especially those dealing with public works, transportation, environmental control, water supply, and energy.

The curriculum provides the students with sufficient background to pursue graduate study or to enter directly into professional practice in industry or government after graduation. The first two years are devoted largely to courses in mathematics, chemistry, physics, and engineering science which are common to all engineering curriculums. In their last two years students have a large degree of flexibility in developing their own programs to meet their own professional goals through the selection of professional electives in environmental engineering, soil mechanics and foundations, structural engineering, and transportation and construction.

No later than the first midsemester of the junior year each student is required to file a proposed plan of study which has been approved by the faculty advisor and the department. Professional electives and General Education requirements must be selected in consultation with the advisor to satisfy the Accreditation Board for Engineering and Technology accreditation requirements.

The major requires 138 credits.

#### Freshman Year

First semester: 18 credits

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 1 EGR 102 Basic Graphics
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 3 CSC 201 Introduction to Computing I

- 3 ECN 125 Economic Principles I
- 3 General Education requirement

#### Freshman Year

Second semester: 18 credits

- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 MCE 162 Statics
- 3 PHY 213 Elementary Physics I
- 1 PHY 285 Physics Laboratory
- 4 GEL 103 Physical Geology
- 3 General Education requirement

#### Sophomore Year

First semester: 16 credits

- 3 MTH 243 Calculus for Functions of Several Variables
- 3 MCE 263 Dynamics
- 3 PHY 214 Elementary Physics II
- 1 PHY 286 Physics Laboratory
- 3 CVE 216 Introduction to Civil and Environmental Engineering System
- 3 General Education requirement

#### Sophomore Year

Second semester: 15 credits

- 3 MTH 244 Differential Equations
- 3 CVE 220 Mechanics of Materials
- 3 ELE 220 Passive and Active Circuits
- 3 General Education requirement
- 3 Approved statistics elective

#### Junior Year

First semester: 17-18 credits

- 2 CVE 322 Civil Engineering Laboratory<sup>6</sup> or
- 3 General Education requirement
- 3 MCE 354 Fluid Mechanics
- 3 CVE 352 Structural Analysis I
- 4 CVE 374 Environmental Engineering
- 4 CVE 381 Geotechnical Engineering
- 1 CVE 304 Introduction to Professional Practice I

#### Junior Year

Second semester: 16-17 credits

- 2 CVE 322 Civil Engineering Laboratory<sup>6</sup> or
- 3 General Education requirement
- 4 CVE 347 Highway Engineering
- 3 CVE 353 Structural Analysis II
- 4 CVE 370 Hydraulic Engineering
- 3 General Education requirement

#### Senior Year

First semester: 19 credits

- 3 Approved math elective<sup>7</sup>
- 3 General Education requirement
- 3 CVE 465 Analysis and Design of Concrete Structures

- 9 Professional electives
- 1 CVE 305 Introduction to Professional Practice II

#### Senior Year

Second semester: 18 credits

- 3 CVE 498 Civil Engineering Design
- 6 Professional electives
- 3 Free elective
- 3 General Education requirement
- 3 Approved science elective<sup>8</sup>

**Professional electives.** Twelve of the 15 credits required for professional electives must be in the Department of Civil and Environmental Engineering and must include at least eight design credits. A list of courses and their design credits is available from the Department of Civil and Environmental Engineering.

**Civil Engineering with an Ocean Engineering Option.** Students enrolled in this curriculum will follow the program of study for civil engineering during the freshman and sophomore years. The curriculum for the junior and senior years follows.

The major requires 138 credits.

#### Junior Year

First semester: 17-18 credits

- 2 CVE 322 Civil Engineering Laboratory<sup>9</sup> or
- 3 General Education requirement
- 3 MCE 354 Fluid Mechanics
- 3 CVE 352 Structural Analysis I
- 4 CVE 374 Environmental Engineering
- 4 CVE 381 Geotechnical Engineering
- 1 CVE 304 Introduction to Professional Practice I

#### Junior Year

Second semester: 16-17 credits

- 2 CVE 322 Civil Engineering Laboratory<sup>9</sup> or
- 4 CVE 347 Highway Engineering
- 3 CVE 353 Structural Analysis II
- 4 CVE 370 Hydraulic Engineering
- 3 CVE/OCE 406 Introduction to Coastal and Ocean Engineering
- 3 OCG 401 General Oceanography

<sup>6</sup> Students can take the lab in either the fall or spring semester.

<sup>7</sup> 200-level or above course in mathematics. Course must be approved by an advisor.

<sup>8</sup> Any course for which the prerequisite is met by CHM 101, GEL 103, or PHY 214, or any course in biochemistry and biophysics, biology, botany, microbiology, or zoology. Course must be approved by an advisor.

<sup>9</sup> Students may take the lab in either the fall or spring semester.

**Senior Year***First semester: 17 credits*

- 3 Approved mathematics elective<sup>10</sup>
- 3 General Education requirement
- 3 Professional elective
- 3 CVE 465 Analysis and Design of Concrete Structures
- 3 CVE/OCE 411 Basic Coastal Measurements
- 1 CVE 491 Special Problems: Project in Civil and Ocean Engineering
- 1 CVE 305 Introduction to Professional Practice II

**Senior Year***Second semester: 18 credits*

- 3 CVE/OCE 407 Project in Ocean Engineering
- 3 CVE 498 Civil Engineering Design<sup>11</sup>
- 6 Professional electives
- 3 General Education requirement
- 3 Free elective

**Computer Engineering**

The Bachelor of Science (B.S.) degree in computer engineering is offered by the Department of Electrical Engineering. Specialization in computer engineering is also available within the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) programs in electrical engineering, described in the *Graduate School Bulletin*.

*Faculty:* Professor Ohley, *chairperson*; Professor Cooley, *coordinator*; Associate Professor Sun; Assistant Professors Lo and Yang.

The Department of Electrical Engineering will no longer admit students into its sophomore courses who have not been formally admitted into electrical engineering or computer engineering.

Computers and computer-like devices have transformed society, particularly in the technologically advanced countries. Computers are usually associated with data processing and high-technology control and signal processing functions such as numerically controlled machine tooling, computer-aided machine design, tomography and medical imaging, speech analysis and synthesis, and picture and data communication. Both mini- and microcomputers now play an important role in our everyday work and play environment. Word processing, paperless offices, and microprocessor-controlled games are prominent examples.

Computer engineering is concerned with the design and efficient use of large or small computers and the development of other

machines and instruments which contain computers, or parts of computers, as essential building blocks, from the hand-held calculator to the large multiterminal computer, and the programmable assembly machine. A programmable machine is one which will change its operation in response to a program or command.

Computer engineers may be employed in the design, service, operation, and sale of computer systems as well as the design, service, and sale of complex machinery, instruments, and systems—such as an automated subway—which require computers as essential parts. The employers may be industrial organizations, transportation companies, federal laboratories, or local government.

The computer engineer must understand the fundamentals of computer logic and programming as well as the fundamentals of electronics and general engineering—mathematics, mechanics, electricity, magnetism, and heat transfer. Engineers use all of this knowledge to create new devices and systems which satisfy perceived human needs.

For transfer from the University College to the College of Engineering in the computer engineering program students must have completed *all science, mathematics, and engineering courses required during the first two semesters* with a quality point average of 2.00 or better.

The major requires 133 credits.

**Freshman Year***First semester: 15 credits*

- 3 CSC 211 Introduction to Computer Science I
- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 3 PHY 203 Elementary Physics I
- 1 PHY 273 Elementary Physics Laboratory I

**Freshman Year***Second semester: 17 credits*

- 3 PHY 204 Elementary Physics II
- 1 PHY 274 Elementary Physics Laboratory II
- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 CSC 212 Introduction to Computer Science II
- 3 ECN 125 Economic Principles I
- 3 General Education requirement

**Sophomore Year***First semester: 17 credits*

- 3 ELE 201 Digital Circuit Design
- 1 ELE 202 Digital Circuit Design Laboratory
- 3 PHY 205 Elementary Physics III
- 1 PHY 275 Elementary Physics Laboratory III
- 3 MTH 243 Calculus for Functions of Several Variables
- 3 CSC 205 Computational Methods for Engineers and Scientists
- 3 General Education requirement

**Sophomore Year***Second semester: 17 credits*

- 3 ELE 205 Microprocessor Laboratory
- 3 ELE 212 Linear Circuit Theory
- 2 ELE 215 Linear Circuits Laboratory
- 3 MTH 362 Advanced Engineering Mathematics I
- 3 PHY 306 Elementary Modern Physics
- 3 CSC 311 Machine and Assembly Language Programming

**Junior Year***First semester: 18 credits*

- 3 ELE 331 Introduction to Solid State Devices
- 3 CSC 411 Computer Organization
- 3 MTH/CSC 447 Discrete Mathematical Structures
- 3 MTH 363 Advanced Engineering Mathematics II
- 6 General Education requirements

**Junior Year***Second semester: 16 credits*

- 4 ELE 342 Electronics I
- 3 ELE 405 Digital Computer Design
- 3 CSC 301 Fundamentals of Programming Languages
- 6 General Education requirements

**Senior Year***First semester: 17 credits*

- 3 CSC 331 Data Structures
- 3 ELE 408 Computer Organization Laboratory
- 4 ELE 447 VLSI Design and Simulation
- 3 IME 411 Probability for Engineers or MTH 451 Introduction to Probability and Statistics
- 3 General Education requirement

<sup>10</sup> An approved math elective is any mathematics course at the 200 level or above approved by an advisor.

<sup>11</sup> CVE 407 may be either a research or a design project. If it is a design project, then CVE 498 may be replaced by a professional elective.

**Senior Year**

*Second semester: 16 credits*

- 3 CSC 412 Operating Systems
- 3 ELE 437 Computer Communications
- 4 ELE 444 Advanced Electronics Design
- 3 General Education requirement
- 3 Free elective

**Minimum Requirements**

*Humanities and Social Sciences. (27 credits)*

See the General Education requirements for the College of Engineering listed on page 54. Students should consult with their advisors regarding distribution of courses and approved credits.

*Mathematics. (20 credits)* MTH 141, 142, 243, 362, 363, 447.

*Basic Sciences (19 credits).* CHM 101, 102; PHY 203, 273, 204, 274, 205, 275, 306.

*Computer Science (24 credits).* CSC 205, 211, 212, 301, 311, 331, 411, 412.

*Engineering Sciences and Design. (39 credits)* ELE 201, 202, 205, 212, 215, 331, 342, 405, 408, 437, 444, 447, IME 411 or MTH 451.

**Electrical Engineering**

The Department of Electrical Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees offered by the department are described in the *Graduate School Bulletin*.

*Faculty:* Professor Ohley, *chairperson*. Professors Daly, Jackson, Kay, Kumaresan, Lengyel, Lindgren, Mardix, Mitra, Polk, Sadasiv, Spence, Sunak, and Tufts; Associate Professors Boudreaux-Bartels, Fischer, Sun, Swaszek, and Vaccaro; Assistant Professors Lo and Yang; Adjunct Professors Aaron, Banerjee, Gerwitz, Middleton, and Turtle.

Electrical engineers work in all areas in which electrical phenomena are involved. These areas include communication systems, computers, control systems, quantum electronics, microelectronics, electro-optics, electro-acoustics, energy conversion, antennas and radio propagation, design of electronic devices, and bio-engineering.

Since electrical instrumentation is at the heart of modern science and technology, electrical engineers are not only employed in the computer, electronics, communications, and power industries, but may also be found in such diverse enterprises as transportation, the chemical industry, large hos-

pitals, medical schools, and government laboratories. By carefully selecting elective courses, the student should be able to enter any of these fields after graduation or be prepared for graduate study in engineering or physics.

The curriculum emphasizes the scientific basis of electrical engineering and the application of mathematical analysis to engineering problems. Work is required in network and systems theory, atomic physics and solid state, electromagnetic theory, and electronics. Creative use of scientific principles in problems of engineering design is stressed particularly in the senior year. Computer hardware and software development is a part of many electrical engineering courses.

Extensive laboratory work with electrical and optical devices serves to bridge the gap between mathematical analysis and the real world of "hardware." Separate undergraduate laboratories are available for electrical measurements, electronics, pulse and digital circuits, microprocessors, computer graphics, microwaves and quantum electronics, optics, materials, energy conversion, and systems. Selected students participate in advanced projects including microelectronics, investigation of optical properties of solids, optical and radio propagation, acoustics, computers, robotics, and biological instrumentation.

Electrical engineering students should note that the four-year electrical engineering curriculum allows for three credits of completely free electives which do not have to satisfy any of the General Education requirements. Although the natural science requirement will be satisfied automatically by courses specified in the electrical engineering curriculum, it is recommended that students take some additional courses in mathematics or physics for which the prerequisites have been satisfied.

For transfer from University College to the College of Engineering in the electrical engineering program, students must have completed *all science, mathematics, and engineering courses required during the first two semesters* with a quality point average of 2.00 or better.

**Minimum Requirements**

*Humanities and Social Sciences. (27 credits)*

See the General Education requirements for the College of Engineering listed on page 55. Students should consult with their advisors regarding distribution of credits and approved courses.

*Mathematics. (20 credits)* MTH 141, 142, 243, 362, 363; three credits MTH elective (215, any 300- to 500-level course except MTH 381).

*Basic Sciences. (19 credits)* CHM 101, 102; PHY 203, 273, 204, 274, 205, 275, 306.

*Computer Science. (6 credits)* CSC 201, 205.

*Engineering Sciences and Design. (56-57 credits)* ELE 201, 202, 205, 212, 215, 313, 314, 322, 323, 331, 342, 443; one engineering elective (chosen from MCE 323, 354, 458; CVE 220; IME 404, 411, 412; CHE 332, 347, 437; and OCE 410); four electrical engineering design electives (chosen from ELE 401, 405, 408, 427, 432, 436, 437, 444, 447, 457, or 458; two of these courses must be chosen from ELE 408, 427, 444, 447, or 458).

*Free Elective. (3 credits)*

The major requires 130-132 credits.

**Freshman Year**

*First semester: 15 credits*

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 3 PHY 203 Elementary Physics I
- 1 PHY 273 Elementary Physics Laboratory I
- 3 General Education requirement

**Freshman Year**

*Second semester: 17 credits*

- 3 ECN 125 Economic Principles I
- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 PHY 204 Elementary Physics II
- 1 PHY 274 Elementary Physics Laboratory II
- 3 CSC 201 Introduction to Computing
- 3 General Education requirement

**Sophomore Year**

*First semester: 17 credits*

- 3 CSC 205 Computational Methods for Engineers and Scientists
- 3 MTH 243 Calculus for Functions of Several Variables
- 3 PHY 205 Elementary Physics III
- 1 PHY 275 Elementary Physics Laboratory III
- 3 ELE 201 Digital Circuits Design
- 1 ELE 202 Digital Circuits Design Laboratory
- 3 General Education requirement

*Sophomore Year**Second semester: 17 credits*

- 3 MTH 362 Advanced Engineering Mathematics I
- 3 PHY 306 Elementary Modern Physics
- 3 ELE 212 Linear Circuit Theory
- 2 ELE 215 Linear Circuits Laboratory
- 3 ELE 205 Microprocessor Laboratory
- 3 General Education requirement

*Junior Year**First semester: 18 credits*

- 3 MTH 363 Advanced Engineering Mathematics II
- 3 ELE 313 Linear Systems
- 3 ELE 322 Electromagnetic Fields I
- 3 ELE 331 Introduction to Solid State Devices
- 6 General Education requirements

*Junior Year**Second semester: 15 credits*

- 4 ELE 314 Linear Systems and Signals
- 4 ELE 323 Electromagnetic Fields II
- 4 ELE 342 Electronics I
- 3 General Education requirement

*Senior Year<sup>12</sup>**Total credits for two semesters: 31–33*

- 5 ELE 443 Electronics II
- 3 Mathematics elective<sup>13</sup>
- 3 Engineering elective<sup>14</sup>
- 3 General Education requirement
- 3 Free elective
- 14–16 Electrical engineering design electives<sup>15</sup>

## Industrial and Manufacturing Engineering

The Department of Industrial and Manufacturing Engineering offers an ABET-accredited curriculum leading to the Bachelor of Science (B.S.) degree in industrial engineering. The Master of Science (M.S.) degree, also offered by the department, is described in the *Graduate School Bulletin*.

*Faculty:* Professor Knight, *chairperson*. Professors Boothroyd and Dewhurst; Associate Professors Lawing and Shao; Assistant Professor Sodhi; Adjunct Professors Olson and Reynolds; Emeritus Professor Nichols.

The industrial and manufacturing engineering curriculum is designed to provide significant strength in mathematics, basic science, and engineering science, together with a carefully coordinated set of courses of particular importance to the professional industrial or manufacturing engineer. Math-

ematical modeling of production systems and fundamental treatments of important manufacturing processes and assembly are included. Robotics, computer-aided manufacturing, and product design for manufacturability and assembly are areas that receive considerable attention.

Students are amply prepared to pursue careers in industrial or manufacturing engineering—areas which are becoming increasingly important in efforts to improve industrial productivity in the United States.

The curriculum also provides an excellent background for further formal study at an advanced level.

The major requires 135 credits.

*Freshman Year**First semester: 18 credits*

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 3 CSC 200 Introduction to Computer Programming for Engineers
- 3 ECN 125 Economic Principles I
- 1 EGR 102 Basic Graphics
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 3 General Education requirement

*Freshman Year**Second semester: 17 credits*

- 3 ECN 126 Economic Principles II
- 3 MCE 162 Statics
- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 PHY 203 Elementary Physics I or PHY 213 Elementary Physics I
- 1 PHY 273 Elementary Physics Laboratory I or PHY 285 Physics Laboratory
- 3 General Education requirement

*Sophomore Year**First semester: 16 credits*

- 3 IME 220 Introduction to Industrial Engineering
- 3 MCE 263 Dynamics
- 3 MTH 243 Calculus for Functions of Several Variables
- 3 PHY 204 Elementary Physics II or PHY 214 Elementary Physics II
- 1 PHY 274 Elementary Physics Laboratory II or PHY 286 Physics Laboratory
- 3 General Education requirement

*Sophomore Year**Second semester: 18 credits*

- 3 ACC 201 Elementary Accounting I
- 3 CVE 220 Mechanics of Materials
- 3 ELE 220 Passive and Active Circuits

- 3 IME 240 Manufacturing Processes
- 3 IME 325 Computer Solutions in Industrial and Manufacturing Engineering
- 3 MTH 362 Advanced Engineering Mathematics I

*Junior Year**First semester: 18 credits*

- 3 CHE 333 Engineering Materials or CHE 437 Materials Engineering
- 3 IME 404 Engineering Economy
- 3 IME 411 Probability for Engineers
- 3 IME 432 Operations Research: Deterministic Models
- 3 MCE 341 Thermodynamics
- 3 General Education requirement

*Junior Year**Second semester: 15 credits*

- 3 IME 412 Statistics for Engineers
- 3 IME 433 Operations Research: Stochastic Models
- 3 Professional elective
- 3 IME 443 Machining and Machine Tools
- 3 MCE 354 Fluid Mechanics

*Senior Year**First semester: 18 credits*

- 3 IME 444 Assembly and Handling Automation
- 3 IME 449 Product Design for Manufacturability
- 3 Quantitative or Materials elective
- 3 Professional elective
- 6 General Education requirements

*Senior Year**Second semester: 15 credits*

- 3 IME 446 Metal Deformation Processes
- 3 Approved science elective<sup>16</sup>
- 3 Quantitative or Materials elective
- 3 Free elective
- 3 General Education requirement

<sup>12</sup> See your advisor for help preparing a suitable senior year program.

<sup>13</sup> A mathematics elective is MTH 215 or any 300- to 500-level mathematics course except MTH 381. MTH 451 is recommended as a mathematics elective.

<sup>14</sup> An engineering elective is one of the following engineering science courses: MCE 323, 354, 448; CVE 220; IME 404, 411, 412; CHE 332, 347, 437; and OCE 410.

<sup>15</sup> Electrical engineering design electives may be chosen from any four of the following courses: ELE 401, 405, 408, 427, 432, 436, 437, 444, 447, 457, or 458. However, two of the courses must be chosen from ELE 408, 427, 444, 447, or 458.

<sup>16</sup> Any course for which the prerequisite is met by CHM 101, including PHY 205, 223, 275, any physics course at or above the 300 level, or any course in astronomy, biochemistry and biophysics, biology, botany, geology, microbiology, or zoology. Any other course must be approved by an advisor.

General Education indicated in several places above refers to one of the electives in the University's General Education program, required in all curriculums leading to a bachelor's degree.

## Materials Engineering

The Department of Chemical Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree in materials engineering.

*Faculty:* Chemical Engineering faculty;  
*coordinator:* Professor Rockett.

Graduates will be prepared to continue studies on the postbaccalaureate level in materials engineering, materials science, or chemical engineering, or to enter employment in industries and government agencies where production and research are underway in the development, processing, and marketing of products involving traditional or new uses of metals, alloys, ceramics, composites, polymers, and semiconductors. Products range from large turbines to computer chips. Employment opportunities include basic research, applied research and testing, product design, troubleshooting, pollution control, process supervision, government regulation, economic analysis, quality control, management, and engineering sales.

The materials engineering program begins with General Education requirements and mathematics, chemistry, and physics courses common to many of the other engineering programs. In the sophomore and junior years, many traditional engineering science areas are treated, along with basic courses in materials science and additional chemistry courses. In the final year, the application and synthesis of topics previously studied are incorporated into formal courses and project courses. Considerable leeway is allowed at this level in the choice of project topics and courses in specialized areas of materials engineering.

The major requires 128 credits.

### Freshman Year

*First semester: 16 credits*

- 5 CHM 191 General Chemistry
- 1 CHE 101 Foundations of Chemical Engineering
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 6 General Education requirements

### Freshman Year

*Second semester: 17 credits*

- 5 CHM 192 General Chemistry
- 1 CHE 102 Introduction to Chemical Engineering
- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 PHY 213 Elementary Physics I<sup>17</sup>
- 1 PHY 285 Physics Laboratory<sup>17</sup>
- 3 ECN 125 Economic Principles I

### Sophomore Year

*First semester: 16 credits*

- 3 CHE 212 Chemical Process Calculations
- 3 CHM 227 Organic Chemistry Lecture I
- 3 MTH 243 Calculus for Functions of Several Variables
- 3 PHY 214 Elementary Physics II<sup>17</sup>
- 1 PHY 286 Physics Laboratory<sup>17</sup>
- 3 MCE 162 Statics

### Sophomore Year

*Second semester: 15 credits*

- 3 CHE 272 Introduction to Chemical Engineering
- 3 CHE 332 Physical Metallurgy
- 3 CHM 228 Organic Chemistry Lecture II
- 3 CVE 220 Mechanics of Materials
- 3 MTH 244 Differential Equations

### Junior Year

*First semester: 18 credits*

- 3 CHE 313 Chemical Engineering Thermodynamics
- 3 CHE 347 Transfer Operations I
- 3 CHE 437 Materials Engineering
- 3 CHM 431 Physical Chemistry
- 3 MTH 215 Introduction to Linear Algebra
- 3 General Education requirement

### Junior Year

*Second semester: 17 credits*

- 3 CHE 314 Chemical Engineering Thermodynamics
- 2 CHE 322 Chemical Engineering Microlaboratory
- 3 CHE 348 Transfer Operations II
- 3 ELE 220 Passive and Active Circuits
- 6 General Education requirements

### Senior Year

*First semester: 18 credits*

- 3 CHE 351 Plant Design and Economics
- 3 CHE 439 Nondestructive Evaluation of Materials
- 3 IME 411 Probability for Engineers
- 3 Engineering science elective (Materials)
- 3 Design elective (Materials)
- 3 General Education requirement

### Senior Year

*Second semester: 15 credits*

- 3 CHE 492 Special Problems (Design, Materials)
- 3 CHE 534 Corrosion and Corrosion Control
- 3 Engineering science elective (Materials)
- 6 General Education requirements

## Mechanical Engineering and Applied Mechanics

The Department of Mechanical Engineering and Applied Mechanics offers a curriculum leading to the Bachelor of Science (B.S.) degree in mechanical engineering, which is accredited by the Accreditation Board for Engineering and Technology (ABET) and, in cooperation with the Department of Ocean Engineering, offers a curriculum leading to the Bachelor of Science (B.S.) degree in mechanical engineering with an ocean engineering option, which is also accredited by ABET.

The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees also offered by the department are described in the *Graduate School Bulletin*.

*Faculty:* Professor Sadd, *chairperson*. Professors Dateris, DeLuise, Faghri, Ferrante, Ghonem, Kim, Lessmann, Nash, Palm, Shukla, Wilson, and White; Assistant Professors Core, Dunbar, Jouaneh, Olson, Taggart, and Zhang; Adjunct Professors Hubbell, Messier, Patton, and Rodman.

This curriculum provides a thorough and well-rounded foundation in basic science, mathematics, engineering science, and General Education to prepare the graduate to enter a professional engineering career. The curriculum is also excellent preparation for graduate school. Mechanical engineers are employed in large numbers in industry where they frequently assume positions of leadership. The program at the University of Rhode Island is unusually strong in providing a background in systems engineering, design, fluids, and the thermal sciences including energy and energy transfer. Computer applications are stressed throughout the curriculum. All undergraduates are invited to join the Student Section of the American Society of Mechanical Engineers which sponsors industrial plant visits, special lectures, and other activities.

<sup>17</sup> For PHY 213, 214, 285, and 286 (eight credits), students may substitute MCE 162, 263, and ELE 210 (nine credits).



The work in the first two years consists of basic courses in science (mathematics, physics, chemistry), applied science (mechanics, electricity and magnetism, computer science, theory of mechanisms), and General Education (Humanities, Social Sciences, English Communication).

The junior year concentrates on fundamental courses in mechanical engineering (thermodynamics, fluid mechanics, systems engineering, engineering analysis), materials science, and electronic devices. Further General Education studies are also covered.

The senior year in mechanical engineering includes machine design, heat transfer, manufacturing processes, computer-aided design, and a wide variety of professional electives such as mechanical control systems, advanced fluid mechanics, advanced mechanics of materials, microprocessor applications, internal combustion engines, alternate energy systems including solar and wind energy, power plants, lubrication and bearings, thermal environmental engineering, vibrations, finite element method, and experimental stress analysis.

Throughout the program the student takes an integrated series of laboratory courses which introduce laboratory techniques and provide practical experience with the physical and engineering phenomena being covered in concurrent courses. Digital computer techniques are included. The Academic Computer Center's IBM 4381-3 mainframe and two Prime 9955s are used. Students also use the College of Engineering's VAX-8600 and Prime 9955 computer graphics facilities and microcomputers.

To receive the Bachelor of Science degree in mechanical engineering, the student must satisfactorily complete all the courses in the following curriculum. The curriculum shown below is for the class of 1993 and subsequent classes. Students in the Class of 1992 should obtain a check sheet from their advisors.

The major for the Class of 1993 and subsequent classes requires 135 credits.

Students desiring an undergraduate specialization in ocean engineering may choose the program in mechanical engineering with an ocean engineering option. Students enrolled in this option must follow the program of study of mechanical engineering during the freshman and sophomore years. The junior and senior years' curriculum for this major is listed under "Ocean Engineering." All students enrolled in the mechanical engineering curriculum must have credit for CSC 201, or the equivalent, before taking 200 or higher level MCE courses.

#### *Freshman Year*

*First semester: 17 credits*

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 3 ECN 125 Economic Principles I
- 3 CSC 200 Introduction to Computer Programming for Engineers
- 3 General Education requirement

#### *Freshman Year*

*Second semester: 17 credits*

- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 MCE 162 Statics
- 3 PHY 213 Elementary Physics I
- 1 PHY 285 Physics Laboratory I
- 6 General Education requirements

#### *Sophomore Year*

*First semester: 16 credits*

- 3 CVE 220 Mechanics of Materials
- 3 MTH 243 Calculus for Functions of Several Variables
- 3 MCE 263 Dynamics
- 3 PHY 214 Elementary Physics II
- 1 PHY 286 Physics Laboratory II
- 3 MCE 220 Computer Graphics in Mechanical Engineering

#### *Sophomore Year*

*Second semester: 18 credits*

- 3 ELE 220 Passive and Active Circuits
- 3 MTH 244 Differential Equations
- 3 MCE 323 Kinematics
- 3 PHY 341 Introductory Modern Physics
- 6 General Education requirements

#### *Junior Year*

*First semester: 18 credits*

- 3 CHE 333 Engineering Materials
- 3 ELE 221 Electronic Instruments and Electromechanical Devices
- 3 MCE 341 Fundamentals of Thermodynamics
- 3 MCE 372 Engineering Analysis I
- 6 General Education requirements

#### *Junior Year*

*Second semester: 15 credits*

- 3 MCE 317 Mechanical Engineering Experimentation I
- 3 MCE 342 Mechanical Engineering Thermodynamics
- 3 MCE 354 Fluid Mechanics
- 3 MCE 366 Introduction to Systems Engineering
- 3 MCE 373 Engineering Analysis II

#### *Senior Year*

*First semester: 18 credits*

- 3 IME 340 Materials Processing and Metrology I
- 3 MCE 318 Mechanical Engineering Experimentation II
- 3 MCE 423 Design of Machine Elements
- 3 MCE 448 Heat and Mass Transfer
- 6 Professional electives<sup>18</sup>

#### *Senior Year*

*Second semester: 18 credits*

- 3 MCE 429 Comprehensive Design
- 3 MCE 430 Computer-aided Design
- 6 Professional electives<sup>18</sup>
- 3 Free elective
- 3 General Education requirement

**Mechanical Engineering with an Ocean Engineering Option.** Students enrolled in this curriculum will follow the program of study for mechanical engineering during the freshman and sophomore years. The junior and senior year curriculum for the Class of 1993 and subsequent classes follows.

This major requires 140 credits.

#### *Junior Year*

*First semester: 18 credits*

- 3 CHE 333 Engineering Materials
- 3 ELE 221 Electronic Instruments and Electromechanical Devices
- 3 MCE 341 Fundamentals of Thermodynamics
- 3 MCE 372 Engineering Analysis I
- 3 OCG 401 General Oceanography
- 3 General Education requirement

#### *Junior Year*

*Second semester: 18 credits*

- 3 MCE 317 Mechanical Engineering Experimentation I
- 3 MCE 342 Mechanical Engineering Thermodynamics
- 3 MCE 354 Fluid Mechanics
- 3 MCE 366 Introduction to Systems Engineering
- 3 MCE 373 Engineering Analysis II
- 3 General Education requirement

<sup>18</sup> The requirement for professional electives must be satisfied by a minimum of three three-credit elective courses in mechanical engineering. The fourth course may be a 300-, 400-, or 500-level course offered by: the College of Engineering (except OCE 346 and 347); or the Departments of Computer Science, Chemistry, or Physics; or the Department of Mathematics (one 400- or 500-level course).

*Senior Year**First semester: 18 credits*

- 3 IME 340 Materials Processing and Metrology I
- 3 MCE 410 Basic Ocean Measurements
- 3 MCE 423 Design of Machine Elements
- 3 MCE 448 Heat and Mass Transfer
- 3 OCE elective<sup>19</sup>
- 3 General Education requirement

*Senior Year**Second semester: 18 credits*

- 3 MCE 429 Comprehensive Design
- 3 MCE 430 Computer-Aided Design
- 3 OCE 307 Coastal Engineering Design
- 3 OCE 471 Underwater Acoustics and Data Analysis<sup>20</sup>
- 3 Professional elective<sup>21</sup>
- 3 Free elective

**Ocean Engineering**

The Department of Ocean Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree in ocean engineering. The department is nationally and internationally recognized as one of the leaders in ocean engineering. The B.S. program is designed to meet criteria for accreditation by the Accreditation Board for Engineering and Technology (ABET) and is open to qualified students under the New England Regional Student Program. The Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees, also offered by the department, are described in the *Graduate School Bulletin*.

*Faculty:* Professor Silva, *chairperson*. Professors Spaulding, Stepanishen, and Tyce; Associate Professor Hu; Assistant Professor Grilli; Adjunct Professor Shonting; Emeriti Professors Kowalski, Middleton, and Sheets.

This curriculum provides a basic ocean engineering program that will prepare students for direct entry into a professional career or for continued study toward a graduate degree. The curriculum gives students a firm footing in engineering fundamentals. The required ocean engineering courses begin at the freshman level and include laboratory, analysis, and design courses. The total design component must include at least 17 credits. There is a strong emphasis on the application of scientific principles in the ocean environment gained through laboratory courses. Experiments covering several basic areas are employed and provide an integrated approach to investigations into ocean phenomena and processes. Students

are involved in the planning and execution of experiments, including collection and analysis of data and reporting results. This hands-on experience provides graduates with an understanding of ocean engineering activities in scientific and industrial fields. Three ocean engineering professional elective courses are also required. The program is broad based and exposes students to the following topics: ocean instrumentation and data analysis, underwater and subbottom acoustics, marine hydrodynamics, coastal and nearshore processes, marine geomechanics, coastal and offshore structures, and corrosion.

To ensure that each student gains an in-depth knowledge of one of the classical engineering disciplines, the curriculum requires an emphasis of at least 18 credits of an approved sequence of courses in one of the other engineering majors. This emphasis may result in a minor in that department. An Ocean Systems Design Project course in the senior year integrates previously obtained knowledge in a comprehensive design project. This experience may be obtained through an on-campus course, by participating in an ongoing research project, or through an off-campus summer internship in an ocean-oriented private company or governmental laboratory. The internship allows interested students to take advantage of the many opportunities available in the region.

The Department of Ocean Engineering has its headquarters in Lippitt Hall on the Kingston Campus and also has laboratory facilities in three buildings on the Narragansett Bay Campus. These buildings house most of the department's experimental facilities. Computational facilities include computer and terminal rooms on both campuses. Both IBM and Macintosh computers are networked, and workstations are connected to the Engineering Computer Laboratory and the Academic Computer Center.

Extensive laboratory facilities are available. The 65-foot ocean engineering coastal research vessel, the *Edson Schock*, is used for both laboratory courses and research. A 100-foot tow tank and a large acoustics tank are located on the Bay Campus, as well as an electronics shop, a diving locker, a machine shop, a corrosion/materials laboratory, and the Marine Geomechanics Laboratory.

The major requires 134 credits.

*Freshman Year**First semester: 18 credits*

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 4 MTH 141 Introductory Calculus with Analytic Geometry
- 3 ECN 125 Economic Principles I
- 3 CSC 201 Introduction to Computing I
- 3 GEL 103 Physical Geology
- 1 GEL 106 Introductory Geology Laboratory

*Freshman Year**Second semester: 16 credits*

- 4 MTH 142 Intermediate Calculus with Analytic Geometry
- 3 PHY 213 Elementary Physics I
- 1 PHY 285 Physics Laboratory I
- 1 OCE 101 Introduction to Ocean Engineering
- 3 CHM 112 General Chemistry Lecture II
- 1 CHM 114 Laboratory for Chemistry 112
- 3 General Education requirement

*Sophomore Year**First semester: 16 credits*

- 3 MCE 162 Statics
- 3 MTH 243 Calculus for Functions of Several Variables
- 3 PHY 214 Elementary Physics II
- 1 PHY 286 Physics Laboratory II
- 6 General Education requirements

*Sophomore Year**Second semester: 16 credits*

- 3 CVE 220 Mechanics of Materials
- 3 MTH 244 Differential Equations
- 3 ELE 220 Passive and Active Circuits
- 3 OCG 401 General Oceanography
- 1 OCE 215 Ocean Engineering Seminar
- 3 MCE 263 Dynamics

*Junior Year**First semester: 18 credits*

- 3 CHE 333 Engineering Materials
- 3 MCE 341 Fundamentals of Thermodynamics or CHE 313 Chemical Engineering Thermodynamics I

<sup>19</sup> One course must be selected from OCE 411, 495, 510, 512, 522, or 534.

<sup>20</sup> Substitute PHY 425 in 1992 since OCE 471 will not be offered until 1993.

<sup>21</sup> The professional elective requirement may be satisfied by any 400-level mechanical engineering course.

- 3 MCE 372 Engineering Analysis I or  
CVE 352 Structural Analysis I
- 3 MCE 354 Fluid Mechanics
- 3 OCE 410 Basic Ocean Measurements
- 3 General Education requirement

#### Junior Year

Second semester: 18 credits

- 3 IME 404 Engineering Economy
- 3 MCE 366 Introduction to Systems  
Engineering
- 3 OCE 307 Coastal Engineering Design
- 3 OCE 411 Basic Coastal Measurement
- 3 Professional elective
- 3 General Education requirement

#### Senior Year

First semester: 17 credits

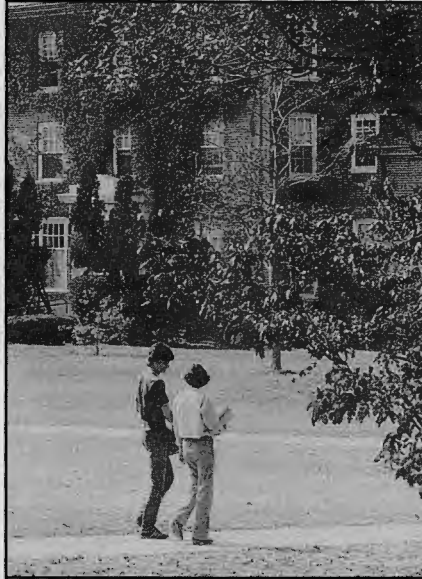
- 3 MCE 448 Heat and Mass Transfer
- 1 OCE 416 Ocean Engineering Seminar
- 4 OCE 495 Ocean Systems Design Project<sup>22</sup>
- 6 Professional electives<sup>23</sup>
- 3 General Education requirement

#### Senior Year

Second semester: 15 credits

- 3 OCE 471 Underwater Acoustics and Data  
Analysis
- 3 Professional elective<sup>23</sup>
- 3 Free elective
- 6 General Education requirements

## COLLEGE OF HUMAN SCIENCE AND SERVICES



Barbara Brittingham, *Dean*  
Leo E. O'Donnell, *Associate Dean*  
Milton Butts, Jr., *Assistant Dean*

**T**he College of Human Science and Services is a people-oriented college designed to focus on the human and nonhuman resources needed to help individuals and groups solve human problems encountered in contemporary society. Programs in the college prepare students for a variety of professions in three basic areas: teacher education, health-related fields, and fields which have evolved from the University's historic land-grant mission in home economics. These programs include both formal and informal experiences with people in a wide variety of public service settings which enable students to develop the competencies needed in the emerging field of human services. A number of teacher education programs offered through the College of Human Sciences and Services are outlined in the following departmental descriptions. For more information on teacher education programs, see pages 12-13.

The degrees offered by the college include: 1) a Bachelor of Science degree with majors in communicative disorders; con-

sumer affairs; dental hygiene; elementary and secondary education; human development and family studies; human science and services; physical education; textiles, fashion merchandising, and design; and textile marketing; 2) a Bachelor of Science degree in home economics with a major in home economics; 3) an Associate in Science degree in dental hygiene.

The college is composed of six departments and a Division of Interdisciplinary Studies.

The Institute of Human Science and Services; the research and service branch of the college, promotes these activities in human service areas across all departments of the college. The institute conducts research in education and educational testing, lifelong learning, human transition, child development, communicative disorders, special populations, gerontology, and exercise physiology. Faculty conducting institute research also teach within the various departments of the college.

The college sponsors a number of organizations and activities which provide special opportunities for students:

*URI Clearinghouse for Volunteers* is a service which matches prospective volunteers with positions in Rhode Island's human service agencies, giving students opportunities to explore career options and provide needed service.

*Human Performance Laboratory* is equipped with the latest means of measuring physical activity and its stresses and effects; sponsors programs for adult fitness; and conducts research programs related to fitness, sport, and nutrition.

*Child Development Center* is a modern facility that provides day care and preschool programs; offers opportunities for undergraduate students to observe and learn to work with young children.

*Microcomputer Laboratory* contains a variety of up-to-date microcomputers with software designed for use in elementary and secondary classrooms.

*Historic Textile and Costume Collection* is a teaching and research collection of approximately 16,000 artifacts with an emphasis on historic New England clothing and textiles. Objects range from archaeological textiles to 20th-century designer garments.

*Physical Therapy Clinic* offers physical therapy services to the community and pro-

<sup>22</sup> An approved off-campus experience between the junior and senior years can be substituted for OCE 495.

<sup>23</sup> The requirement for professional electives must be satisfied by a minimum of three approved three-credit elective courses at the 300-, 400-, or 500-level in ocean engineering. One three-credit elective must be a 400-level mathematics course or IME 411 or EST 409.

vides a setting for clinical education and research for students in the physical therapy program.

*Speech and Hearing Clinic* supports over 2,000 client visits per year in the areas of speech and hearing assessment and therapy; provides observational, clinical, and research support for communicative disorders.

*Dental Hygiene Clinic* offers preventive services to persons 18 years or older. Services include a dental prophylaxis, X-ray films, patient education, and fluoride treatments.

### Faculty

*Communicative Disorders:* Associate Professor Singer, *chairperson*. Professors Beaupre and Culatta; Associate Professor Grubman-Black; Assistant Professor Harris; Clinical Assistant Professor Regan; Adjunct Assistant Professor Singer; Clinical Coordinator Connors.

*Dental Hygiene:* Professor Brown, *chairperson*. Assistant Professor Saunders; Clinical Instructors Allen, Aschaffenburg, Barry, Bhattacharya, Brown, Chapman, Coletti, Feldman, George, Hogan, Kaufman, Kershaw, Kilcline, Lowe, Mullane, Nager, Renz, Schwab, and VanPala.

*Education:* Associate Professor Kellog, *chairperson*. Professors Croasdale, Long, Mac-Millan, Purnell, Russo, and Willis; Associate Professors Allen, Boulmetis, Brittingham, Byrd, McKinney, Nelson, Soderberg, Sullivan, and Trostle; Assistant Professors Barton and Young; Adjunct Professors Knott and Tierney.

*Human Development, Counseling, and Family Studies:* Professors Cohen, Maynard, and Rae; Associate Professors Anderson, Caruso, Clark, Richmond, and Schaffran; Assistant Professors Adams, Blood, Frank, Horm-Wingerd, Kalymun, Noring, Schroeder, and Xiao; Adjunct Professor Guthrie.

*Physical Education, Health, and Recreation:* Associate Professor Crooker, *chairperson*. Professors Bloomquist, Manfredi, Nedwidek, and Sonstroem; Associate Professors Cohen, O'Donnell, O'Leary, Polidoro, Rowinski, and Seleen; Assistant Professors Agostinucci, Blanpied, Norris, and Robinson; Special Instructors Marsden and McAniff; Adjunct Associate Professor Lemaire; Clinical Coordinator Congdon.

*Textiles, Fashion Merchandising, and Design:* Associate Professor Welters, *chairperson*. Associate Professors Bide, Higa, and Helms; Assistant Professors Harps-Logan and

Ordonez; Adjunct Professor Emery; Instructor Perry; Curator Kaye.

*Division of Interdisciplinary Studies:* Gerontology—Associate Professor Clark, *program head*; Consumer Affairs—Assistant Professor Noring, *program head*; Human Science and Services—Associate Professor McKinney, *program head*; Urban Affairs—Assistant Professor Noring, *program head*; Special Populations—Associate Professor Crooker, *program head*.

### General Education Requirements

All students pursuing a bachelor's degree in the College of Human Science and Services are required to develop a 39-credit program in General Education within the framework listed below. For a complete description of the General Education requirements, see page 9.

Individual programs may require specific courses for their area.

*English Communication* (6 credits). A minimum of three credits in written communication from courses in Group Cw; a minimum of three credits in oral communication from SPE 101, 103.

*Fine Arts and Literature* (6 credits)

*Foreign Language and Culture* (6 credits)

*Letters* (6 credits)

*Mathematics* (3 credits)

*Natural Sciences* (6 credits)

*Social Sciences* (6 credits). A minimum of three credits from psychology, sociology, or anthropology courses approved for General Education.

Total: 39 credits.

**Division of Interdisciplinary Studies.** This division provides an environment in which faculty and students may bring together interdisciplinary programs and courses of study in human science and services. The division functions to promote and encourage the creation, implementation, and evaluation of interdisciplinary courses and programs of study taught by faculty from two or more departments within the University. In addition, the division assumes responsibility for the development, review, and implementation of programs of study which draw significantly on two or more human science and services departments. The division maintains administrative responsibility for the following programs: Home Economics (see page 69); Human Science and Services

(see page 70); Consumer Affairs (see page 67); Gerontology (see page 10); and Special Populations (see page 11).

**Minors: Interdisciplinary Nondegree Programs.** Students may declare a minor which will appear on their transcripts as a category separate from their major. Credits may be drawn from any cohesive combination of courses. A minor may be defined as: 1) the completion of 18 or more credits in any of the minors that have been proposed by one or more departments and approved by the Curriculum Affairs Committee, Faculty Senate, and president; 2) the completion of 18 or more credits within a curriculum other than the student's major; or 3) the completion of 18 or more credits of related studies offered by more than one department and approved by a member of the faculty competent in the area and the dean of the college. At least 12 of the 18 credits must be at the 200-level or above. Elective courses and courses in General Education may be used for the minor. No course may be used to apply to both the major and minor fields of study. A minimum average of 2.00 must be earned in the courses in the minor. Courses in the minor may not be taken under the Pass-Fail option. It is the responsibility of the student to declare and obtain approval for a minor no later than the end of the add period at the start of the senior year.

**Field Work.** Many of the academic programs in the College of Human Science and Services require a supervised field work experience as part of the degree requirements. This experience is designed to provide students with the opportunity to apply classroom knowledge in a career-related setting. Placements are made in a wide variety of agencies such as public schools, health care facilities, day care centers, and other human service settings. Satisfactory completion of a required field experience depends on achievement of basic competencies established by the academic department in cooperation with the agency. The University supervisor is responsible for determining whether or not the student has attained the required competencies and, in some cases, may extend the time required for the experience until the student's performance is satisfactory. If in the opinion of the University supervisor the performance of the student is unsatisfactory, and particularly if client/patient safety is at risk, the student may be removed from the field experience prior to the end of the semester or term.

**Graduation.** It is the responsibility of the student to file an Intent to Graduate Form and a curriculum work sheet approved by the advisor in the dean's office. The deadline is September 15 for May graduation, April 5 for August graduation, and May 5 for December graduation.

**Course Load.** Approval of the advisor and the dean is needed for a schedule of more than 19 credits per semester.

**Repeating Courses for Credit.** Unless otherwise stated in the course description, a course may not be repeated for credit. Credit may be counted only once toward the total credits required for graduation. Repeating courses in which a grade of C or better was earned requires approval of the student's academic dean; students may need to take such courses on a pass-fail basis.

**Transfer Students.** Transfer students should be advised that admission to some programs in the College of Human Science and Services requires meeting certain prerequisites or separate admission criteria. Teacher education programs in the Department of Education, Department of Human Development and Family Studies, and the Department of Physical Education, Health, and Recreation have specific admission criteria and generally require at least one semester of work at the University of Rhode Island as a matriculated student before application for admission. Transfer students may be admitted to the University, but are not admitted directly into these programs.

Before transferring into the programs in textiles, fashion merchandising, and design, and textile marketing, students must complete CHM 103, 105, 124, and 126.

Accelerated programs such as the Bachelor's-Master's Degree program in Speech-Language Pathology or Audiology or the Plan for Early Contingent Admission to the Master of Science Degree program in Physical Therapy require careful and timely course planning typically beginning with the freshman year at the University. It is unlikely that transfer students would have the appropriate sequence of courses, including the prerequisites, that would allow them to take advantage of these options.

Students interested in any of the above programs should refer to the specific program descriptions on the following pages and consult the department for additional information.

## Communicative Disorders

This curriculum leads to a Bachelor of Science (B.S.) degree in communicative disorders. In addition to General Education requirements and appropriate free electives, a major of 34 semester hours in communicative disorders includes 25 semester hours of required courses and nine semester hours of professional electives.

The required courses are CMD 260, 261, 372, 373, 374, 375, 376, and 465. The remaining nine credits (three courses) must be selected from the four areas listed below with a limit of one course in a given area:

*Area A (0-3 credits).* Normal Human Development and Adjustment: HCF 200, 201, 450; PSY 232, 235.

*Area B (0-3 credits).* Special Populations: CMD 475 (2 credits); HCF 220; PSY 254, 442.

*Area C (0-3 credits).* Supportive Disciplines: EST 220; EDC 312, 424; HSS 320; LIN 201; PSY 300, 384, 386; SPE 220.

*Area D (0-3 credits).* Honors Work, Individual Research or Special Problems within the department: CMD 391, 392, 491, 492.

With careful early planning, majors may use free electives to achieve a double major or to explore special interest areas in depth. Students should anticipate the necessity for graduate study in speech-language pathology or audiology. The typical minimum entry requirement for graduate study is a quality point average of 3.00.

A total of 120 credits is required for graduation.

**Accelerated Bachelor's-Master's Degree Program in Speech-Language Pathology or Audiology.** URI sixth-semester students pursuing a Bachelor of Science (B.S.) degree in communicative disorders with 25 credits of electives remaining may apply for acceptance into an accelerated master's degree program in either speech-language pathology or audiology. Students accepted into this program follow a specified sequence of graduate-level course work and clinical practicum during their senior year, and complete the master's degree in one additional year of full-time graduate study. A cumulative quality point average of 3.00 and 3.20 in the major is required, with MAT or GRE scores in at least the 50th percentile. Three letters of recommendation (two from URI communicative disorders faculty) are also needed.

This accelerated program is not available to non-URI undergraduates, or to part-time graduate students.

Students in this program are required to take a minimum of 25 specified course work and practicum credits (16 credits at the 500-level) in the senior year, and 30 credits at the 500-level in the fifth year. Requirements for the M.A. and M.S. degrees in speech-language pathology or audiology are outlined in the *Graduate School Bulletin*.

## Consumer Affairs

This curriculum leads to the Bachelor of Science (B.S.) degree in consumer affairs. This interdisciplinary program within the Division of Interdisciplinary Studies provides a general background for students who wish to develop effective strategies for dealing with complex social and economic systems relating to consumer concerns. Course work in consumer affairs is combined with selected courses in business, economics, political science, and related areas. Field experience and internships are an integral part of the program.

Graduates with this degree may choose careers in consumer affairs in business, social service agencies, local or state government consumer protection agencies, Cooperative Extension Service, and consumer education.

Students who wish to be accepted into the degree program in consumer affairs must have completed and earned at least a combined 2.00 quality point average in the following courses: MTH 107, 108, 111, or 131; ECN 125, 126; and CNS 220.

The following courses are required of all students (some may be used to help fulfill the General Education requirements): SPE 101, 210, or 215; ECN 125 and 126; PSC 113, 422; MTH 107, 108, 111, or 131; EST 308 or 409; CNS 422 or MKT 415 or EST 412 or REN 440; PSY 113; SOC 100 or 102; SOC 318 or PSY 335; and PHL 217 or MKT 321 or MGT 380 or PSC 368 or JOR 110.

The following consumer affairs courses are required: CNS 220, 320, 420; MKT 311; BSL 333 or ECN 302 or 337; and a field experience (minimum of three credits of CNS 477 or 478; or MKT 493; or UYA 301 or 302).

Students are also required to take an additional 24 credits by selecting two courses from four of the following consumer issues areas: health, housing, food and other consumer resources, dispute resolution, special populations, and environment and ecology. Selection should be made in consultation

with a faculty member of the Consumer Affairs Advisory Committee by the end of the fifth semester.

A total of 128 credits is required for graduation.

## Dental Hygiene

The Department of Dental Hygiene offers a four-year program leading to the Bachelor of Science (B.S.) degree and a two-year program leading to the Associate in Science (A.S.) degree. Both are accredited by the Commission on Dental Accreditation.

### BACHELOR OF SCIENCE

This curriculum offers maximum flexibility in providing professionally oriented study and a foundation in General Education. It is designed to prepare the students to assume responsible positions in education, such as in schools of dental hygiene, hospital programs, and school systems as well as private practice. Students who complete this curriculum are prepared to continue with graduate study.

Since the professional component requires intensive and continuous clinical training, students must be enrolled on a full-time basis. At the completion of the first clinical year, the student is placed in private dental offices for field training experience. After completing the 71 credits for the clinical component, the student is awarded the Associate in Science degree.

A major of 36 credits in dental hygiene includes: DHY 101 (1), 125 (3), 126 (3), 128 (1), 135 (1), 136 (2), 141 (1), 227 (3), 231 (2), 237 (2), 238 (2), 244 (1), 248 (2), 252 (3), 350 (3), 462 (3), 464 (3).

In addition, candidates for the Bachelor of Science degree are required to take the following: CHM 101, 102 or 103, 105 (4), 124 (3), 126 (1); WRT 101 (3), 201 (3); ZOO 121 (4), 242 (3), 244 (1); HLT 172 (1); MIC 201 (4); SOC 100 (3), 204 (3); FSN 207 (3); PCL 221 (2); PSY 113 (3), 232 (3); SPE 101 (3); EDC 102 (3), 312 (3), 372 (3); MTH 107 (3); DHY 462 (3) and 464 (3).

In addition, students must fulfill the General Education requirements.

A limited number of students are accepted as transfers from other institutions. Transfer students must have at least one semester of general chemistry prior to enrolling in the clinical phase of the program. Individuals seeking admission as transfer students should contact the Department of Dental Hygiene.

**Post-Certificate Bachelor's Degree Program.** This program is designed for dental hygienists who have earned a certificate or an Associate in Science degree in dental hygiene from another institution and who are interested in earning a Bachelor of Science degree within the dental hygiene discipline. The main objective of this program is to provide educational experiences that will enhance the professional hygienist's self-image and self-enrichment as well as expand career options. Graduates of this program are prepared to assume positions of responsibility and leadership in a variety of health care, community, and educational settings.

Post-certificate students may pursue the Bachelor of Science degree on either a full-time or part-time basis. In addition to University admission requirements, applicants must have passed the National Dental Hygiene Examination.

### ASSOCIATE IN SCIENCE

This two-year curriculum of 71 credits prepares the student to perform ancillary clinical services which contribute to the maintenance of good oral health, educate both children and adults in oral hygiene, and assist dentists to allow them more time for the treatment of patients.

The required professional courses are made up of the elements which contribute directly to the skill and understanding of dental hygiene and are required in the professional sequence. The curriculum is designed to integrate clinical and classroom instruction. Since the professional component requires intensive and continuous clinical training, students must be enrolled on a full-time basis. Students must complete CHM 103, 105 or 101, 102 before beginning the clinical dental hygiene courses.

At the completion of the first clinical year, the student is placed in a private dental office for field training experience.

#### *Freshman Year*

*First semester: 16 credits*

SOC 100 (3); WRT 101 (3); ZOO 121 (4); DHY 101 (1), 125 (3), 135 (1), and 141 (1).

#### *Freshman Year*

*Second semester: 18 credits*

WRT 201 (3); CHM 124 (3), 126 (1); ZOO 242 (3), 244 (1); HLT 172 (1); DHY 126 (3), 128 (1), and 136 (2).

#### *Sophomore Year*

*First semester: 17 credits*

MIC 201 (4); FSN 207 (3); PCL 221 (2); DHY 227 (3), 231 (2), 244 (1), and 237 (2).

#### *Sophomore Year*

*Second semester: 16 credits*

PSY 113 (3); SPE 101 (3); DHY 238 (2), 248 (2), 252 (3), 350 (3).

## Education

The curriculums in elementary and secondary teacher education lead to the Bachelor of Science (B.S.) degree. Students wishing to enroll in the early childhood education program must major in human development and family studies and seek admission to the teacher education component of this program as outlined below. The Master of Arts (M.A.) degree programs in education are described in the *Graduate School Bulletin*.

The curriculums offer a balanced program of academic preparation and professional training. The required professional courses contribute directly to understanding the teachers' role in society and to the development of teaching skills.

Successful completion of the early childhood education program leads to an initial teaching certificate for the primary grades (N-2), while completion of the elementary education program leads to an initial teaching certificate for grades 1-6. The secondary education program leads to an initial teaching certificate for a specific subject area in grades 7-12.

**Admission Requirements.** Students interested in undergraduate teacher education programs are required to apply for admission to the Office of Teacher Education. Application for admission to teacher education programs normally occurs during the sophomore year. Applications will be reviewed by a departmental screening committee based on the following criteria: 1) recommendations from faculty and others who have knowledge of the candidate's experience or interest in working in education; 2) a writing sample expressing career goals, experience in working with children, and expectations as a teacher; 3) scores on a standardized test(s) of basic skills; 4) the student's academic record including a cumulative quality point average of 2.50 or better and grades in the academic major or specialization averaging 2.50 or better.

Due to limited staff and facilities, admission to the programs in elementary education and early childhood education is limited. Some applicants meeting the minimum requirements may not be admitted due to limited space. Students should check with the department or their University College advisor as early as possible for additional information.

Students denied admission may petition the department for a review of the decision. In such cases the departmental screening committee shall meet to consider the appeal. Exceptional circumstances will be required for the appeal committee to override the academic record criteria (2.50 quality point average and 2.50 in the academic major or specialization).

Applicants who fail to gain admission should seek counsel from an appropriate advisor. Students may reapply for admission but should understand that this may delay their anticipated graduation date.

The professional sequence courses required for the early childhood education program are: EDC 102, 250, 312, 350, 424, 426, 429; HCF 301 and 303; and HCF 302 or EDC 425. These courses are taken prior to student teaching. EDC 484 and 485 comprise the student teaching semester. EDC (MUS) 329 and HCF 302 are strongly advised. Students selecting this program must major in human development and family studies. Students who wish to apply for certification in states other than Rhode Island should check with that state's certification office to ensure that the other state grants certification in early childhood education. For more information, see pages 12–13.

The professional sequence courses for elementary education are: EDC 250 (general) and 250 (with methods), 312, 360, 371, 424, 427, and 428. These courses are taken prior to student teaching. EDC 484 and 485 comprise the student teaching semester. PSY 113 and HCF 200 or PSY 232 are also required. EDC (MUS) 329 is also strongly advised. Students should contact the Department of Education for more details. The University is revising the elementary education program, which will most likely require four and a half years of study beginning in the fall of 1993.

The professional sequence courses required for secondary education are: EDC 250 (general) and 250 (with methods), 312, 360, 371, 430, and 448. These courses are taken prior to student teaching. EDC 484 and 485 comprise the student teaching semester. PSY 113 and HCF 310 are also required.

All education students will plan, in cooperation with an advisor, an academic specialization of at least 30 credits. Elementary education students should follow the requirements outlined for an Arts and Sciences major. Secondary education students follow the specialization course requirements for the area in which certification is sought. Secondary certification programs are offered in biology, chemistry, English, history, general science, mathematics, modern language, physics, and social studies.

Students must maintain minimum quality point averages of 2.50 overall and 2.50 in the major or specialization and attain a grade of at least C in EDC 430 and 448 (secondary); EDC 424, 427, and 428 (elementary); HCF 303, EDC 424, 426, and 429 (early childhood) to be eligible for student teaching. Failure to maintain these averages will result in "program probation," a one-semester period during which students have the opportunity to earn acceptable grades but may not student teach. Failure to return grade averages to acceptable standing after one semester leads to dismissal from the program.

The major in elementary and secondary education requires 120 credits. The major in early childhood education requires 128 credits.

## Home Economics

There are three programs in home economics: general home economics, home economics education, and home economics in the urban environment.

Each of the three leads to the Bachelor of Science (B.S.) degree in home economics. Interdisciplinary in nature, all three provide for academic work in all areas of home economics as well as in other disciplines. Students are prepared for a broad range of careers in business, journalism, community agencies, housing authorities, consumer protection agencies, and schools.

Students are required to take 40–41 credits of home economics core courses, including: HCF 200, 330; CNS 220, 340; FSN 150, 207; TMD 103, 216; HSS 320; and HEC 400. Three additional credits must be chosen from specified lists in each of the areas of consumer studies, human development, food science and nutrition, and textiles.

The program in *general home economics* requires 18 credits of professional electives; these should be chosen with the advisor's approval.

The program in home economics education is currently under review. Please contact the Office of the Dean regarding the program's status.

Students choosing *home economics in the urban environment* must select URB 210 and URB 498 or 499, three credits of quantitative methods chosen from a specified list, nine additional credits in urban affairs, plus three additional credits to be chosen with the assistance of an advisor.

Students wishing to major in home economics are strongly encouraged to meet early and often with an advisor to plan their courses of study.

## Human Development and Family Studies

The curriculum in human development and family studies leads to a Bachelor of Science (B.S.) degree. The Master of Science (M.S.) degree also offered by the department is described in the *Graduate School Bulletin*. The undergraduate curriculum provides a general background for work with children, families, and adults. Most professions in human development and family studies require academic work beyond the bachelor's degree for continuing professional work and advancement. Individuals with a baccalaureate degree are employed, however, as professionals, in nursery schools, day-care centers, institutions and hospitals, recreational, child guidance, case work, and other community agencies. Some of the courses in this curriculum, plus certain others in education, meet the requirements for the Provisional Early Childhood Certificate in Rhode Island. Students who wish to apply for certification in states other than Rhode Island should check with that state's certification office to ensure that the other state grants certification in early childhood education. For more information, see pages 12–13. Students seeking admission to the bachelor's degree program in human development and family studies must complete the following courses with an overall quality point average of 2.00 or better prior to acceptance for admission: SOC 100, PSY 113, HCF 200 or 201, and three General Education credits in mathematics.

Students are required to select and pass HCF 150, 200, 201, 203, or 221, 330, 357, 400 or 420, 430, 310 or 220 or 406, and 450, plus one elective from consumer studies and one from food science and nutrition. PSY 113 and SOC 100 are also required and may

be used to fulfill General Education requirements. In addition, 18 credits of professional electives must be chosen with the help of an advisor; field work does not meet this requirement.

Students who wish to meet the requirement for the Provisional Early Childhood Certificate in Rhode Island must take an additional 36 credits (professional electives included). These courses include: HCF 301 and 303; EDC 102, 250, 312, 350, 424, 426, 429; and supervised student teaching in grades K, 1, and 2. Students must apply for admission to the Office of Teacher Education and should contact their HCF or EDC advisor early in their college career as space in the program is limited. See pages 67 and 68 for admissions and retention requirements for early childhood education.

A total of 128 credits is required for graduation.

## Human Science and Services

This curriculum leads to the Bachelor of Science (B.S.) degree in human science and services. The program is interdisciplinary and allows students to build academic programs consistent with their personal and career goals.

The program is designed primarily for students who are interested in the broad field of human science and services along with a combination of supporting or applied areas. Career opportunities are varied and include entry-level positions in fields such as health, recreation, instruction and training, family services, and consumer services. Many professional areas in human services require graduate study for significant career advancement; this program is also designed to serve as preparation for a variety of graduate programs. Close contact with an academic advisor is strongly recommended for students in this program.

Required course work includes: PHL 117,<sup>1</sup> PSY 113<sup>2</sup> or SOC 102<sup>2</sup> and ECN 125<sup>2</sup> or PSC 113.<sup>2</sup> A course in ethics is strongly recommended. In addition, students complete a core in human science and services: HCF 200, 201; HSS 222, 320, 350, 399; and a seminar. Each student in the program must also complete two option areas of approximately 18 credits each. Choices of the primary option area include: adulthood and aging, child and youth studies, community health, family studies, home economics, housing, human development, instructional communication, pre-physical therapy, and recreational program services. A wide range

of choices is available for the second option area, many of which allow the student to study allied fields in other colleges at the University. Each option area has specific course requirements (some of which include natural science courses which may be taken as part of General Education); students should check with their academic advisor for a detailed description of the requirements and options.

The program requirements also include a field experience (of at least six academic credits), professional electives (15 credits), and free electives (12 credits).

A total of 129 credits is required for graduation.

## Physical Education, Health, and Recreation

This curriculum leads to a Bachelor of Science (B.S.) degree with a major in physical education. The Master of Science (M.S.) program in physical education is described in the *Graduate School Bulletin*.

The major, which has two options, is designed for students who plan to pursue a career within the broad field of health and physical education. Students may prepare for certification as public school teachers (physical education K-12) with additional study opportunities in elementary and secondary physical education, athletic coaching, athletic training, corrective and adapted physical education, and health education. For those who may be interested in nonteaching careers, the curriculum offers a nonteaching option with specializations in physical fitness, corrective and adapted physical education, as well as in a variety of individual interdisciplinary areas.

Regardless of which of the two major program options the student is pursuing, the following courses are required of all majors: PED 217, 270, 369, 370; physical activity majors practicum (8 credits); HLT 272; BIO 101, 102; chemistry or physics (3 credits); ZOO 121, 242, 343; PSY 113, 232; and EDC 312.

All students are required to complete a minimum of eight practicum credits. All students must take one credit from PED 130, 230, 330, 340, 346, 347, or 430; one credit from PED 131, 133, 140, 153, 160, 233, 234, 235, 242, 251, 253, or 260; and one credit from PED 120. Students enrolled in the teacher certification option must complete five additional credits taken from the following: one credit from PED 321; one credit from PED 222 or 223; 1.5 credits from PED

115 A-H; and 1.5 credits from PED 215 A-G. Students enrolled in the non-teacher certification option must complete five additional credits taken from any major practicum or basic instruction activity course with the approval of their advisor.

In addition to the credit requirements in PED 115 and 215, all students enrolled in the teacher certification option must demonstrate proficiency in a minimum of four activities in each of the two courses. Proficiency may be demonstrated by: 1) the successful completion of an additional major practicum course; or 2) passing a proficiency examination administered and verified by a designated examiner; or 3) participation as a member in a varsity or club sport at the University. Participation must be verified in writing by the head coach.

Additionally, all majors pursuing the B.S. degree in physical education must complete a two-day camping experience at the W. Alton Jones Campus. All incoming freshmen should check with their University College advisor for further details. The current fee is \$44 per student, and includes instruction and one meal a day.

**Teacher Certification Option.** This option is designed for students seeking teacher certification in health and physical education at the elementary and secondary school level. The curriculum allows a broad exploration of subject area, but is flexible enough to provide additional areas of study in teaching, coaching, athletic training, corrective and adapted physical education, and health. Completion of the NASDTEC-approved certification program fulfills the requirement for teacher certification in the state of Rhode Island and 39 additional states.

Students interested in undergraduate teacher education programs are required to apply for admission to the Office of Teacher Education. Application for admission to teacher education programs normally occurs during the sophomore year. Applications will be reviewed by a departmental screening committee based on the following criteria: 1) recommendations from faculty and others who have knowledge of the candidate's experience or interest in working in education; 2) a writing sample expressing career goals, experience in working with children, and expectations as a teacher;

<sup>1</sup> May be taken as part of the General Education requirements (Letters).

<sup>2</sup> May be taken as part of the General Education requirements (Social Sciences).



3) scores on standardized test(s) of basic skills; 4) the student's academic record including a cumulative quality point average of 2.50 or better, and grades in the academic major or specialization averaging 2.50 or better.

Students denied admission may petition the department for a review of the decision. In such cases the departmental screening committee shall meet to consider the appeal. Exceptional circumstances will be required for the appeal committee to override the academic record criteria (2.50 cumulative quality point average and 2.50 in the academic major or specialization).

Applicants who fail to gain admission should seek counsel from an appropriate advisor. Students may reapply for admission to a teacher education program, but should understand that this may delay their anticipated graduation date.

Within the teacher certification option, the following courses are required in addition to those required of all majors: PED 295, 314, 315, 324, 380, 410; HLT 367, 377; 12 credits from EDC 486, 487, 488, 489; EDC 485, eight credits of professional electives; and 11 credits of free electives.

All students must have a quality point average of 2.70 in all physical education, health, and recreation course work prior to student teaching.

**Non-Teacher Certification Option.** This option is designed for students seeking preparation for careers in community and agency settings. The option provides additional opportunity for specializations in: 1) physical fitness; 2) corrective and adaptive physical education; and 3) interdisciplinary areas of interest or a minor.

In addition to the requirements listed above for all physical education majors, students in the non-teacher option are required to take: RCR 280; HLT 123; three credits of seminar; 12 credits of supervised field work (PED, RCR, or HLT 486); 18–24 credits of specialized work; and 16 credits of free electives.

Students selecting the physical fitness specialization must take: FSN 207; PED 243, 275, 325, 425; and three credits from ACC 201, 202, PED 227, 410, HCF 150, 220, 450, MGS 207, MGT 301, MKT 301, PED 391, 410, or PSY 103. Students selecting the specialization in corrective and adapted physical education must take: PED 410, 430; one course from EDC 402, PED 275, RCR 416; one course from PED 391 or PSY 442; and six or seven additional credits of appropriate

electives, in consultation with their academic advisor.

Students who do not specialize in any of the above areas may complete a minimum of 18 credits in an individual, college, or University minor. See page 10 for a complete definition of a minor.

**Plan for Early Contingent Admission to the Master of Science (M.S.) Degree Program in Physical Therapy.** In addition to the Teacher Certification and Non-Teacher Certification Options, there is a plan for early admission to the M.S. degree program in physical therapy contingent on completion of a curriculum similar to the nonteacher option. The plan incorporates physical therapy master's degree prerequisites in chemistry, physics, psychology, mathematics, and field experience, as well as fulfillment of physical education bachelor's degree requirements. Application to the graduate program in physical therapy may occur in the third undergraduate year. Successful applicants are selected for contingent admission to the physical therapy program at the beginning of the fourth undergraduate year, with 18 credits of course work in physical therapy applied to the B.S. degree in physical education. A 3.00 average in physical therapy course work is required to attain full graduate status and continue in the physical therapy program.

The following courses are required for physical education majors accepted for early contingent admission into the M.S. degree program in physical therapy: PHT 410, 412, 413, 417, 418, 420, and 422. These courses can be taken only in the senior year by students who have earned contingent admission to the M.S. degree program in physical therapy. In addition, all students enrolled in the physical therapy program will take PHT 430, 510, and 532 in the second semester of their fourth undergraduate year, as part of the graduate degree requirements. Students awaiting notification of acceptance should register for an alternate Non-Teacher Certification Option in physical education.

A total of 130 credits is required for graduation.

### Textiles, Fashion Merchandising, and Design

This curriculum leads to a Bachelor of Science (B.S.) degree. The Master of Science (M.S.) program is described in the *Graduate School Bulletin*.

The major is open to both men and women with ability and professional interest in the artistic and technical aspects of the subject. Specialized programs of study prepare students for positions in the merchandising of apparel and interior furnishings, textile and apparel manufacturing, consumer services, or museum work. Qualified students can prepare for graduate studies.

The following core courses are required: TMD 103; 224; 216 and 336, or 222 and 327; 303;<sup>3</sup> 313; 240, 340, 406, or 440; 433;<sup>4</sup> CNS 220; ECN 125 and 126. Twelve credits of TMD electives (six credits must be upper-level courses) and 18 credits of professional electives (nine credits from any one area) are required. Students should select TMD electives and professional electives in accordance with the specializations outlined below. Students must have completed CHM 103, 105, 124, and 126, and the General Education mathematics requirement before admission into the degree-granting college.

**Fashion Merchandising.** Students choosing this area of emphasis should select 12 credits of TMD electives from TMD 222, 232, 327, 332, 422, 432, and an additional 18 credits of professional electives<sup>5</sup> from marketing, accounting, business law, management science, management, and/or art.

**Interior Furnishings and Design.** Students choosing this area of emphasis should select 12 credits of TMD electives from TMD 216, 316, 336, 406, 416, 496, and an additional 18 credits of professional electives<sup>5</sup> from art and/or business.

**General TMD Program.** Students may structure their own programs by concentrating course work in areas such as consumer studies, museum work, journalism, or gerontology. By the end of the sophomore year, students should file a program of study with their advisor. Selection of the 12 required TMD elective credits and the 18 professional elective credits<sup>5</sup> should strengthen career goals and interests.

**Textile Science.** Students selecting this area of concentration should take TMD 403 and 413 as well as additional chemistry, chemical engineering, and/or statistics course. An internship in textile manufacturing is recommended. By the end of the sophomore

<sup>3</sup> Organic chemistry is a prerequisite for TMD 303.

<sup>4</sup> Economics is a prerequisite for CNS 220 and TMD 433.

<sup>5</sup> Professional electives are courses related to the student's career goals and are subject to approval by an advisor.

year, students should file a program of study with their advisor. The 18 credits of professional electives<sup>5</sup> should be selected from: MTH 111, 131; PHY 111 and 112 or 213 and 214; EST 308 or 412 or CSC 201; CHM 112, 114, 212, 226, 227, or 228. Opportunities for off-campus study in other areas of textile science are available through the New England Land-Grant Universities Student Exchange Program.

A total of 128 credits is required for graduation.

### Textile Marketing

This interdepartmental curriculum leads to a Bachelor of Science (B.S.) degree with a major in textile marketing. It combines the professional requirements of a major in textiles with the accreditation requirements of the College of Business Administration and is designed to prepare students for wholesale and retail marketing positions in the textile industry. Before admission into the degree-granting colleges, students must complete CHM 103, 105, 124, and 126, and the General Education mathematics requirement.

Due to limited staff and facilities, transfers from University College to the undergraduate degree program in textile marketing must be limited to no more than 10 a year. Those admitted stand in the highest 10 when cumulative quality point averages are computed at the end of the third semester. Although cumulative averages are not the sole criterion for admission, students with overall quality point averages of less than 2.50 are advised that there is little chance for admission to this program.

Students selecting this curriculum must take the following courses: TMD 103, 224, 303, 313, 240, or 340 or 406 or 440, 403, 433, and three credits of TMD elective; CHM 105, 126; MTH 131; EST 308, 412; CSC 201; ACC 201 and 202; MGT 300 or 301; BSL 333; MKT 301, 311, 409, 415, and six credits of MKT electives.

Students must also take the following courses to complete the General Education requirements: MTH 111; CHM 103, 124; and ECN 125, 126.

A total of 120 credits is required for graduation.

## COLLEGE OF NURSING



Jean Miller, *Dean*  
Dayle H. Joseph, *Assistant Dean*

**T**he College of Nursing offers a curriculum leading to the Bachelor of Science (B.S.) degree. The Master of Science (M.S.) and the Doctor of Philosophy (Ph.D.) degrees are offered by the college and are described in the *Graduate School Bulletin*.

*Faculty:* Professors Hardy, Hirsch, S. Kim, and Schwartz-Barcott; Associate Professors Feather, Fortin, Garey, Joseph, McElravy, McGrath, and Schmieding; Assistant Professors Anderson, Barlett, Bridges, Burbank, Daigneault, Dufault, Evans, Fimbel-Coppa, Godfrey, Haggerty, Hall, Hames, Martins, Padula, Palm, Wacker, Waldman, Willey, and Yeaw.

The baccalaureate program is designed to prepare men and women with academic and personal potential to become professional nurses. It aims to develop mature, well-informed graduates who will take their places as responsible members of society in meeting the challenges of health care delivery and continued learning.

The curriculum is based on the belief that nursing is a creative activity which provides human services for the promotion of

health, prevention of illness, and for care of the ill. It is interdependent with all other disciplines concerned with health. Nursing knowledge is viewed as a unique synthesis drawn from the humanities and the natural, biomedical, and social sciences. Students use a systems perspective as a conceptual base to nursing. This conceptual approach to nursing incorporates the whole person and his or her environment with the nursing process. Nursing courses include observation and clinical practice in numerous hospitals, community agencies, schools, nursing homes, and physicians' offices throughout the state of Rhode Island.

There are three routes to admission to the College of Nursing baccalaureate program.

1) *Students with no previous college study* begin their preparation in University College with dual enrollment in the College of Nursing. After completion of 37–50 credits (which must include required foundation courses) with a minimum 2.20 quality point average, they may apply for confirmed admission to the College of Nursing. Priority is given to students with strong academic records and positive recommendations from faculty in introductory nursing courses.

2) *Students with college study in another major* or some nursing study in another baccalaureate program and a minimum of 45 completed credits, if accepted by the University, may be admitted directly.

3) *Registered nurse students* who have completed diploma or associate degree programs are not required to submit scholastic aptitude scores when seeking admission. As adult students who have developed competence in basic subject areas, they may demonstrate their mastery by completing the College Level Examinations sponsored by the College Entrance Examination Board. Advanced credit allowances are based on a review of the candidate's test scores and preparatory experience. Following direct admission to the college, students have the option of seeking credit by proficiency examination (ACT-PEP exams) in subjects previously studied. They are required to enroll in some upper-division nursing courses and to meet the remaining program specifications. R.N. students must have an active Rhode Island nursing license and malpractice insurance.

The usual time for completion of all requirements for students with no previous college or nursing study is eight semesters and one summer session. All students in the

<sup>5</sup> Professional electives are courses related to the student's career goals and are subject to approval by an advisor.

College of Nursing meet all of the General Education requirements of the University as listed on page 8. A minimum grade of C must be achieved in all required nursing courses. The faculty reserves the right to require withdrawal from the college of a student who gives evidence academically and/or personally of inability to carry out professional responsibility in nursing. The student is limited to 18 credits per semester except by permission of the dean for special program adjustments or when participating in the Honors Program.

General expenses for students in the College of Nursing are approximately the same as for all other University students. Special items include uniforms, nursing equipment, transportation, and possibly one summer session. The use of an automobile or funds to meet public transportation costs is required for the clinical experiences.

The program is approved by the National League for Nursing and the Rhode Island Board of Nurse Registration and Nursing Education. The graduate is eligible for examination for professional licensure.

## Curriculum Requirements

**Foundation Courses.** The following are required before transfer from University College: CHM 103 (3), 124 (3); EST 220 (3); NUR 100 (3); PSY 113 (3); ZOO 121 (4), 242 (3), 244 (1); one writing (Cw) course (3).

The following are recommended during the first three semesters: FSN 207 (3); MIC 201 (4); SOC 100 (3); PCL 225 (2); PSY 232 (3).

An example of the curriculum plan follows.

### Freshman Year

*First semester: 16 credits*

- 4 ZOO 121 Human Anatomy
- 3 PSY 113 General Psychology
- 3 CHM 103 Introductory Chemistry Lecture
- 3 General Education requirement (Cw)
- 3 General Education requirement (A)

### Freshman Year

*Second semester: 16 credits*

- 3 ZOO 242 Human Physiology
- 1 ZOO 244 Human Physiology Laboratory
- 3 CHM 124 Introduction to Organic Chemistry
- 3 SOC 100 General Sociology
- 3 NUR 100 Health, Illness, Nursing, and the Ecosystem
- 3 General Education requirement (C)

### Sophomore Year

*First semester: 18 credits*

- 3 FSN 207 General Nutrition
- 4 MIC 201 Introductory Medical Microbiology
- 3 EST 220 Statistics in Modern Society
- 2 PCL 225 Pharmacology and Therapeutics I
- 3 PSY 232 Developmental Psychology
- 3 General Education requirement (L)

### Sophomore Year

*Second semester: 16 credits*

- 2 PCL 226 Pharmacology and Therapeutics II
- 3 NUR 210 Pathophysiology I
- 3 NUR 230 General Methods and Strategies in Nursing Practice I
- 3 NUR 250 Nursing in Health Promotion
- 1 NUR 235 Practicum in General Nursing Strategies I
- 1 NUR 255 Practicum in Health Promotion Nursing
- 3 General Education requirement (F)

### Junior Year

*First semester: 15 credits*

- 3 NUR 270 Scientific Inquiry in the Practice of Nursing
- 3 NUR 212 Pathophysiology II
- 3 NUR 350 General Methods and Strategies in Nursing Practice II
- 3 NUR 355 Practicum in General Nursing Strategies II
- 3 General Education requirement (A or L or F)

### Junior Year

*Second semester: 14 credits*

- 3 NUR 370 Nursing in Short-Term Health Care
- 3 NUR 375 Practicum in Short-Term Health Care for Adults
- 2 NUR 410 Psychopathology
- 3 NUR 415 Practicum in Mental Health and Psychiatric Nursing
- 3 General Education requirement (A or L or F)

### Senior Year

*First semester: 17 credits*

- 3 NUR 420 Family Health Nursing
- 2 NUR 425 Practicum in Family Health Nursing
- 3 NUR 430 Community Health Nursing
- 3 NUR 435 Practicum in Community Health Nursing
- 3 Restricted elective
- 3 Free elective

### Senior Year

*Second semester: 16 credits*

- 3 NUR 445 Practicum in Nursing of Children
- 3 NUR 450 Nursing in Long-Term Health Care
- 4 NUR 455 Practicum in Long-Term Care of Adults
- 3 NUR 300 Theories and Issues in Professional Role Development
- 3 Free elective

### Required Courses for the Nursing Major.

The following are required for the nursing major: NUR 100 (3), 210 (3), 212 (3), 230 (3), 235 (1), 250 (3), 255 (1), 270 (3), 300 (3), 350 (3), 355 (3), 370 (3), 375 (3), 410 (2), 415 (3), 420 (3), 425 (2), 430 (3), 435 (3), 445 (3), 450 (3), and 455 (4).

**General Education Requirements and Electives.** The General Education requirements must be completed with the exception that one of the following divisions may be reduced by three credits: Fine Arts and Literature (A), Letters (L), or Foreign Language and Culture (F).

Six credits of free electives are required. With the help of an advisor, students must also choose three credits of restricted electives from an approved list of courses.

A total of 128 credits is required.

## COLLEGE OF PHARMACY



Louis A. Luzzi, *Dean*  
Joan M. Lausier, *Associate Dean*  
Lois Vars, *Assistant Dean*

**T**he College of Pharmacy offers a five-year curriculum leading to the Bachelor of Science (B.S.) degree in pharmacy. The Master of Science (M.S.) degree, offered by all departments; the Doctor of Pharmacy (Pharm. D.) degree; the Doctor of Philosophy (Ph.D.) degree in pharmaceutical sciences, offered by all departments except pharmacy administration; and the Master of Science (M.S.) degree in environmental health science are described in the *Graduate School Bulletin*.

### Pharmacy

This five-year curriculum is patterned on presently accepted programs of study recommended by the American Association of Colleges of Pharmacy, the American Council on Pharmaceutical Education, and other interested organizations. It is accredited by the American Council on Pharmaceutical Education and by the University of the State of New York, Division of Professional Education.

It provides preparation for community and institutional pharmacy practice. In addition, students have opportunities through the selection of professional electives to commence a specialization in one of several areas of pharmacy, including hospital, clinical, manufacturing, medical supply servicing, drug analysis, administration, and research.

The satisfactory completion of the degree in pharmacy is one of the prerequisites for a license to practice pharmacy. Licensure is obtained after graduation by successfully completing the examination given by the Rhode Island State Board of Pharmacy or those of other states.

Students requesting transfer from University College to the College of Pharmacy starting with the spring 1992 semester must have at least a 2.00 cumulative quality point average in the basic science courses which are required for transfer; e.g., at the end of three semesters—CHM 101, 102, 112, 114, and 227; ZOO 111, 121, 242, and 244; MTH 131 and MIC 201; at the end of four semesters—the foregoing courses plus CHM 226, 228, EST 407, and BCP 311 (or equivalent courses, where permitted).

A student will not be allowed to proceed into PHP 484, 485, or 490 without at least a 1.90 quality point average in required professional pharmacy courses. A student with a quality point average of 1.90–2.00 may proceed into PHP 484, 485, and 490 and other fifth-year courses on college probation. A student with less than a 1.90 quality point average in professional courses at the end of the fourth year will not be allowed to take any professional courses not previously taken, but will be allowed to repeat up to 10 credits of pharmacy courses in which he or she received a C or less.

A quality point average of 2.00 in all required professional courses given by the College of Pharmacy is required for graduation with a B.S. degree in pharmacy. This is in addition to University grade requirements.

Students in certain other New England states may enroll in pharmacy under the New England Regional Student Program. See page 20.

Transfer into the College of Pharmacy from another institution is highly competitive. Preference is given to students who have already completed the science courses equivalent to those stated in the curriculum. Students applying to enter as second-year students should have completed general chemistry (two semesters), general zoology,

human anatomy, and basic calculus. Students requesting entrance as third-year students must have completed the above courses as well as organic chemistry (two semesters), microbiology, human physiology, biochemistry, and biostatistics. Students may transfer credits for courses in which they have earned a C or better. Questions concerning the transferability of specific courses should be directed to the assistant dean of pharmacy.

*Medicinal Chemistry:* Professor Panzica, *chairperson*. Professors Abushanab, Traficante, and Turcotte; Assistant Professor Cho; Emeritus Professors Bond and Smith.

*Pharmaceutics:* Professor Needham, *chairperson*. Professors Lausier and Rhodes; Associate Professors Kislalioglu and Rosenbaum; Adjunct Professors Carlin, Kanig, Marshall, Monkhouse, Otterness, Stetsko, and Woodruff; Adjunct Assistant Professors Danish, Dechow, Dedhiya, Rettig, and Rudnic.

*Pharmacognosy and Environmental Health:* Professor Shimizu, *chairperson*. Associate Professor Chen; Assistant Professor Kazmierski, Adjunct Professor Nakanishi; Adjunct Assistant Professor Omar; Emeritus Professors Worthen and Youngken.

*Pharmacology and Toxicology:* Professor Shaikh, *chairperson*. Professor Swonger; Associate Professors Babson, Chichester, and Rodgers; Adjunct Associate Professors Giambalvo, Kaplan, Levinsky, and Lundgren; Adjunct Assistant Professors Fisher, Jackim, and Malcolm.

*Pharmacy Practice:* Associate Professor Weber, *chairperson*. Professors Campbell and Taubman; Associate Professors Barbour, Dudley, Hume, Mattea, and Owens; Assistant Professors Dufresne, Geletko, Graham, Marchbanks, Stoukides, Thrasher, and Wiley; Adjunct Professors Carlin, Ford, Leco, and Zinner; Adjunct Assistant Professors Catalano, Hachadorian, Holm, Lincoln, and Simeone; Adjunct Instructors Auger, Campbell, Charest, Grant, Haytaian, Jacobson, Lombardi, Menard, Ortiz, Powell, Roy, Ryan, Soja, and Terpolilli.

### Curriculum Requirements

The five-year program for all accredited colleges of pharmacy provides time for the General Education requirements as described on page 9. The major portion of the professional program begins in the third year

when basic pharmaceutical and clinical disciplines are introduced.

Each year the curriculum is supplemented by field trips to selected pharmaceutical industries. Students also make use of selected hospital and community pharmacies in Rhode Island and New England for clinical studies and internship requirements.

**Total credits required for the Classes of 1992-94: 167.**

*First Year*

*First semester: 17 credits*

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 3 PSY 113 General Psychology or elective
- 3 A University-approved English communications course except BGS 100<sup>1</sup>
- 4 ZOO 111 General Zoology
- 3 Elective

*First Year*

*Second semester: 17 credits*

- 3 CHM 112 General Chemistry Lecture II
- 1 CHM 114 Laboratory for Chemistry 112
- 3 MTH 131 Basic Calculus I
- 3 A University-approved English communications course except BGS 100<sup>1</sup>
- 4 ZOO 121 Human Anatomy
- 3 Elective

*Second Year*

*First semester: 17 credits*

- 3 CHM 227 Organic Chemistry Lecture I
- 3 ECN 125 Economic Principles I
- 4 MIC 201 Introductory Medical Microbiology
- 3 PHY 109 Introduction to Physics
- 1 PHY 110 Laboratory for Introduction to Physics
- 3 Elective

*Second Year*

*Second semester: 17 credits*

- 3 CHM 228 Organic Chemistry Lecture II
- 2 CHM 226 Organic Chemistry Laboratory
- 2 HLT 272 Advanced First Aid
- 3 ZOO 242 Introductory Human Physiology
- 1 ZOO 244 Introductory Human Physiology Laboratory
- 6 Electives

*Third Year*

*First semester: 17-18 credits*

- 3 ASP 401 Introduction to Pathology
- 3 BCP 311 Introductory Biochemistry
- 3 PHP 349 Pharmacy Administration Principles

- 2 PHC 327 Biopharmaceutics and

*Section A*

- 3 PHC 340 Physical Pharmacy
  - 3 PHC 350 Pharmaceutical Technology
  - 1 PHC 360 Pharmaceutical Laboratory or
- Section B*
- 3 MCH 342 Pharmaceutical Analysis
  - 3 Elective

*Third Year*

*Second semester: 19 credits*

- 3 MCH/PCL 344 Principles of Medicinal Chemistry and Pharmacology
  - 3 PHP 351 Pharmaceutical Law and Ethics
  - 3 PCG 446 General Pharmacognosy Lecture
  - 3 PHC 328 Pharmacokinetics and
- Section A*

- 3 MCH 342 Pharmaceutical Analysis
- 1 PCG 447 General Pharmacognosy Laboratory
- 3 Elective or

*Section B*

- 3 PHC 340 Physical Pharmacy
- 3 PHC 350 Pharmaceutical Technology
- 1 PHC 360 Pharmaceutical Laboratory

*Fourth Year*

*First semester: 17 credits*

- 3 MCH 443 Organic Medicinal Chemistry
  - 3 PCG 445 General Pharmacognosy
  - 3 PCG 459 Public Health
  - 4 PCL 441 General and Clinical Pharmacology
  - 3 PHP 451 Pharmacotherapeutics I and
- Section A*
- 1 PCL 443 General Pharmacology Laboratory or
- Section B*
- 1 PCG 447 General Pharmacognosy Laboratory

*Fourth Year*

*Second semester: 16 credits*

- 3 MCH 444 Organic Medicinal Chemistry
  - 4 PCL 442 General and Clinical Pharmacology
  - 3 PHP 452 Pharmacotherapeutics II and
- Section A*
- 6 Electives or

*Section B*

- 1 PCL 443 General Pharmacology Laboratory
- 4 PHC 460 Nonprescription Drugs and Medical Devices
- 1 PHP 470 Contemporary Pharmacy Practice Laboratory

*Fifth Year*

*First semester: 14-15 credits*

*Section A*

- 4 PHC 460 Nonprescription Drugs and Medical Devices
  - 1 PHP 470 Contemporary Pharmacy Practice Laboratory
  - 9 Electives or
- Section B*
- 5 PHP 484 Hospital Pharmacy Externship
  - 5 PHP 485 Community Pharmacy Externship
  - 5 PHP 490 Clinical Pharmacy Clerkship

*Fifth Year*

*Second semester: 15 credits*

*Section A*

- 5 PHP 484 Hospital Pharmacy Externship
  - 5 PHP 485 Community Pharmacy Externship
  - 5 PHP 490 Clinical Pharmacy Clerkship or
- Section B*
- 15 Electives

**Total credits required starting with the Class of 1995: 168.**

*First Year*

*First semester: 14 credits*

- 3 CHM 101 General Chemistry Lecture I
- 1 CHM 102 Laboratory for Chemistry 101
- 3 A University-approved English communications course except BGS 100<sup>1</sup>
- 4 ZOO 111 General Zoology
- 3 Elective

*First Year*

*Second semester: 17 credits*

- 3 CHM 112 General Chemistry Lecture II
- 1 CHM 114 Laboratory for Chemistry 112
- 3 MTH 131 Basic Calculus I
- 3 A University-approved English communications course except BGS 100<sup>1</sup>
- 4 ZOO 121 Human Anatomy
- 3 Elective

<sup>1</sup> CMS 101 (six credits) may be substituted for the writing requirement.

**Second Year***First semester: 17 credits*

- 3 CHM 227 Organic Chemistry Lecture I
- 3 ECN 125 Economic Principles I
- 4 MIC 201 Introductory Medical Microbiology
- 3 ZOO 242 Introductory Human Physiology
- 1 ZOO 244 Introductory Human Physiology Laboratory
- 3 Elective

**Second Year***Second semester: 17 credits*

- 3 BCP 311 Introductory Biochemistry
- 3 CHM 228 Organic Chemistry Lecture II
- 2 CHM 226 Organic Chemistry Laboratory
- 3 EST 407 Introductory Biostatistics
- 6 Electives

**Third Year***First semester: 16-17 credits*

- 2 MCH 343 Principles of Medicinal Chemistry
- 3 PCL 327 Introduction to Human Pathophysiology
- 2 PHC 327 Biopharmaceutics
- 3 PHP 349 Pharmacy Administration Principles and Section A
- 3 PHC 340 Physical Pharmacy
- 3 PHC 350 Pharmaceutical Technology
- 1 PHC 360 Pharmaceutical Laboratory or Section B
- 3 MCH 342 Pharmaceutical Analysis
- 3 Elective

**Third Year***Second semester: 18-19 credits*

- 3 PCG 445 General Pharmacognosy
- 3 PCL 444 General and Clinical Pharmacology and Toxicology I
- 3 PHC 328 Pharmacokinetics
- 3 PHP 351 Pharmaceutical Law and Ethics and Section A
- 3 MCH 342 Pharmaceutical Analysis
- 3 Elective or Section B
- 3 PHC 340 Physical Pharmacy
- 3 PHC 350 Pharmaceutical Technology
- 1 PHC 360 Pharmaceutical Laboratory

**Fourth Year***First semester: 19 credits*

- 3 MCH 443 Organic Medicinal Chemistry
- 3 FSN 444 Nutrition and Disease
- 3 PCG 446 General Pharmacognosy
- 3 PCG 459 Public Health
- 3 PCL 445 General and Clinical Pharmacology and Toxicology II
- 4 PHP 455 Pharmacotherapeutics I

**Fourth Year***Second semester: 19 credits*

- 3 MCH 444 Organic Medicinal Chemistry
- 3 PCL 446 General and Clinical Pharmacology and Toxicology III
- 2 PHP 448 Third-Party Prescription Programs
- 4 PHP 456 Pharmacotherapeutics II
- 1 PCL 443 General Pharmacology Laboratory and Section A
- 6 Electives or Section B
- 3 PHC 462 Nonprescription Drugs
- 1 PHC 461 Health-related Supplies
- 2 PHP 471 Contemporary Pharmacy Practice Laboratory

**Fifth Year***First semester: 15 credits*

- Section A
- 3 PHC 462 Nonprescription Drugs
- 1 PHC 461 Health-related Problems
- 2 PHP 471 Contemporary Pharmacy Practice Laboratory
- 9 Electives or Section B
- 5 PHP 484 Hospital Pharmacy Externship
- 5 PHP 485 Community Pharmacy Externship
- 5 PHP 490 Clinical Pharmacy Clerkship

**Fifth Year***Second semester: 15 credits*

- Section A
- 5 PHP 484 Hospital Pharmacy Externship
- 5 PHP 485 Community Pharmacy Externship
- 5 PHP 490 Clinical Pharmacy Clerkship or Section B
- 15 Electives

## COLLEGE OF RESOURCE DEVELOPMENT



Robert H. Miller, *Dean*  
Earl F. Patric, *Associate Dean*  
J. Whitney Bancroft, *Director of Student Development*

**T**he College of Resource Development offers undergraduate majors leading to two degrees: the Bachelor of Science (B.S.) degree and the Bachelor of Landscape Architecture (B.L.A.) degree. The following majors are offered within the Bachelor of Science degree program: animal science and technology, aquaculture and fishery technology, dietetics, environmental management, food science and nutrition, plant science, resource economics and commerce, soil and water resources, urban affairs, urban horticulture and turfgrass management, and wildlife biology and management.

Options have been developed within certain majors to help students prepare for specific graduate study, further professional training, or specialized careers at the B.S. level. Entering freshmen and transfer students with fewer than 24 credits are admitted to University College, and may choose a major in the College of Resource Development at that time. Students may choose an option when they transfer to the College of Resource Development, or at a later time.

Undergraduate students from any college may develop a minor from one of the majors offered by the College of Resource Development. Details may be worked out with an appropriate faculty advisor. In addition, most departments have an internship program for combining hands-on professional experience with academic credit.

Students majoring in animal science, plant science, or natural resources science who are interested in careers as secondary school teachers in agricultural education and natural resources may meet the Rhode Island Department of Education certification requirements with appropriate advisement. The 42 credits required for teacher certification in agriculture can be incorporated into the undergraduate degree program as supporting or free electives. See Teacher Education programs, pages 12-13, for details. Students interested in teacher certification should contact Assistant Professor Mallilo as a second advisor.

Graduate programs leading to the Master of Science (M.S.) degree are offered in most departments. Several programs lead to the Doctor of Philosophy (Ph.D.) degree. The professional degree of Master of Community Planning (M.C.P.) is offered by the Department of Community Planning and Area Development. Detailed descriptions of the several graduate programs appear in the *Graduate School Bulletin*.

Faculty members in the College of Resource Development differ from those in the other colleges in that most hold a joint appointment with the Rhode Island Agricultural Experiment Station and the Rhode Island Cooperative Extension. These units represent the formal research and public service functions of the college and are funded with federal and state monies.

## Faculty

*Community Planning and Area Development:* Professor Feld, *director*. Associate Professors Atash, Foster, and Jensen; Assistant Professor Feldman; Adjunct Professor Thomas; Adjunct Associate Professors Kumekawa, Shaw, and Veri; Adjunct Assistant Professors Manheim, Schatz, and Winsor.

*Fisheries, Animal and Veterinary Science:* Associate Professor Nippo, *chairperson*. Professors McCreight and Wolke; Associate Professors Bradley, DeAlteris, Millar, Recksiek, Rhodes, and Wing (equiv.); Assistant Professors Mallilo, McManus, and Rice; Adjunct Professor Kaiser; Adjunct Associate Professors Bodammer, Fleming, Klein, MacPhee, and

Pechenick; Adjunct Assistant Professors Balmforth, Blott, and Ganz.

*Food Science and Nutrition:* Professor Traxler, *chairperson*. Professors Caldwell, Constantinides, C. Lee, Rand, and Simpson; Associate Professors Eshleman, Gerber, Greene, and Patnoad; Assistant Professors English and Fischl; Adjunct Professor Josephson; Adjunct Associate Professor Coduri; Adjunct Assistant Professors Gianquitti and Sebelia.

*Landscape Architecture:* Associate Professor Simeoni, *coordinator*. Associate Professor Hanson; Adjunct Assistant Professor Weygand.

*Natural Resources Science:* Professor Wright, *chairperson*. Professors Brown, Golet, Husband, Miller, and Patric; Associate Professors August and Gold; Assistant Professors Eddleman and Gamerdinger; Adjunct Professor Buckley; Adjunct Assistant Professors Cycon and Groffman; Adjunct Research Wildlife Biologist DeRagon.

*Plant Sciences:* Professor Hull, *chairperson*. Professors Casagrande, Jackson, and Mueller; Associate Professors Duff, Englander, Krul, LeBrun, Logan, Shaw, and Sullivan; Assistant Professors Alm, Chandlee, Maynard, and Ruemmele; Adjunct Professor Taylorson; Adjunct Associate Professor Mather; Adjunct Assistant Professors Bascom, Dellaporta, Ginsberg, and Mallon.

*Resource Economics:* Associate Professor Weaver, *chairperson*. Professors Gates, Grigalunas, Opaluch, Sutinen, and Weaver; Associate Professors Anderson, Feeney, Tyrrell, and Wilchens; Assistant Professors Swallow and Wessells; Adjunct Professor Aquero; Adjunct Assistant Professor Andersen.

## Bachelor of Landscape Architecture Curriculum Requirements

Landscape Architecture is a curriculum offered by the Department of Plant Sciences, which leads to the Bachelor of Landscape Architecture (B.L.A.) degree. URI's curriculum is accredited by the American Society of Landscape Architects. It is designed to educate undergraduates for professional careers in the public and private sectors of landscape architecture which involve the design, planning, preservation, and restoration of the landscape by applying both art and science to achieve the best use of our land resources.

Landscape architects engage in the design and planning of parks, recreation areas, new communities and residential developments, urban spaces, pedestrian areas, commercial centers, resort developments, transportation facilities, corporate and institutional centers, industrial parks, and waterfront developments. Their professional skills are used to undertake natural, historic, and coastal landscape preservation projects.

The requirements of the curriculum include preparation in the basic arts and sciences. The major includes 49 credits of program courses; 24 credits of supporting requirements; and 21 credits of approved supporting electives through which a student may obtain additional preparation in plant sciences, art, community planning, or natural resources. A minimum of 130 credits is required for graduation.

Landscape architecture is an oversubscribed program. Accreditation standards regarding staff and facilities limit the present student acceptance into the upper-division major to 20 per year and requires a competitive admissions policy. Students will be reviewed twice during the course of their studies, once for admission into the lower-division design sequence and again for acceptance into the upper-division B.L.A. major. A cumulative quality point average requirement is determined each year for both of these reviews. In recent years, the cutoff has ranged from 2.40 to 2.60 for those accepted to either the lower or upper division.

Admission into the lower-division design sequence courses (LAR 243 and 244) requires departmental approval. Approximately 50 percent of the openings are filled by students entering as incoming freshmen or transfer students through the Office of Undergraduate Admissions. These students will begin the design sequence in the fall semester of their second year at URI. The remaining openings are filled by matriculated students through an application accompanied by a transcript of grades. The applications and transcripts will be evaluated in February of each year for acceptance into the lower-division courses in the coming fall.

Acceptance into the upper-division (junior-senior) landscape architecture major will be based upon submission and review of a portfolio of lower-division work, academic transcripts, and a written essay. A maximum of 20 students per year will be accepted into the upper-division curriculum. Eligible applicants for the upper division are students enrolled in LAR 244, repeat applicants, and stu-

dents who wish to transfer directly into the upper division from other landscape architecture programs. Only students who have completed comparable lower-division courses in programs which have been accredited by the American Society of Landscape Architects will be allowed to compete for these upper-division positions. Such transfer applicants must first be accepted into the University by the Office of Undergraduate Admissions and have their portfolio, transcripts, and essays submitted to the coordinator of the landscape architecture program before February 15 preceding the fall semester in which they wish to enroll. Students will be notified of their acceptance into the upper-division program before pre-registration for fall classes.

Interested students should discuss entrance probabilities with the program advisor.

## Bachelor of Science Curriculum Requirements

All B.S. programs offered in the college require a minimum of 130 credits for graduation, except for resource economics and commerce, which requires a minimum of 125 credits. Required courses come from three categories: General Education requirements (36 credits); program requirements (77-85 credits); and free electives (9-12 credits).

Basic *General Education* requirements for all students in the B.S. curriculum are outlined below. Individual programs may require that specific courses be selected.

*English Communication* (6 credits). Three credits in written communication from courses in Group Cw, and three credits in oral communication from speech communication.

*Mathematics* (3 credits)

*Natural Sciences* (6 credits)

*Social Sciences* (6 credits)

In addition, 15 credits must be chosen from:

*Letters* (3-6 credits)

*Fine Arts and Literature* (3-6 credits)

*Foreign Language and Culture* (3-6 credits)

Total: 36 credits.

The major requirements include introductory professional courses, basic sciences, concentration courses, and supporting electives. Advisory materials for each major

include a list of these required courses and are available in the Office of Student Affairs. Working closely with their faculty advisors, students may shape their major to accommodate individual needs and interests.

Free elective courses are available in each major to give students the opportunity to study in areas that may be unrelated to their principal area of interest.

**Impacted Status of NRS Programs.** Due to limited staff and facilities, the total number of transfers from University College to the undergraduate majors offered by the Department of Natural Resources Science must be limited to about 30 students each year. These majors are environmental management, wildlife biology and management, and soil and water resources. The competitive admission policy that has been established to deal with student demand consists of required courses, a minimum number of credits, and a weighted quality point average requirement which is determined each year.

Before applying for admission to the College of Resource Development in an NRS major, students must complete at least 24 credits of course work, including at least three of the following basic science courses: NRS 100; BOT 111 or ZOO 111 or BIO 102; GEL 103; CHM 103, 105 or CHM 101, 102; and MTH 131. The weighted quality point average emphasizes the grades received in the required basic science courses. It is likely that the cutoff for the weighted quality point average will be in the range of about 2.40 to 2.60.

Applications for admission to one of the NRS majors for the coming academic year must be received by the last day of January. Applications are evaluated only once each year in early February. Applicants will be notified if they are accepted into an NRS major by the last day of February. Students who wish to enter an NRS major at another time during the year must petition the NRS Curriculum Committee for permission to do so. Admission will be limited to those students with the highest weighted quality point averages. Although those below the cutoff may reapply the following year, they are strongly advised to choose a major outside of NRS and to select new courses appropriated to that major for the fall. Students who have not satisfied entrance requirements may petition the NRS Curriculum Committee for a waiver of those requirements. Petition forms are available in the main office of the Department of Natural Resources Science.

Transfer students from other institutions must meet the University requirement for a quality point average of 2.50, and must have completed at least three of the required basic science courses listed above.

To ensure that NRS majors have access to required courses, a strict registration policy for NRS will be followed. Highest priority for NRS courses will be given to NRS majors. Students in other majors will be accommodated on a space-available basis.

## Animal Science and Technology

This major, offered by the Department of Fisheries, Animal and Veterinary Science, is designed for students interested in applied animal science careers. Options are available to students interested in veterinary medicine, animal sciences, and laboratory animal science. Those students who intend to use their study in animal science as credentials for secondary school teaching should also enroll in this major.

The major requires a minimum of seven credits in introductory animal science and genetics; eight credits in zoology and botany; eight credits in inorganic chemistry; and three credits in mathematics. Also required are nine to 12 credits in basic science, 24 credits of concentration courses, and 26-29 credits of supporting electives approved for the major.

**Animal Management Option.** This option provides a broad basis in animal science. A variety of scientific disciplines, together with their practical application to animal management is available. Students usually seek employment in animal agriculture or agri-industry related positions.

In addition to the requirements of the major, option students must complete six credits in animal management for the concentration. The remaining credit requirements in the basic sciences, concentration, and supporting electives must be selected from courses approved for this option.

**Animal Science Option.** This option includes animal nutrition, physiology, genetics, and disease. Students will normally emphasize one or more of these areas. A strong preparatory background in the basic sciences is needed. Students in this option seek employment in technical areas and/or continue their studies in specialized graduate programs.



In addition to the requirements of the major, option students must complete the following basic science requirements: four to eight credits in organic chemistry, three credits in introductory calculus, and four credits in microbiology. A course in animal anatomy and physiology is required in the concentration. The remaining credit requirements shall be selected from the concentration courses and supporting electives approved for this option.

**Laboratory Animal Option.** Research techniques and procedures for animal care are emphasized along with a strong background in the sciences. Students with this training and animal experience would be employed in research and teaching facilities as animal technicians, animal technologists, supervisors of animal technicians, and assistant research project leaders.

In addition to the requirements of the major, option students must complete the following basic science requirements: four to eight credits in organic chemistry, three credits in introductory calculus, four credits in microbiology, and three credits in statistical methods. Six credits in animal management, three credits in animal anatomy and physiology, and three credits of general nutrition are required in the concentration. The remaining credit requirements shall be selected from the concentration courses and supporting electives approved for this option.

**Preveterinary Option.** This option prepares students for admission to veterinary schools offering the D.V.M. degree and requires a demonstrated capability in the basic sciences. Because admission requirements among schools are not totally uniform and are subject to change, students should determine specific requirements of the schools in which they are interested. Those who are not accepted for veterinary training will be well prepared to pursue graduate programs in animal physiology and health.

In addition to the requirements of the major, option students must complete the following basic science requirements: eight-credit, two-semester sequence in organic chemistry, three credits in biochemistry, four credits in microbiology, eight credits in general physics, three credits in introductory calculus, and three credits in intermediate calculus or statistical methods in research. Three credits in animal anatomy and physiology are required in the concentration. The remaining credits shall be selected from the concentration courses and supporting electives approved for this option.

## Aquaculture and Fishery Technology

This major, offered by the Department of Fisheries, Animal and Veterinary Science, prepares students for professional or technical careers in aquaculture or fisheries-oriented occupations. It is sufficiently broad to allow for specialization in either fisheries or aquaculture science and technology. Students who demonstrate superior ability in the basic sciences and wish to continue their professional training can select a course curriculum that will both prepare them for graduate school and provide a broad overview in fisheries and aquaculture science and technology.

The major requires a minimum of nine credits in introductory professional courses including natural resource conservation, fisheries or aquaculture, and resource economics; six to eight credits in animal and plant biology; four credits in general chemistry; four additional credits in general or organic chemistry; and nine to 12 additional credits in basic science selected from an approved course list in the Departments of Botany, Chemistry, Computer Science, Statistics, Mathematics, Physics, and Zoology. In addition, the major requires 24 credits in concentration courses at the 300 level or above; 18 credits of the concentration courses must be selected from courses offered by the Departments of Fisheries, Animal and Veterinary Science, Food Science and Nutrition, Marine Affairs, Oceanography, Resource Economics, and Zoology. Finally, the program requires 30–36 credits of supporting electives selected from an approved list of courses in the Departments of Fisheries, Animal and Veterinary Science, Botany, Food Science and Nutrition, Marine Affairs, Natural Resources Science, Oceanography, Resource Economics, and Zoology.

## Dietetics

The major in dietetics, offered by the Department of Food Science and Nutrition, is a generalist program approved by the American Dietetic Association (ADA) and is required of students planning to become Registered Dietitians. This program provides for concentrations in food preparation, food service management, and nutrition. Students can also study related disciplines such as behavioral, social, and professional sciences.

The major requires a minimum of six credits in general nutrition and food science, three credits in animal biology, four credits

in general chemistry, four credits in organic chemistry, three credits in biochemistry, four credits in microbiology, and three credits in human physiology. Concentration requirements include three credits in advanced food study, three credits in quantity food production, three credits in quantity food purchasing, three credits in foodservice management, three credits in advanced nutrition, three credits in nutrition and disease, three credits in nutrition education, three credits in nutrition in the community, three credits in computers in food science and nutrition, and three credits in introduction to management. Supporting electives, which include an introductory course in food study, must be selected from the list of courses approved for this program.

After completing the Bachelor of Science requirements, the student may qualify for the professional title of Registered Dietitian, R.D., by completing experience requirements and passing a national examination. The experience requirements can be met by completing one of the following programs: an ADA-accredited dietetic internship available to students on a competitive basis in major health care facilities nationwide; or an ADA-approved experience program available to students on a competitive basis in health care facilities, colleges, and universities nationwide. The Department of Food Science and Nutrition has an ADA-approved experience program to which graduates of the dietetics program may apply.

Experience programs may be combined with graduate programs in universities leading to an advanced degree. Students completing academic and experience requirements become eligible to take the national registration examination administered through the Commission of Dietetic Registration of the ADA.

## Environmental Management

The major in environmental management, offered by the Department of Natural Resources Science, prepares undergraduate students for professional careers in the public and private sectors of natural resources management. Flexible course requirements allow students to develop individual areas of concentration and prepare for a variety of positions in environmental management after graduation. This major is also suitable for students who wish to become certified as teachers of environmental science and natural resources at the secondary level. In addition, the program provides a solid back-

ground for graduate study in several more specialized environmental science disciplines. Environmental management majors may meet the educational requirements for state and federal employment as biologists, natural resource specialists, environmental scientists, and other classifications.

The major requires nine credits of introductory professional courses, which include natural resource conservation, resource economics, and introductory soil science. As part of the basic science requirements, environmental management majors must complete four credits in general botany, four credits in general zoology, three credits in introductory ecology, four credits in introductory physics, four credits in physical geology, four credits in inorganic chemistry, four credits in organic chemistry, three credits in introductory calculus, and three credits in introductory statistics. Required concentration courses (24–26 credits) must be taken at the 300-level or above; at least 18 credits must be selected from the Department of Natural Resources Science. (Please note that internships, seminars, and special projects may not be counted toward the concentration.) In addition, two courses must be selected from each of the following groups: forestry and wildlife management, soil science, and water resources. The remaining concentration credits should be selected from the Department of Natural Resources Science or from an approved list of courses. Supporting electives (23–25 credits) must be selected from an approved list of courses mostly at the 300 and 400 level.

### Food Science and Nutrition

This major prepares students for professional or technical careers in biotechnology, food science, and nutrition. There are several options within this program, and students should choose the option which challenges and excites their professional interests. In addition, it is possible to develop a specific focus for each option. Students are urged to engage in individually designed special projects and internships to gain experience and expertise in the field.

The major requires a minimum of nine credits in general nutrition, food science, and nutritional evaluation of food processing; three to four credits in animal and plant biology; four credits in general chemistry; four credits in organic chemistry; and four credits in microbiology. Additional credits in the basic sciences, 25–27 credits of concen-

tration courses, and supporting electives should be selected from the list of courses approved for this major.

**Food Biotechnology Option.** Biotechnology is the integration of basic and applied science for the modification of life forms, development of new biological systems, and conversion and processing of materials of a biological nature. It is a multidisciplinary field which deals with the use of microorganisms, plants, or their component parts. Biotechnology encompasses all of the food industry as well as the fermentation and biochemical industries, antibiotic and enzyme production, and the biological treatment of water and effluents. A unique feature of this option is the possibility to develop a focus on food bioprocessing, the microbial and enzymatic treatment of foods.

In addition to the requirements of the major, option students must complete the following basic science requirements: four credits in organic chemistry, three credits in biochemistry, three credits in plant physiology, three credits in introductory calculus, and four credits in introductory physics. This option includes courses in applied biochemistry (food biochemistry), cell biology, applied biology (plant improvement), biochemical processes (food processing), industrial microbiology, quality control (food microbiology, food analysis), and process engineering (food engineering). Supporting electives include a course in statistical methods in research and a course in bioprocessing, with the remainder selected from the list of courses approved for this option.

**Food Science Option.** Food science is the application of science and technology to the processing, preservation, and distribution of food. It is the key to converting raw food materials into a wide variety of preserved and processed foods. It deals with the processing of existing food supplies, developing new food products in order to feed the rapidly increasing world population, and improving the nutritional level of diets throughout the world. The option is officially recognized by the National Institute of Food Technologists. Students choosing this option are encouraged to focus on career opportunities such as quality control, research and development, or seafood.

In addition to the requirements of the major, option students must complete the following basic science requirements: three credits in biochemistry; three credits in introductory calculus, and four credits in gen-

eral physics. The concentration courses include four credits in marine food processing, four credits in food analysis, three credits in food biochemistry, three credits in food processing, three credits in food chemistry lab, four credits in food engineering, and three credits in food microbiology. The supporting electives include courses in statistical methods in research and food safety and sensory evaluation, with the remainder selected from the list of courses approved for this option.

**Nutritional Science Option.** Nutritional science is the study of the action and interaction of nutrients and other substances in food in relation to health and disease. The body's requirements for nutrients are also studied, along with the social, economic, cultural, and psychological implications of food and eating. Students choosing this option should consider focusing on nutrition and exercise.

In addition to the requirements of the major, option students must complete the following basic science requirements: three credits in biochemistry, three credits in human physiology, and three credits in statistical methods. Concentration requirements include three credits in advanced nutrition, three credits in nutrition and disease, and nine credits in nutrition in the life cycle. Supporting electives must be selected from the courses approved for this option.

### Plant Science

Continued growth of the human population and associated environmental changes present formidable challenges to the continued supply of quality food, fiber, and renewable energy sources. Regional and local constraints imposed by the encroachment of a growing urban society into agricultural and natural ecosystems present continual challenges to identify an acceptable balance between economic and environmental concerns. Well-educated plant scientists are needed to meet these challenges. This major provides students with a strong foundation in basic plant biology as preparation for graduate-level training to pursue careers in research or education or, alternatively, as preparation for employment in technical support positions in plant-related academic research programs or industry. Instruction in the traditional areas of plant structure and function, genetics, physiology and biochemistry, pathology, ecology, and taxonomy is available. Offerings in entomology provide a

strong background for understanding and managing natural parasites and predators of plants. While providing a general education in the plant sciences, the major allows for specialization in the ecology of plant communities, symbiology, and plant molecular biology. The program in ecology of plant communities provides a balanced study of plant-dominated ecosystems ranging from natural plant communities to constructed landscapes to intensely managed agroecosystems. The program in symbiology focuses on the interactions between plants and biotic and abiotic factors in the environment, including how plants respond to those influences from the whole plant level to the cellular and molecular level. The program in plant molecular biology incorporates basic training in genetic engineering and molecular biology to prepare the student for a research career in plant genetics or agricultural biotechnology.

The major requires 34–35 credits in the basic sciences, including nine General Education credits; 25 credits in concentration courses required of all students in the major; 30 credits in supporting electives selected from an approved list of courses in biochemistry and biophysics, botany, chemistry, computer science, microbiology, natural resources science, plant sciences, statistics, and zoology; and 13–14 credits in free electives. Advisors should be consulted early to ensure that programs are tailored to the specific needs and interests of the individual student.

### Resource Economics and Commerce

This major provides students with a broad education focused on resource economics, economics, and natural resources sciences. Students are prepared to pursue a wide variety of careers in the public and private sectors. In the private sector, careers may focus on the production, marketing, and distribution of natural resource commodities such as fisheries and agricultural products, timber, or petroleum, or on recreation and tourism. The major can also prepare the student for working with the conservation and management of natural resources at the state and national level, for advanced professional programs in community or urban planning or law, or for graduate study in resource and agricultural economics.

REN 105 and NRS 100 are prerequisites for this major, which requires a total of 125 credits. Ten credits in basic sciences are required, including four credits in general chemistry and six credits in general biology. Fifteen credits are required in supporting sciences including three credits in computer science and six credits in mathematics, physics, genetics, plant physiology, population biology, introductory ecology, microbiology, general and organic chemistry or physical geology. The remaining six credits in supporting sciences may be selected from courses in applied biology, oceanography, mathematics, chemistry, computer science, or statistics. Introductory calculus is strongly suggested. Twenty-four credits in concentration courses are required at the 300 level or above, including 15 credits in resource economics and three credits in microeconomic theory.

Thirty-one credits are required in supporting electives which must include six credits in communications skills. The student's total program of study must include at least six credits in speech communication. This requirement may be satisfied with either the General Education requirement for English communication or the supporting electives requirement for communications skills. The remaining credits in concentration courses and supporting electives should be selected in consultation with a faculty advisor.

Students have considerable flexibility in choosing courses in the College of Resource Development and other colleges at the University. All students are required to take sufficient course work in the physical and biological sciences to gain familiarity with the resource area in which they are interested.

Students interested in water resources, for example, would select appropriate courses from natural resources science and chemistry. Students interested in fisheries marketing and trade should select course work in business, fisheries science and technology, and food science and nutrition. Students intending to pursue graduate studies in resource economics or economics should select course work in economic theory, mathematics, and statistics.

**Foodservice Management and Food Marketing Option.** Students learn aspects of food marketing, food distribution, and foodservice management. It is a multidisciplinary field which combines the study of food and resource economics, marketing, and management, with application in food industries.

Courses in food science, food study, chemistry, and microbiology provide an understanding of food properties. A foundation in economics is developed from courses in resource economics, marketing, and management. Students may choose to focus on the management or the marketing aspects of food.

In addition to the requirements of the program, students in this option must complete the following basic science requirements: three credits in microbiology and three credits in statistics or computer science. Required courses include three credits in introductory food study, three credits in nutrition, and three credits in resource economics.

Twenty-four credits of concentration courses are selected from advanced food study, quantity food production, quantity food purchasing and cost control, food-service management, food sanitation, management, food marketing, and economics. Supporting electives are designed to strengthen the students' expertise in their particular area of interest within the major. Individually designed special projects and, in some cases, internships are available from both departments to allow students to gain experience and expertise in the field.

### Soil and Water Resources

The major in soil and water resources, offered by the Department of Natural Resources Science, is designed to meet the growing demand for training in the science and management of land and water resources. Options in soil science and water resources provide in-depth training in specific, career-related disciplines.

**Soil Science Option.** This option is concerned with the soil system as a natural body. It deals with the physical, chemical, biological, and morphological properties of soils, and their relationship to soil-related land use activities. With proper course selection, students are eligible for professional certification by the American Society of Agronomy, and the Soil Science Society of America. Soil science students learn the practical application of soils information through courses in soil and water analysis, soil conservation and land use, and soil conservation technology. The soil science option provides a strong background for work in state and federal regulatory agencies or consulting firms addressing land use or environmental contamination issues. Training in soil science also provides excellent preparation for graduate study.

This option requires nine credits of professional courses, which include natural resource conservation, resource economics, and introductory soil science. As part of the basic science requirements, soil science students must complete four credits in general botany, four credits in general zoology, three credits in introductory ecology, four credits in introductory physics, four credits in physical geology, four credits in geomorphology, four credits in inorganic chemistry, four credits in organic chemistry, three credits in introductory calculus, and three credits in introductory statistics. Required concentration courses (29–33 credits) include at least 15–16 credits selected from soil morphology practicum, soil conservation and land use, soil and water conservation technology, soil morphology and mapping, plant nutrition and soil fertility, soil-water relations, fate of organic chemicals in soils and sediments, microbial ecology of soils and sediments, and soil genesis and classification; eight to 10 credits (courses not selected above may also be used in this category) must be taken from GIS methods in environmental management, wetland ecology, wetlands and land use, hydrology and water management, or hydrogeology; and six to seven credits must be selected from introduction to forest science, fundamentals of forest management, agricultural plant science, arboriculture, or vegetable science. Supporting elective (13–17 credits) must be selected from approved lists or from remaining concentration electives.

**Water Resources Option.** This option provides a broad background in the basic biological and physical sciences as well as instruction in the principles of managing water for all human benefits. While the option is designed to prepare students for employment or graduate study in the field of water resources, flexibility in course selection permits students to develop individual areas of concentration and to qualify for employment in other natural resources fields. The option is intended for those interested in wetland ecology, forest hydrology, water resource planning, and water pollution abatement.

This option requires nine credits of introductory professional courses which include natural resource conservation, resource economics, and introductory soil science. As part of the basic science requirements, water resources students must complete four credits in general botany, four credits in general zoology, three credits in introductory ecol-

ogy, four credits in introductory physics, four credits in physical geology, four credits in geomorphology, four credits in inorganic chemistry, four credits in organic chemistry, three credits in introductory calculus, and three credits in introductory statistics. Required concentration courses include at least 15 credits selected from wetland ecology, wetlands and land use, soil and water conservation technology, hydrology and water management, fate of organic chemicals in soils and sediments, microbial ecology of soils and sediments, water in the environment, hydrogeochemistry, hydrogeology, and limnology; the remaining credits must be selected from wetland wildlife management, GIS methods in environmental management, soil conservation and land use, soil morphology and mapping, soil-water relations, water pollution microbiology, phycology, advanced hydrogeology, or aquatic entomology. Supporting electives (14–15 credits) must be selected from approved lists or from remaining concentration electives.

### Urban Affairs

The major in resource development in the urban environment is offered through the Department of Community Planning and Area Development in the College of Resource Development as part of the interdisciplinary Urban Affairs Program (see page 11). It provides students with an understanding of how human and natural resources pertain to urban affairs. Training deals with problems related to natural resources in contemporary society. With the help of advisors, students may develop individual programs flexible enough to accommodate their varying interests.

The major requires three credits of introductory work in urban affairs and 15 additional credits selected from courses approved for this level. Basic science requirements include six to eight credits in animal and plant biology, four credits in general chemistry, four additional credits in chemistry, physics, or natural science, and three credits in algebra/trigonometry. In the concentration, the major prescribes four groups of courses and the minimum credits required for each group. Eighteen of these credits shall apply to the urban affairs program core requirement. Supporting electives shall be selected from recommended courses including 18 credits in resources science or management, nine credits in social sciences, nine credits in communication, and 15–17 credits in free electives.

### Urban Horticulture and Turfgrass Management

The major in urban horticulture and turfgrass management is intended to educate students in the sciences, both natural and social, in preparation for professional careers in the many fields of environmental horticulture. Graduates of this program may pursue careers as landscape contractors; golf course superintendents; directors of park systems and arboreta; proprietors of garden centers and floral shops; plant propagators; nurserymen; vegetable and fruit growers; technical representatives for seed, equipment, and chemical companies; managers of lawn service firms; and horticultural therapists, to name some of the opportunities available. Others may enter graduate school and pursue careers in research and education in both public and private institutions. This program has as its unifying theme the culture and use of plants which enhance the human environment.

Depending on the area of specialization, graduates can meet the standards of several certification organizations. Graduates specializing in turfgrass management qualify for certification as turfgrass managers or turfgrass specialists with the American Registry of Certified Professionals in Agronomy, Crops, and Soils, Ltd., (ARPACS) of the American Society of Agronomy. These same graduates also meet the requirements for registration with the Golf Course Superintendents Association of America. Graduates specializing in horticulture therapy qualify for registration with the American Horticultural Therapy Association.

The major requires 24–25 credits of pre-professional courses, including six in General Education; 21–24 credits in concentration courses; 39–43 credits in supporting electives selected from approved course lists in the student's area of interest with permission of the advisor; and 12 credits of free electives. Most supporting electives are at the 300 or 400 level, but certain lower-level courses may be acceptable if approved by an advisor. Included among these electives are business and management courses in the Department of Resource Economics, as well as advanced offerings in plant sciences, botany, and soil science in the Department of Natural Resources Science.

## Wildlife Biology and Management

The major in wildlife biology and management, offered through the Department of Natural Resources Science, prepares students for professional careers in the public and private sectors of wildlife biology. In addition, the major provides a solid background for graduate study. Wildlife biologists are professionals concerned with the scientific management of the earth's wildlife species and their habitats. Wildlife biologists work in the areas of preservation, conservation, and management of wildlife species. Graduates can become Certified Wildlife Biologists (CWBs) who are recognized by The Wildlife Society, an international professional organization. In addition, wildlife majors meet the educational requirements for state and federal employment in the wildlife profession.

The major requires nine credits of professional courses, which include natural resource conservation, resource economics, and introductory soil science. As part of the basic science requirements, wildlife majors must complete four credits in general botany, four credits in general zoology, three credits in introductory ecology, four credits in introductory physics, four credits in physical geology, four credits in inorganic chemistry, four credits in organic chemistry, three credits in introductory calculus, and three credits in introductory statistics. Required concentration courses (22–23 credits) include: three credits in introductory forestry; three credits in principles of wildlife management; four credits in field botany and taxonomy; six to seven credits in field ornithology, biology of mammals, vertebrate biology, or animal behavior; three to four credits in fundamentals of forest management, wetland wildlife management, wetland ecology, or fishery science; and three credits in either wildlife biometrics or introduction to computing. Supporting electives (26–27 credits) must be selected from approved lists and include the following upper-division course work: three credits in botany; three credits in zoology; six credits in resource policy or administration, environmental law, or land use planning; and six credits in communications.

## COURSES OF INSTRUCTION



**P**ermanent undergraduate courses offered at the University of Rhode Island are listed on the following pages by subject in alphabetical order. If any subject cannot be located readily, refer to the Index. Courses numbered 001–099 are prefreshman and special undergraduate courses, and do not carry bachelor's degree credit. Those numbered 100–299 are lower-division undergraduate courses and those numbered 300–399 are upper-division undergraduate courses. The 400-level courses are generally limited to juniors and seniors majoring in that field, but are open to other advanced undergraduates and to graduate students with permission.

The 500-level courses, listed in this bulletin by course title only, are graduate courses with a bachelor's degree usually a prerequisite, but qualified seniors and honors students are admitted with permission. For a full description of 500-level courses at the 600 and 900 levels, see the *Graduate Bulletin*.

Courses with two numbers, e.g., ACC 201, 202, indicate a year's sequence; the first course is either a prerequisite for the second, or at least the two cannot be taken in reverse order without special permission. If a course is also offered by another department, this information appears following the course number. The roman numeral indicates the semester the course will be offered. SS means

the course is offered during the Summer Session. The arabic numeral indicates the credit hours. Distribution of class hours each week is in parentheses. S/U credit signifies a course in which only satisfactory or unsatisfactory grades are given. The instructor's name follows the course description. Courses which meet the General Education requirements are designated with a letter in parentheses, indicating the appropriate group, as follows:

- (A) Fine Arts and Literature
- (F) Foreign Language and Culture
- (L) Letters
- (C) English Communication (General)
- (Cw) English Communication (Written)
- (M) Mathematics
- (N) Natural Sciences
- (S) Social Sciences

The schedule of courses is issued by the Office of the Registrar immediately before the early registration period for each semester and again at least two weeks before the first week of classes. The schedule of courses lists the specific courses to be offered that semester with the time of meeting, location, and instructor assigned for the section.

## Accounting (ACC)

*Chairperson:* Professor Martin

**201, 202 Elementary Accounting I, II (I and II, 3 each)** 201: Basic concepts and systems used in financial accounting for business organizations. 202: Basic techniques and systems used by management accountants in budgeting, cost accounting, cost analysis and control. (Lec. 3) Staff

**311, 312 Intermediate Accounting I, II (I and II, 3 each)** 311: Theoretical aspects of accounting principles, emphasis on current and fixed assets and the corporate structure. 312: Continuation including investments, liabilities, financial statements, application of funds, cash flow, and price-level impacts. (Lec. 3) Pre: 202. Staff

**321 Cost Accounting (I, 3)** Cost and managerial accounting systems and concepts including cost allocation, actual and standard cost systems, cost and profit planning, and control systems. (Lec. 3) Staff

**371, 372 Directed Study in Accounting (I and II, 1–3 each)** Advanced work under the supervision of a staff member arranged to suit the individual requirements of the student. (Lec. 1–3) Pre: permission of instructor. Staff

**413 Contemporary Accounting Issues (II, 3)** Interpretation of financial data. Case studies of current accounting theory in selected annual corporate reports. Pre: 312 or permission of instructor. Not for graduate credit in accounting. Staff

**415 Accounting Computer Systems (I and II, 3)** Accounting information systems and use of the computer for decision making; emphasis on sources of information and employment of analytical tools in solving accounting problems. (Lec. 3) Pre: 312, 321, or permission of instructor. Staff

**431 Advanced Accounting (I, 3)** Accounting principles and policies for governmental and non-profit organizations, multinational and multi-divisional organizations, partnerships, and other complex organizational structures. (Lec. 3) Pre: 312. Staff

**443 Federal Tax Accounting (II, 3)** Federal laws, regulations, and other authorities affecting taxation of individuals. (Lec. 3) Pre: 202. Staff

**461 Auditing (I, 3)** Auditing standards, procedures, programs, working papers, and internal control. (Lec. 3) Pre: 312. Staff

**535 Advanced Problems in Accounting (II, 3)**

**544 Taxation of Corporations and Shareholders (II, 3)**

**562 Advanced Auditing (II, 3)**

## Adult and Extension Education (ADE)

*Program Director:* Professor McCreight

**488 Methods and Materials for Adult and Extension Education (I and II, 3)** Techniques utilized in working with large and small groups. Hardware and software used effectively in adult and extension education identified and demonstrated. Communications in extension education studied in depth. (Lec. 3) Mallilo

**491, 492 Special Problems in Adult Education (I and II, 1-3 each)** Specialized problems in adult and extension education. Seminars or supervised individual projects. (Lec. or Lab.) Pre: permission of instructor. Staff

## African and Afro-American Studies (AAF)

*Director:* Assistant Professor Amadife

**150 Introduction to Afro-American History**

See History 150.

**201 Introduction to the Black Experience (I, 3)** Interdisciplinary exploration of some of the pivotal themes and issues in the study of peoples of African descent. (Lec. 3) Amadife

**202 Introduction to Afro-American Culture (II, 3)** Interdisciplinary survey of the social origins of Afro-American culture. (Lec. 3) Gititi

**247 Introduction to Pan-African Literature** See English 247.

**248 Afro-American Literature from 1900 to Present** See English 248.

**250 (or APG 250) Africanity (I and II, 3)** Multidisciplinary survey that seeks to analyze the factors of unity and diversity of African culture through the examination of language, art, music, belief systems, world views, and social organizations within various African civilizations. Pollnac and Staff (F)

**300 Special Topics in African and Afro-American Studies (I or II, 3)** Selected contemporary topics, problems, issues, and individuals from the field of African and Afro-American studies. The topical format allows in-depth analysis of some significant aspect of the African and Afro-American ex-

### Course Codes

ACC	Accounting	GEL	Geology	MUS	Music
ADE	Adult and Extension Education	GER	German	NRS	Natural Resources Science
AAF	African and Afro-American Studies	GRK	Greek	NES	New England Studies
AVS	Animal and Veterinary Science	HLT	Health	NUR	Nursing
APG	Anthropology	HBW	Hebrew	OCE	Ocean Engineering
ASP	Aquacultural Science and Pathology	HIS	History	OCG	Oceanography
ART	Art	HEC	Home Economics	OMT	Operations Management
ARH	Art History	HED	Home Economics Education	PCG	Pharmacognosy
AST	Astronomy	HPR	Honors Program	PCL	Pharmacology and Toxicology
BGS	Bachelor of General Studies	HCF	Human Development, Counseling, and Family Studies	PHC	Pharmaceutics
BCP	Biochemistry and Biophysics	HSS	Human Science and Services	PHP	Pharmacy Practice
BIO	Biology	IME	Industrial and Manufacturing Engineering	PHL	Philosophy
BOT	Botany	IME	Industrial and Manufacturing Engineering	PED	Physical Education
BSL	Business Law	ISC	Information Science	PHT	Physical Therapy
CHE	Chemical Engineering	INS	Insurance	PHY	Physics
CHM	Chemistry	IRE	Irish	PLS	Plant Sciences
CHN	Chinese	ITL	Italian	PSC	Political Science
CVE	Civil and Environmental Engineering	JPN	Japanese	POR	Portuguese
CLA	Classics	JOR	Journalism	PLA	Prior Learning Assessment
CLS	Comparative Literature Studies	LRS	Labor and Industrial Relations	PSY	Psychology
CMS	Communication Skills	LAR	Landscape Architecture	QBA	Quantitative Business Analysis
CMD	Communicative Disorders	LAN	Languages	RCR	Recreation
CPL	Community Planning	LAT	Latin	RLS	Religious Studies
CSC	Computer Science	LAS	Latin American Studies	RDV	Resource Development
CNS	Consumer Studies	LET	Letters	RDE	Resource Development Education
DHY	Dental Hygiene	LSC	Library and Information Studies	REN	Resource Economics
ECN	Economics	LIN	Linguistics	RUS	Russian
EDC	Education	MGT	Management	SOC	Sociology
ELE	Electrical Engineering	MIS	Management Information Systems	SPA	Spanish
EGR	Engineering	MGS	Management Science	SPE	Speech Communication
ENG	English	MAF	Marine Affairs	TMD	Textiles, Fashion Merchandising, and Design
EST	Experimental Statistics	MKT	Marketing	THE	Theatre
FIN	Finance	MTH	Mathematics	UYA	University Year for Action Internship Program
FST	Fisheries Science and Technology	MCE	Mechanical Engineering and Applied Mechanics	URB	Urban Affairs
FSN	Food Science and Nutrition	MTC	Medical Technology	WMS	Women's Studies
FRN	French	MCH	Medicinal Chemistry	WRT	Writing
GEG	Geography	MIC	Microbiology	ZOO	Zoology
		MSC	Military Science		

perience. (Lec. 3) Pre: 201 or 202 or permission of instructor. May be repeated with different topic. Staff

**360 (or ENG 360) Africana Folk Life (I, 3)** Examination of the process of creativity, context, and form in the oral literary tradition of peoples of African descent throughout the world. (Lec. 3) In alternate years. Next offered fall 1993. Staff

**362 Afro-American Poetry and Drama**  
See English 362.

**363 Afro-American Fiction**  
See English 363.

**364 The African Novel**  
See English 364.

**388 History of Sub-Sahara Africa**  
See History 388.

**390 Directed Study or Research (I and II, 3)** Directed study arranged to meet the needs of individual students who desire independent work and to promote collective research efforts in African and Afro-American Studies. Pre: permission of director. Staff

**410 (or PSC 410) Issues in African Development (I or II, 3)** A seminar focusing on the dynamics of African development, including political and social change, economic development, education, urbanization, rural development, environmental management, labor and business, industrialization, and technology transfer. Pre: APG 313 or PSC 201 or HIS 388 or permission of instructor. Staff

**474 Topics in Pan-African Literature**  
See English 474.

## Animal and Veterinary Science (AVS)

*Chairperson:* Associate Professor Nippo (Fisheries, Animal and Veterinary Science)

**101 Introduction to Animal Science (I, 3)** Animal industry's role in world and national economy; inheritance, growth, physiology, nutrition, and diseases of domestic animals and poultry; geographic distribution and marketing of animal products. (Lec. 3) Nippo (N)

**102 Introduction to Animal Science Laboratory (I, 1)** Laboratory and demonstrations of principles of the animal industries. (Lab. 2) Pre: credit or concurrent enrollment in 101. Millar and Staff

**104 Animal Management Techniques (II, 2)** Lecture and laboratory in the handling skills needed to maintain animal comfort and productivity. (Lec. 1, Lab. 2) Pre: 101 and 102. Staff

**201 Companion Animal Management (II, 3)** Nutrition, reproduction, behavior, and management of companion animals. (Lec. 3) Pre: 101. Nippo

**212 Feeds and Feeding (I, 3)** Principles and practices of feeding farm animals, nutrient requirements, physiology of digestion, identification and comparative value of feeds, computer calculation of rations for livestock. (Lec. 2, Lab. 2) Millar

**301, 302 Seminar in Animal and Veterinary Science (I and II, 1 each)** Readings, reports, lectures, and discussions on scientific topics in animal and veterinary science. Subject matter adapted to student and faculty interest. Pre: junior or senior standing. Nippo

**323 Animal Management I (II, 3)** Principles of care and management of domesticated ruminant animals including dairy cattle, beef cattle, sheep, and goats. Emphasis on the production methods of the animal industries. Participation in field trips required. Gray

**324 Animal Management II (II, 3)** Principles of the care and management of domesticated monogastric animals including swine, horses, and poultry. Emphasis will be given to modern production methods. Participation in field trips required. Millar and Rhodes

**331 Anatomy and Physiology (I, 3)** Fundamentals of anatomy and physiology of domesticated animals. (Lec. 3) Pre: ZOO 111 and junior standing. Rhodes

**332 Animal Diseases (II, 3)** Specific diseases of avian and mammalian species; etiology, symptoms, and control. Pre: 331. Chang

**333 Anatomy and Physiology Laboratory (I, 1)** The fundamental anatomy of domestic animals is examined. Demonstrations of physiological principles are performed. Laboratory techniques for screening physiological function *in vivo* and *in vitro* are covered. (Lab. 2) Pre: credit or concurrent enrollment in 331. Rhodes

**343 Behavior of Domestic Animals (II, 3)** Examination of the basis for, and exhibition and control of behavioral patterns of domestic animals. (Lec. 3) Pre: 101. Nippo

**361 Game Bird Propagation and Management (I, 3)** Principles and techniques of game bird propagation, hatchery operation, confinement rearing, nutrition, disease problems, and shooting preserve management. (Lec. 2, Lab. 2) Pre: BIO 102 or ZOO 111. Millar

**365 Laboratory Animal Technology (I, 3)** Management of laboratory animals with emphasis on animal biology, breeding, care, health, research use, and animal welfare. (Lec. 2, Lab. 2) Pre: ZOO 111 or BIO 102. Staff

**372 Introductory Endocrinology (I, 3)** Morphology and physiology of endocrine glands. Roles of hormones in regulation of body processes. Discussion of all endocrine organs and relationship of endocrine and nervous systems. Emphasis on domesticated animals and fowl. (Lec. 3) Pre: BIO 102 or ZOO 111. Rhodes

**399 Animal Science Internship (I and II, 1-6)** Options in various professional experience programs involving the animal and veterinary sciences. May be repeated to a maximum of six credits. Pre: permission of chairperson. S/U credit. Staff

**412 Animal Nutrition (I, 3)** Principles of animal nutrition, metabolism of carbohydrates, proteins,

and fats; mineral and vitamin requirements; nutritive requirements for maintenance, growth, reproduction, lactation, and work. (Lec. 3) Pre: 212, organic chemistry, and junior standing. Nippo

**415 Physiology of Lactation (I, 3)** Endocrine control, milk precursors, physiology of milk production, and anatomy of mammary system including vascular, lymphatic, and nervous system. (Lec. 3) Pre: junior standing. In alternate years. Next offered 1992-93. Rhodes

**420 Animal Breeding and Genetics (II, 3)** Scientific methods for the genetic improvement of domesticated animals. Genetic variation and expected results of different types of selection and mating systems. (Lec. 3) Pre: 352 or equivalent. In alternate years. Next offered 1993-94. Staff

**462 Laboratory Animal Techniques (II, 3)** Laboratory animal applications in clinical studies; research in nutrition, endocrinology, and other selected topics. (Lec. 1, Lab. 4) Pre: 365. Staff

**463 Animal Veterinary Technology (II, 3)** Theory and application of animal health practices required of paraprofessionals in a veterinary practice. The role of the veterinary assistant in a modern clinical practice will be emphasized. (Lec. 2, Lab. 3) Pre: 331. Staff

**472 Physiology of Reproduction (II, 3)** Anatomy and physiology of reproduction, with emphasis on domestic animals. Current experimentation in endocrinology of reproduction is surveyed. (Lec. 2, Lab. 2) Pre: ZOO 111. Rhodes

**491, 492 Special Projects (I and II, 1-3 each)** Work which meets individual needs of students in aquaculture, animal, poultry, and food science. (Lec. and/or Lab. according to nature of project) Staff

**501, 502 Graduate Seminar (I and II, 1 each)**  
**510 Recent Advances in Domestic Animal Physiology (II, 2)**

**542 Advances in Animal Virology (I and II, 2)**  
**591, 592 Research Problems (I and II, 3 each)**

## Anthropology (APG)

*Chairperson:* Professor Poggie (Sociology and Anthropology)

**200 (or LIN 200) Language and Culture (I or II, 3)** Crosscultural survey of the interaction of culture and language. Introduction to various fields of linguistic research emphasizing descriptive and semantic investigations. Linguistic studies used as illustrative material. (Lec. 3) Pollnac (S)

**201 Human Origins (I and II, 3)** The biocultural evolution of humans; review of the fossil record. (Lec. 3) Loy and LaVelle (N)

**202 The Prehistoric Ages (I and II, 3)** Archaeological perspectives on human biological and cultural development from the Old Stone Age to the Iron Age. Emphasizes prehistoric lifeways, emergence of food production, earliest Old and New World civilizations. (Lec. 3) Turnbaugh (S)

**203 Cultural Anthropology (I and II, 3)** Anthropological approaches to the study of people and cultures around the world. (Lec. 3) Staff (S)

**220 Introduction to the Study of Language**  
See Linguistics 220.

**250 Africanity**

See African and Afro-American Studies 250.

**300 Human Fossil Record (I, 3)** Investigation into the biocultural evolution of hominids over the last 15 million years; course based on evidence from fossil bones, teeth, and paleoecological reconstruction. (Lec. 3) Pre: 201 or 202 or permission of instructor. LaVelle

**302 Methods of Anthropological Inquiry (I or II, 3)** Logic, techniques, and problems in obtaining true information in anthropological inquiry. Problems from anthropological field work and use of crosscultural data. (Lec. 3) Pre: 203 or permission of instructor. In alternate years. Next offered 1993-94. Poggie

**303 New World Prehistory (I or II, 3)** Reconstruction of American Indian cultural history from earliest times to the period of European discovery and colonization, using archaeological evidence and perspectives. (Lec. 3) Turnbaugh (F)

**309 Anthropology of Religion (I or II, 3)** Religious systems of selected peoples around the world; examination of theories concerning the origins, functions, and natures of these religions. (Lec. 3) Staff

**310 Topics in Anthropology (I and II, 1-3)** Analytical study of selected topics in anthropology. Subjects will vary according to the expertise and availability of instructors. (Lec. 1-3) Pre: one anthropology course or permission of instructor. May be repeated with different topic. Staff

**311 Native North Americans (I or II, 3)** Survey of selected North American Indian groups from before European contact to the present. Modern reservation life; influence of the federal government on Indian life. (Lec. 3) Lynch (F)

**313 Peoples of Africa (I or II, 3)** Studies of Africa's peoples and cultures from prehistoric times to the present. (Lec. 3) Pollnac (F)

**315 Cultures and Societies of Latin America (I or II, 3)** Contemporary cultures and societies, emphasis on adjustment of the people to modern social and economic changes. (Lec. 3) Pre: 203 or permission of instructor. Poggie (F)

**317 Archaeological Method and Theory (I or II, 3)** Problems of collection and interpretation of data, emphasizing nature of archaeological investigation, classification, dating, reconstruction of social contexts. Laboratory demonstrations. (Lec. 3) In alternate years. Next offered 1992-93. Turnbaugh

**319 Cultural Behavior and Environment (I or II, 3)** Cultural adaptations made by traditional and industrial societies to natural and

human environments using examples from prehistory and ethnography. (Lec. 3) In alternate years. Next offered 1993-94. Turnbaugh (S)

**320 Sociolinguistics**  
See Linguistics 320.

**322 Anthropology of Modernization (I or II, 3)** Patterns and processes of contemporary social and cultural change among traditional people. (Lec. 3) Pre: 203 or permission of instructor. Poggie

**325 The Irish (I, 3)** An examination of the beliefs, customs, and social institutions which comprise Irish life, at home and abroad. (Lec. 3) Lynch (F)

**326 Anthropology of Law (I or II, 3)** Examination of the range of procedures for handling disputes in selected societies around the world. Emphasis on relation of law to its cultural context. (Lec. 3) Lynch

**327 Roots of Bioanthropology (I or II, 3)** An examination of some classic works in human evolution and physical anthropology. Designed to provide an understanding of the philosophical and historical development of biological anthropology. (Lec. 3) Loy (L)

**350 Human Variation (I or II, 3)** Anthropological investigation into the nature and causes of human biological diversity with emphasis on living populations. Students enrolled in this course will serve as a sample for measuring human variation. (Lec. 3) Pre: any 200-level anthropology course or permission of instructor. LaVelle

**390 Human Sociobiology and Ethology**  
See Sociology 390.

**400 Evolution, Culture, and Human Disease (II, 3)** Investigation of the dynamic interrelationships between culture, human disease, and evolution. Encompasses study of living peoples as well as our fossil and prehistoric ancestors, and includes infectious and chronic diseases. (Lec. 3) Pre: introductory physical anthropology, biology, or zoology, or permission of instructor. Staff

**401 History of Anthropological Theory (I or II, 3)** Theory from the sixteenth century to the present; readings from Tylor, Morgan, Boas, Sapir, Kroeber, Benedict, Malinowski, and Radcliffe-Brown. (Lec. 3) Pre: 203 or permission of instructor. Poggie

**405 (or PSY 405) Psychological Anthropology (I or II, 3)** Study of human behavior in different cultures employing psychological concepts and theories. (Lec. 3) Pre: 203 or permission of instructor. Pollnac

**412 Primate Behavior and Organization (I or II, 3)** Investigation of the naturalistic behavior and organization of nonhuman primates, and the relationship of primate data to anthropology. (Lec. 3) Pre: 201 or permission of instructor. Loy

**413 (or MAF 413) Peoples of the Sea (I, 3)** Examination of human sociocultural adaptation to the seas. (Lec. 3) Pre: 203 or permission of instructor. Pollnac and Poggie

**470 Problems in Anthropology (I and II, 3)** Staff-guided study and research, seminar, or individual program. (Lec. 3 or Lab. 6) Pre: permission of chairperson. Staff

## Aquacultural Science and Pathology (ASP)

*Chairperson:* Associate Professor Nippo (Fisheries, Animal and Veterinary Science)

**281 Introduction to Aquaculture (I, 3)** Aquaculture, its contribution to world food supply, methods of production, environmental and ecological considerations, cultural practices employed for selected species, selective breeding, feeding, disease, processing, and marketing. (Lec. 3) Pre: BIO 102 or ZOO 111. Rice

**352 General Genetics (I, 3)** Introduction to genetic principles and concepts with applications and implications of these concepts to man and other species. (Lec. 3) Pre: BOT 111, or BIO 101 or 102, or ZOO 111. Not open to students with credit in BOT 352. Staff

**354 Genetics Laboratory (I, 2)** Basic principles of heredity demonstrated with *Drosophila*, *Coturnix*, and plants. (Lab. 4) Pre: credit or concurrent enrollment in 352 or BOT 352. Not open to students with credit in BOT 354 or 454. Staff

**381 Shellfish Aquaculture (II, 3)** Worldwide culture of marine and freshwater crustaceans and molluscs. Emphasis on life history, biological requirements, cultural practices, and economic importance of major species used for human food. (Lec. 3) Pre: 281 and one semester of general chemistry. Rice

**400 Diseases of Cultured Fishes (II, 2)** Nature, causes, diagnosis, and spread of diseases limiting piscine freshwater and marine aquaculture projects. Emphasis on prevention, control, and treatment of more common diseases affecting hatchery management. (Lec. 2) Pre: 281; ZOO 201 or AVS 331. Wolke

**401 Abnormal Biology (I, 3)** Mechanisms and causes of disease in homeothermic and poikilothermic vertebrates. Cell death, inflammation, infection, metabolic disorders and neoplasia in relation to fish, reptiles, birds, and mammals. Effects of disease at the cellular, tissue, organ, and organismal levels with a medical orientation. (Lec. 3) Pre: ZOO 201 or AVS 331. Wolke

**476 The Genetics of Fish (I, 3)** Modes of inheritance found in fish including chromosome number, polyploidy, sex determination, and hybridization. Heritabilities, methods of selection, and mating systems used in the development of fish suited for intensive culture. (Lec. 2) Pre: 352. Bradley

**483 Salmonid Aquaculture (I, 3)** Principles of salmonid aquaculture, including culturing, spawning, incubation, feed formulation and feeding,



disease control, genetics, systems management, harvesting, and transport. (*Lec. 2, Lab. 2*) *Pre: 281 or equivalent.* Meade

**486 Applied Physiology of Fish (II, 3)** Functions of the organ systems of fish, regulation of physiological functions and environmental interactions. Emphasis on the teleosts. (*Lec. 3*) *Pre: ZOO 341 or 345 or equivalent.* Bradley

**501, 502 Seminar (I and II, 1 each)**

**532 Experiment Design (II, 3)**

**534 (or MIC 534) Animal Virology (I, 3)**

**536 (or MIC 536) Virology Laboratory (I, 2)**

**538 (or MIC 538) Epidemiology of Viral and Rickettsial Diseases (II, 2)**

**555, 556 Pathology Rotation (I and II, 3 each)**

**581 Current Topics in Molluscan Aquaculture (I, 3)**

**584 Advanced Aquaculture Systems (II, 3)**

**586 Fish Nutrition (I, 3)**

**591, 592 Special Projects (I and II, 1-3 each)**

## Art (ART)

*Chairperson:* Professor Onorato

**003 Junior Review (I and II, 0)** Presentation by majors of broad selection of their college-level work for review by faculty. *Pre: junior standing in B.F.A. or B.A. studio programs.* Staff

**101 Two-Dimensional Studio I (I and II, 3)**

Exploration of principles of visual organization relating primarily to formulations on the two-dimensional surface by means of fundamental studies and assignments in studio techniques. (*Studio 6*) Staff (A)

**103 Three-Dimensional Studio I (I and II, 3)**

Introduction to problems in three-dimensional organization. Observations from objects with discussion and application to simple mold and casting techniques. Introduction to the use of basic materials, clay, plaster, and wood. (*Studio 6*) Rohm and Calabro (A)

**203 Color (I and II, 3)** Visual perception of color and manipulation of light as they pertain to two- or three-dimensional formulations. (*Studio 6*) Leete (A)

**207 Drawing I (I and II, 3)** Visual perception and observation, using nature structures, drawing from live models, still life, and landscape; exercises in basic drawing techniques and principles. (*Studio 6*) Staff (A)

**208 Drawing II (I and II, 3)** Advanced practice in graphic conceptions; exercises in spatial problems, organizing relationships of abstract forms and structures; advanced drawing media. (*Studio 6*) *Pre: 207.* Staff

**213 Photography I (I and II, 3)** Introduction to photography, exploration of related techniques using light-sensitive materials. (*Studio 6*) *Pre: permission of instructor. May be repeated for a maximum of 6 credits.* Parker

**215 Filmmaking I (I and II, 3)** Introduction to basic filmmaking technique and theory. Emphasis on film as a visual art. Required projects and readings. (*Studio 6*) *May be repeated for a maximum of 6 credits with permission of instructor. May be taken once for General Education credit.* Keller (A)

**221 Two-Dimensional Studio II (I and II, 3)**

Techniques of painting, utilizing as reference the natural and manmade environments. Traditional and contemporary materials. (*Studio 6*) *Pre: 101 and 207.* Fraenkel and Leete

**231 Printmaking I (I and II, 3)** Introduction to intaglio and lithographic processes, with an emphasis on image development and workshop procedures. (*Studio 6*) *Pre: 101 or 207 or permission of instructor.* Pagh (A)

**233 Relief Printing and Typography I (I and II, 3)**

Introduction to basic elements of graphic design; letter forms, their relationship to the page and to the image. Various traditional and modern reproduction techniques, workshop practice in typesetting and layout. (*Studio 6*) *Pre: 101 or permission of chairperson.* Richman (A)

**243 Three-Dimensional Studio II (I and II, 3)**

Formation of three-dimensional forms employing basic sculptural materials and techniques. Basic media, emphasis on form, material, and structural means in studio practice. (*Studio 6*) *Pre: 103 or permission of instructor.* Rohm and Calabro

**300 Gallery Internship (I and II, 1)** Practicum in the operation of the Main Gallery, including contacting artists, installation of exhibitions, publications, coordinating publicity and openings, lectures, symposia, and performances. (*Practicum 3*) *Pre: permission of chairperson. May be repeated twice for a maximum of 3 credits.* Gallery director

**301, 302 Projects in Studio I, II (I and II, 3 each)**

Studio projects under guidance of instructor selected by student. The student may select another instructor for 302. *Pre: enrollment in Honors Colloquium and/or permission of chairperson and instructor.* Staff

**303 Topics in Studio (I or II, 3)** Selected topics based on particular materials, techniques, or thematic premises. Topics and semesters to be announced. (*Studio 6*) *Pre: permission of instructor. May be repeated for credit with permission of instructor and chairperson.* Staff

**305 Photographic Alternatives (I or II, 3)** Topics emphasize possibilities in photographic themes and techniques, including alternative processes, colotype, and studio practice. May be repeated with permission of instructor and chairperson. (*Studio 6*) *Pre: 213 and permission of instructor.* Staff

**309, 310 Drawing III, IV (I, 3 each)** 309: Further problems, emphasis on independent investigation in analysis, planning, and supportive notation. 310: Continuation of 309. (*Studio 6*) *Pre: 208 or permission of instructor for 309; 309 for 310. 310 may be repeated for credit with permission of instructor.* Klenk

**314 Photography II (I and II, 3)** Continuation of 213. (*Studio 6*) *May be repeated for credit with permission of instructor. Pre: 213.* Parker

**316 Filmmaking II (I and II, 3)** Continuation of 215 with added emphasis on sound. Required projects and reading. (*Studio 6*) *Pre: 215. May be repeated for credit with permission of instructor.* Keller

**322 Two-Dimensional Studio III (I and II, 3)**

Continuation of 221. (*Studio 6*) *Pre: 221. May be repeated for credit with permission of instructor.* Fraenkel, Klenk, and Leete

**332 Printmaking II (I and II, 3)** Continuation of 231 with introduction to color lithography. Contemporary viewpoints and their relationship to traditional printmaking, with emphasis on individual image development. (*Studio 6*) *Pre: 231.* Pagh

**334 Relief Printing and Typography II (I and II, 3)**

Continuation of 233. Applications of previous studies to experimental workshop assignments leading to production of book pages, folders, posters, and other visual material incorporating type and print in a contemporary idiom. (*Studio 6*) *Pre: 233 or permission of chairperson. May be repeated for credit with permission of instructor.* Richman

**337 Printmaking III (I and II, 3)** Semi-independent work in printmaking media. Introduction of aluminum plate and photo-lithography. (*Studio 6*) *Pre: 332.* Pagh

**338 Printmaking IV (I and II, 3)** Emphasis on individual development in specific printmaking media. Critical evaluation of visual development. (*Studio 6*) *Pre: 337. May be repeated for a maximum of 6 credits with permission of instructor.* Pagh

**344 Three-Dimensional Studio III (I and II, 3)**

Continuation of 243. (*Studio 6*) *May be repeated for a maximum of 6 credits with permission of instructor. Pre: 243 or permission of instructor.* Rohm and Calabro

**405, 406 Studio Seminar (I and II, 3 each)** Intensive self-directed work under guidance of instructors. Periodic critiques and discussions of work of all participants. *Pre: concurrent enrollment in 003 and senior standing; 405 for 406.* Staff

**501, 502 Graduate Studio Seminar I, II (I and II, 3 each)**

## Art History (ARH)

*Chairperson:* Professor Onorato (Art)

**120 Introduction to Art (I and II, 3)** Fundamental principles of the visual arts, evolution of styles and conceptions through the ages in different forms of creative expression. (*Lec. 3*) Holmes (A)

**184 Architecture: An Introduction (I and II, 3)** An introduction to the theory and history of architecture, considering aesthetic issues, social function, and the impact of technological change. Material will be presented in slide lectures and field visits to architectural sites. (*Lec. 3*) Onorato

**251 Introduction to History of Art (I and II, 3)** The development of architecture, sculpture, and painting from prehistory through the Middle Ages. (Lec. 3) Staff (A)

**252 Introduction to History of Art (I and II, 3)** The development of architecture, sculpture, and painting from the early Renaissance to the present. (Lec. 3) Staff (A)

**265 Modern French Art: Nineteenth and Twentieth Centuries (I or II, 3)** Painting and sculpture in France from 1789 to 1950 with emphasis on the social background and relationships with other art forms. (Lec. 3) Staff (A) (F)

**284 Introductory Topics in Architectural History (I or II, 3)** Consideration of the history of architecture and city planning through surveys of selected periods and themes. (Lec. 3) May be repeated for a maximum of 6 credits with permission of instructor. May be taken once for General Education credit. Onorato (A)

**285 Women in Art (I, 3)** Survey of images of women throughout the history of art in Europe and America; investigation of the roles of women as patrons and artists in art history. (Lec. 3) Staff (A)

**354 The Art of Greece and Rome (I, 3)** Developments in architecture, painting, and sculpture in Greece and Rome from 800 B.C. to 400 A.D. Brief analysis of the art of the Aegean from 2500 to 1500 B.C. (Lec. 3) Pre: 251 or permission of chairperson. Hollinshead (F)

**356 Medieval Art (II, 3)** Painting, sculpture, architecture, and minor arts of the Middle Ages from 500 to 1400 in Western Europe. (Lec. 3) Pre: 251 or permission of chairperson. Hollinshead (F)

**359 Baroque Art (II, 3)** Developments in painting, sculpture, and architecture in Italy and Northern Europe from 1600 to 1750. (Lec. 3) Pre: 251 or 252 or permission of instructor. Roworth (A) (F)

**363 Modern Art: Nineteenth and Twentieth Centuries (I or II, 3)** A survey of trends in the visual arts over the last two centuries with emphasis on defining a "modern" aesthetic. Painting, sculpture, performance, conceptual, and related arts will be discussed. (Lec. 3) Pre: 251 or 252 or permission of instructor. Onorato (F)

**364 American Art (I or II, 3)** Painting, sculpture, and architecture from their origins in the seventeenth century to the present; emphasis on the nineteenth century. (Lec. 3) Onorato (A)

**365 Renaissance Art (I, 3)** Painting, sculpture, and architecture of Italy and northern Europe from 1400 to 1600. (Lec. 3) Pre: 251 or 252 or permission of instructor. Roworth (F)

**371, 372 Projects in Art History I, II (I and II, 3 each)** Directed study in art history under guidance of instructor selected by student. The student may select another instructor for 372. Pre: enrollment in Honors Colloquium and/or permission of chairperson and instructor; 371 for 372. Staff

**374 Topics in Film (II, 3)** Explores the social, historical, and aesthetic development of the cinema from 1895 to the present. Lectures (3 hrs.) and required film screenings. (Lec. 3) May be repeated for a maximum of 6 credits with permission of instructor. Spring 1993: *The History of the Cinema, 1895-1993*. Keller (A)

**375 Topics in the History of Photography (I or II, 3)** Explores the social, historical, and aesthetic development of photography from 1826 to the present. May be repeated for a maximum of 6 credits with permission of instructor. (Lec. 3) Keller

**461 Topics in Methods, Theory, and Criticism (I or II, 3)** Art history methods or selected topics in the theory and criticism of art. Topics. (Lec. 3) Pre: permission of chairperson. May be repeated for credit with permission of instructor. Holmes

**462 Contemporary Art Seminar: Art Since 1945 (II, 3)** Analysis of contemporary work and its relation to earlier movements. (Lec. 3) Pre: 363. May be repeated for a maximum of 6 credits with permission of instructor. Onorato

**469, 470 Art History: Senior Projects (I and II, 3-6 each)** Intensive, independent work on a project determined after consultation with the student's project advisor. (Lec. 3-6) Pre: permission of chairperson. Staff

**480 Advanced Topics in European and American Art (I or II, 3)** Consideration of the history of European and American art through analysis of selected periods or themes. (Lec. 3) Pre: permission of instructor. Staff

## Astronomy (AST)

Chairperson: Professor Malik (Physics)

**108 Introductory Astronomy (I and II, 3)** Celestial sphere, earth as an astronomical body, sun, motions and characteristics of members of solar system, constellations, constitution of stars and nebulae. Planetarium used freely for lectures and demonstration. (Lec. 3) Penhallow (N)

**334 Optics**  
See Physics 334.

**484 Laboratory and Research Problems in Physics**  
See Physics 484.

**491, 492 Special Problems**  
See Physics 491, 492.

## Bachelor of General Studies (BGS)

Coordinator: Associate Professor McKinney

**100 Pro-Seminar (I or II, 4)** Introduction to critical approaches to learning with emphasis on reading and rhetorical skills appropriate to college students. Required of BGS students. S/U credit. Staff (Cw)

**390 Social Science Seminar (I or II, 6)** Exploration of the social sciences for BGS students who have completed the Pro-Seminar, started their major, and have the consent of their advisor. Required of BGS students. Staff (S)

**391 Natural Science Seminar (I or II, 6)** Exploration of the natural sciences for BGS students who have completed the Pro-Seminar, started their major, and have the consent of their advisor. Required of BGS students. Staff (N)

**392 Humanities Seminar (I or II, 6)** Exploration of the humanities for BGS students who have completed their Pro-Seminar, started their major, and have the consent of their advisor. Required of BGS students. Staff (L)

**397 Human Studies Major Seminar (I or II, 3)** Capstone course of human studies major. Review and assessment of students' major education through intensive exploration of issues central to human studies. Pre: completion of 30 credits of major. Required of BGS human studies majors. Staff

**399 Supervised Senior Project (I and II, 3)** A project chosen by the student with faculty guidance on a topic relevant to the student's major, resulting in a paper or other demonstration of academic achievement. Pre: senior standing in BGS program and approval of advisor and BGS coordinator. Required of BGS students. Staff

## Biochemistry and Biophysics (BCP)

Chairperson: Professor Tremblay

**311 Introductory Biochemistry (I and II, 3)** Chemistry of biological transformations in the cell. Chemistry of carbohydrates, fats, proteins, nucleic acids, enzymes, vitamins, and hormones integrated into a general discussion of the energy-yielding and biosynthetic reactions in the cell. (Lec. 3) Pre: CHM 124 or equivalent. Hartman and Tremblay

**312 Introductory Biochemistry Laboratory (II, 2)** Laboratory exercises illustrate chemical and physical properties of biomolecules, separation techniques, enzyme catalysis, symptoms of nutritional deficiency, quantification of metabolic end-products, and drug detoxification. (Lec. 1, Lab. 3) Pre: credit or concurrent enrollment in 311. Tremblay

**401 (or MIC 401) Quantitative Cell Culture (I, 3)** Methods of mammalian cell culture used for quantitative studies of normal and abnormal cells. Basic techniques for propagation and manipulation of cells in culture. (Lec. 2, Lab. 3) Pre: MIC 211 or BCP 311. In alternate years. Next offered fall 1993. Fisher

**403 (or MIC 403) Introduction to Electron Microscopy (I, 2)** Survey of techniques in electron microscopy. Discussion of advantages and limitations. Thin sectioning, negative staining, shadow-casting, freezing-etching, histochemical procedures, autoradiology, darkroom procedures,

scanning electron microscopy, interpretation of electron micrographs. (*Lec. 2*) *Pre: permission of chairperson.* Fisher and Hufnagel

**405 Electron Microscopy Laboratory**  
See Microbiology 405.

**412 Biochemistry Laboratory (II, 3)** Same as 312 plus an individual supervised laboratory project selected in consultation with the student. Projects may include enzyme action, enzyme induction, drug action, use of radioisotopes, and plant metabolism. *Pre: MIC 211 or BCP 311.* Tremblay

**421 (or MIC 421) Cell Biology and Cancer (I, 3)** Methods of study of the cancer cell and comparison to normal cell. Emphasis on cell culture experiments. *Pre: any two of the following—BIO 101; 102, BOT 111, ZOO 111, or MIC 201 or 211. In alternate years. Next offered fall 1992.* Fisher

**435 Physical Chemistry for Life Sciences (I, 3)** Gases, solution, thermodynamics, equilibrium, kinetics, quantum theory, and photochemistry. (*Lec. 3*) *Pre: one semester each of organic chemistry, physics, and calculus (two semesters of each recommended).* Not open to chemistry majors. Hartman

**491, 492 Research in Biochemistry and Biophysics (I and II, 1–6 each)** Special problems. Student outlines the problem, carries on experimental work, presents the conclusions in a report. (*Lab. 2–12*) *Pre: permission of instructor. Not for graduate credit in biochemistry-biophysics.* Staff

**503 (or MIC 503) Electron Microscopy (I, 2)**

**505 (or MIC 505) Laboratory in Electron Microscopy (I, 3)**

**521 Physical Biochemistry (II, 3)**

**523, 524 Special Topics in Biochemistry and Biophysics (I and II, 1–6 each)**

**542 Proteins: Purification and Characterization (II, 3)**

**551 Topics in Biochemistry for the Clinical Scientist (I, II, or SS, 3)**

**572 (or PLS 572) Plant Biochemistry (II, 3)**

**581, 582 General Biochemistry I, II (I and II, 3 each)**

**584 Membrane Biochemistry (II, 3)**

**585 Recent Advances in Receptor Research (I, 1)**

## Biology (BIO)

*Chairpersons:* Professor Goos (Botany), Professor Laux (Microbiology), and Professor Bibb (Zoology)

**101 (or BOT 101) Biology of Plants (I and II, 3)** Introduction to major concepts of biology through a study of plants, including structure, function, reproduction, inheritance, ecology, and topics of current interest. Designed for nonscience majors. (*Lec. 2, Lab/Rec. 1*) *Not open to students with credit in BOT 111.* Staff (N)

**102 General Animal Biology (I and II, 3)** Introduction to life processes of animals, including humans. Examines biological aspects of inheritance, ecology, behavior, animal survey, and regulation of biosystems. Laboratory surveys

general concepts of animal biology. (*Lec. 2, Lab. 2*) Goldsmith or Heppner (N)

*Note: Students who elect 101 may not enroll in BOT 111, and those who elect 102 may not enroll in ZOO 111.*

## Botany (BOT)

*Chairperson:* Professor Goos

**101 Biology of Plants**

See Biology 101.

**111 General Botany (I and II, 4)** Structure, physiology, and reproduction of seed plants as a basis for understanding broad principles of biology and relation of plants to human life. Survey of plant kingdom. (*Lec. 3, Lab. 2*) *Not open to students with credit in BIO 101.* Koske or Staff (N)

**262 Introductory Ecology**

See Zoology 262.

**311 Plant Anatomy (I, 3)** Structure of vascular plant tissues and organs as it relates to their function. Variations in anatomy, phylogeny of vascular tissue, anatomy of fossils, and the relation of structure to economic value. (*Lec. 1, Lab. 4*) *Pre: 111 or permission of instructor.* Goos

**321 General Morphology (II, 3)** Representative forms of prokaryotes, algae, fungi, bryophytes, and vascular plants with emphasis on evolution, ecology, and life cycle. (*Lec. 1, Lab. 4*) *Pre: 111 or permission of instructor.* Staff

**323 Field Botany and Taxonomy (I, 4)** Collection, identification, and study of vascular flora of Rhode Island, including use of manuals and herbarium specimens. Field trips throughout Rhode Island. Discussion of principles, methods, and data used in classification. (*Lec. 2, Lab. 4*) *Pre: 101 or 111.* Killingbeck

**332 (or PLS 332) Plant Pathology (II, 4)** Nature, cause, and control of plant diseases. Use of basic techniques for identification of major types of plant diseases and their causal agents. (*Lec. 3, Lab. 2*) *Pre: 111 or permission of instructor.* Mueller

**352 Genetics (II, 3)** Fundamental concepts of inheritance and variation in plants, animals, bacteria, and viruses. Methods of recombination, the process of mutation, gene structure, and function. (*Lec. 3*) *Pre: 111 and ZOO 111, or permission of instructor. Not open to students with credit in ASP 352.* Mottinger

**418 Marine Botany (I, 3)** Field and laboratory study of ecology and taxonomy of various communities of marine plants, primarily seaweeds and seagrasses. Methods of collecting, fixation, herbarium processing, and identification. Individual projects required. (*Lec. 2, Lab. 3*) *Pre: 321 or permission of instructor. 262 recommended. In alternate years. Next offered 1993–94.* Harlin

**419 Freshwater Botany (I, 3)** Field and laboratory study of ecology and taxonomy of various communities of freshwater microalgae, macroalgae,

and higher plants. Methods of collecting, fixation, enumeration, identification, and crop estimation. Individual collections required. (*Lec. 2, Lab. 3*) *Pre: 321 or permission of instructor. 262 recommended. In alternate years. Next offered 1992–93.* Staff

**432 Mycology: Introduction to Fungi (I, 4)** Structure, development, cytology, distribution, and identification of fungi, with consideration of their importance in industry, medicine, plant disease, and organic decomposition. (*Lec. 2, Lab. 4*) *Pre: BIO 101 or BOT 111; 321 recommended.* Goos

**437 (or ZOO 437) Fundamentals of Molecular Biology (I, 3)** Biochemical basis of heredity as seen through the structure and function of nucleic acids. Includes DNA replication, transcription, translation, gene regulation, and gene organization in prokaryotes and eukaryotes. Current methods emphasized. *Pre: MIC 211, BOT 352, and BCP 311, or permission of instructor.* Norris or Goldsmith

**445 (245) Plant Physiology (I, 3)** Growth and function of vascular plants from seed germination through flowering. Topics include energy metabolism, transport processes, environmental interactions, stress physiology, and developmental control. (*Lec. 2, Lab. 3*) *Pre: 111, CHM 112, or permission of instructor.* Roberts

**453 (or MIC 453) Cell Biology (II, 4)** Structure, replication, and function of eukaryotic cells at subcellular level. Topics considered include cell membranes, cytoplasmic organelles and nuclei, cell division, cellular differentiation, and methods. Emphasis on recent publications. (*Lec. 2, Lab. 3*) *Pre: two semesters of biology, BCP 311, junior standing, or permission of instructor.* Norris

**454 Genetics Laboratory (I, 3)** Principles of classical and molecular genetics using microorganisms as well as higher plants and animals. Experimental techniques include human chromosome preparations, screening for growth requirements in microorganisms, mutagenesis, gel electrophoresis and nucleic acid hybridization. (*Lab. 6*) *Pre: 352. In alternate years. Next offered 1992–93.* Mottinger

**455 Marine Ecology**

See Zoology 455.

**457 Marine Ecology Laboratory**

See Zoology 457.

**465 Phycology: An Introduction to the Algae (II, 3)** Taxonomy, morphology, and evolution of algae. Use of ultrastructure in modern taxonomy; various systems of classification. Field trips to different communities. Labs on the taxa discussed and techniques for axenic culture. (*Lec. 1, Lab. 3*) *Pre: 111, 321 recommended.* Harlin

**490 Modern Techniques in Botanical Sciences (I and II, 2)** Experience using the equipment and techniques of botanical research such as radioisotopic tracers, analysis of organic and inorganic constituents, productivity, hydrobotany, cell and tissue culture, and light microscopy. (*Lec. 2, Lab. 4*

for six weeks). *Pre: major in biological science, junior standing, and permission of instructor. May be repeated for credit with different topic (A-G).* Staff

- A Radioisotope techniques
- B Analysis of organic constituents in plant tissues
- C Analysis of inorganic nutrients and trace elements in plant tissues
- D Plant productivity and biomass analysis
- E Hydrobiological dynamics
- F Plant cell and tissue culture methods
- G Modern applications of light microscopy

**491, 492 Special Problems (I and II, 1-3)** Selected areas pertinent to needs of individuals or small groups. Class, seminar, or tutorial situations. (*Lec. 1-3 or Lab. 2-6*) *Open only to undergraduates on arrangement with staff.* Staff

**511 Special Readings in Developmental Plant Anatomy (I, 3)**

**512 Morphology of Vascular Plants (I, 3)**

**521 (or MIC 521) Recent Advances in Cell Biology (I, 2)**

**522 Plant Molecular Biology (I, 4)**

**524 Methods in Plant Ecology (II, 3)**

**534 Physiology of the Fungi (II, 3)**

**542 Medical Mycology (II, 3)**

**546 Seminar in Plant Stress Physiology (II, 1-2)**

**551 Seminar in Aquatic Botany (I, 1)**

**554 Cytogenetics (I, 4)**

**562 Seminar in Plant Ecology (II, 2)**

**579 Advanced Genetics Seminar (I and II, 1)**

**581, 582 Botany Seminar (I and II, 1 each)**

**590 Botanical Techniques (I, 1)**

**591, 592 Botanical Problems (I and II, 1-3 each)**

**593 Special Topics (I and II, 1-3)**

## Business Law (BSL)

*Chairperson:* Professor Sink (Management)

**333 Legal and Ethical Environment of Business I (I and II, 3)** An introduction to the origins, framework, and concepts of the legal and ethical environment of business with emphasis on contractual relations. (*Lec. 3*) *Pre: junior standing. Open to nonbusiness students with permission of chairperson.* Staff

**334 Legal and Ethical Environment of Business II (I and II, 3)** Operations of the U.S. system of jurisprudence and ethics as it affects the law of contracts, sales, debtor-creditor rights, and business organizations. (*Lec. 3*) *Pre: 333. Open to nonbusiness students with permission of chairperson.* Staff

**442 Property Interests (II, 3)** Creation and transfer of personal and real property interests: suretyship and guarantee, bailments, real estate law, trusts and estates. (*Lec. 3*) *Pre: 333 or permission of instructor.* Staff

**450 Consumer Law and Legislation (I, 3)** Introduction to consumer law (state and federal). Coverage includes a study of statutory law, administrative agencies, and court decisions. (*Lec. 3*) *Pre: 333 or permission of instructor.* Laviano

**460 Law and the Entrepreneur (II, 3)** Study of legal issues of concern to the entrepreneur—business organizations; limited partnership syndications, bankruptcy, SEC regulations, and patent and trademark protection. (*Lec. 3*) *Pre: 333.* Dunn

**501 Law and Accounting (I, 3)**

## Chemical Engineering (CHE)

*Chairperson:* Professor Barnett

**101 Foundations of Chemical Engineering (I and II, 1)** An introduction to chemical engineering. Approaches to problem solving. Numerical presentation of data and data analysis. Block diagrams and flow charts. (*Lab. 3*) Staff

**102 Introduction to Chemical Engineering (II, 1)** Provides understanding and appreciation of design in the curriculum. (*Sem. 1*) Estrin and Staff

**212 Chemical Process Calculations (I, 3)** Orientation to chemical engineering, material-balance computations on chemical processes, use of gas laws, vapor pressure, humidity, solubility, and crystallization. (*Lec. 2, Lab. 3*) *Pre: CHM 112 or 192.* Staff

**272 Introduction to Chemical Engineering Calculations (II, 3)** Introduction to the use of computers and numerical methods, including numerical solution of differential equations as applied to chemical engineering. (*Lec. 2, Lab. 3*) *Pre: 212 and MTH 243.* Staff

**313 Chemical Engineering Thermodynamics I (I, 3)** Applications of the first, second, and third laws of thermodynamics involving thermophysics, thermochemistry, energy balances, combustion, and properties of fluids. (*Lec. 2, Lab. 3*) *Pre: 212 or CHM 431 and MTH 243.* Staff

**314 Chemical Engineering Thermodynamics II (II, 3)** Continuation of 313 with applications to compression, refrigeration, phase and chemical equilibria. (*Lec. 2, Lab. 3*) *Pre: 313.* Staff

**322 Chemical Engineering Microlaboratory (II, 2)** Use of microprocessors, A/D and D/A converters, sensors, and control hardware to analyze and control laboratory-scale processes. (*Lec. 1, Lab. 3*) *Pre: credit or concurrent enrollment in 348.* Bose

**328 Industrial Plants (I, 1)** Field trips to nearby plants demonstrating various phases of chemical engineering. Written reports are required. (*Lab. 3*) *Pre: 348.* Rose

**332 Physical Metallurgy (I and II, 3)** Fundamentals of physical metallurgy as they apply particularly to the engineering metals and their alloys. Properties, characteristics, and structure of metals, theory of alloys, thermal processing, and studies in corrosion. (*Lec. 2, Lab. 3*) *Not open to students with credit in 333 or 437. Pre: CHM 101, 103, or 191.* Rockett

**333 Engineering Materials (I and II, 3)** First course in engineering materials devoted largely, but not exclusively, to physical metallurgy. Includes structure and properties of pure substances and binary systems at equilibrium and, when used intentionally, at nonequilibrium. (*Lec. 2, Lab. 3*) *Pre: junior standing or permission of instructor. Not open to students with credit in 332 or 437.* Rockett

**340 Materials Processing and Metrology I**  
See Industrial and Manufacturing Engineering 340.

**345, 346 Chemical Engineering Laboratory (I and II, 2 each)** Quantitative studies illustrating chemical engineering principles. Emphasis on report writing and the interpretation of experimental data. (*Lab. 6*) *Pre: 348.* Gray

**347 Transfer Operations I (I, 3)** Dimensional analysis; fluid statics; mass, energy, and momentum balances for fluid systems, boundary layers, turbulence, incompressible flow; flow through fixed beds of solids and fluidized beds; filtration. (*Lec. 3*) *Pre: credit or concurrent enrollment in 313 or MCE 341.* Staff

**348 Transfer Operations II (II, 3)** Heat transfer: conduction, convection, radiation. Mass transfer: distillation, liquid extraction, gas absorption; staged and differential contact. (*Lec. 2, Lab. 3*) *Pre: 347.* Staff

**349 Transfer Operations III (I, 2)** Diffusion and mass transfer, humidification and dehumidification, water cooling, absorption and ion exchange, drying, leaching. (*Lec. 2*) *Pre: 348.* Staff

**351, 352 Plant Design and Economics (I and II, 3 each)** Elements of plant design integrating the principles learned in previous courses. Emphasis is on optimum economic design and the writing of reports. (*Lec. 1, Lab. 6*) *Pre: 314 and 348.* Estrin

**391, 392 Honors Work (I and II, 1-3 each)** Independent study under close faculty supervision. Discussion of advanced topics in chemical engineering in preparation for graduate work. *Pre: junior standing or permission of chairperson.* Staff

**403, 404 Introduction to Ocean Engineering Processes I, II (I and II, 3 each)** Theory and basic principles directly applicable to ocean-related processes. Desalination, mining, combating oil spills, seawater as a coolant, seawater as a waste diluent, food processing, sulfur and petroleum production, recovery minerals. (*Lec. 2, Lab. 4*) *Pre: permission of instructor.* Barnett and Knickle

**425 Process Dynamics and Control (II, 3)** Principles involved in automatic control of processing plants. Modeling and responses of dynamic systems, feedback control. (*Lec. 3*) *Pre: MTH 243 and ELE 211 or 220 and credit or concurrent enrollment in 347 or MCE 354.* Staff

**437 Materials Engineering (I and II, 3)** Introduction to engineering aspects of the fundamentals of the solid state. Structural, chemical, and physical properties of engineering materials with

emphasis on ceramics, polymers, and composite materials. (Lec. 3) Pre: CHM 101, 103, or 191, or permission of chairperson. Brown

#### 438 Failure Analysis and Prevention (II, 3)

Failure analysis of engineering components. Examples of overload, fatigue, creep, corrosion, and electrical failures in metals, glasses, ceramics, composites, polymers, concrete, and semiconductors. Case studies, microscopic techniques, and prevention are emphasized. (Lec. 3) Pre: 332, 333, or 437. Brown or Gregory

#### 439 Nondestructive Evaluation of Materials (II, 3)

Nondestructive evaluation of the integrity of materials. X-ray, ultrasonic, acoustic, infrared, magnetic evaluation techniques in theory and practice. (Lec. 3) Pre: 332, 333, or 437. Brown and Gregory

447 (or FSN 447) Food Engineering (I, 4) Basic principles underlying unit operations of chemical engineering applied to food industries. Topics covered include heat transfer, fluid flow, extraction, and drying. (Lec. 3, Lab. 3) Pre: CHM 228, PHY 112, MTH 109, and permission of instructor. Not for major credit in chemical engineering. Barnett

464 Industrial Reaction Kinetics (I, 3) Modeling of simple chemical-reacting systems; computation of design parameters to satisfy system constraints and typical restraints (e.g., product rate and distribution) and conditions of optimality. (Lec. 3) Pre: 314 and CHM 432. Staff

491, 492 Special Problems (I and II, 1-6 each) Advanced work under the supervision of a staff member arranged to suit the individual requirements of the student. (Lec. or Lab. according to nature of the problem) Pre: permission of chairperson. May be repeated for a maximum of 12 credits. Not for graduate credit in chemical engineering. Staff

501, 502 Graduate Seminar (I and II, 1 each)

513 Advanced Chemical Engineering Thermodynamics (I, 3)

530 Polymer Chemistry (I, 3)

531 Polymer Engineering (I or II, 3)

532 Ceramic Engineering (I, 3)

533 Engineering Metallurgy (II, 3)

534 (or OCE 534) Corrosion and Corrosion Control (I, 3)

535 (or OCE 535) Advanced Course in Corrosion (II, 3)

537 (or OCE 537) Advanced Materials Engineering (II, 3)

539 Electron and Light Microscopy of Solids (I, 3)

540 Phase Equilibria (II, 3)

541 Transport Phenomena (I, 3)

542 Advances in Interfacial Phenomena (I, 3)

548 (or FSN 548) Separations for Biotechnology (II, 3)

549 (or FSN 549) Food and Biochemical Engineering III (II, 3)

560 Chemical and Physical Processes of Integrated Circuit Fabrication (I, 3)

572 X-ray Diffraction and Fluorescence (I, 3)

573 Mechanical Metallurgy (I or II, 3)

574 Biochemical Engineering I (I, 3)

583 Measurements in Nuclear Engineering (I, 3)

591, 592 Special Problems (I and II, 1-6 each)

## Chemistry (CHM)

Chairperson: Professor Fasching

099 Basic Chemistry Lecture (I, 3) Part one of a two-semester 101 sequence designed for students who need additional work in problem-solving skills. Successful completion of part one leads to a special section of 101 in the second semester. Not for General Education or program credit. S/U credit. J. Vittimberga

100 Chemistry of Our Environment (I and II, 3)

Elementary chemistry for nonscience majors, emphasizing chemical aspects of the human environment. Chemistry of the biosphere, pollution, and aspects of industrial chemistry. (Lec. 3) Peterson and Staff (N)

101 General Chemistry Lecture I (I and II, 3)

Fundamental concepts and principles in atomic structure, energy relationships, and reaction mechanisms balanced with applied and descriptive materials. (Lec. 3) Not open to students with received credit in 103 or 191. J. Vittimberga and Jacob (N)

102 Laboratory for Chemistry 101 (I and II, 1)

Experimental work illustrating certain concepts and principles of general chemistry. Experiments in solution, reaction rates, enthalpy, molar heat capacity, and electrochemistry. (Lab. 3) Pre: credit or concurrent enrollment in 101. Staff (N)

103 Introductory Chemistry Lecture (I, 3)

One-semester general chemistry course designed for students whose curriculums require the one-semester organic chemistry course, 124. (Lec. 3) Not open to students with credit in 101 or 191. Staff (N)

105 Laboratory for Chemistry 103 (I, 1) Fits course content of 103. (Lab. 3) Pre: credit or concurrent enrollment in 103. Staff (N)

112 General Chemistry Lecture II (I or II, 3)

Elementary thermodynamics, chemical equilibrium in aqueous solutions, properties and reactions of inorganic species, practical applications of chemical principles. (Lec. 3) Pre: 101 or 103. Not open to students with credit in 104. C. Brown and Nelson (N)

114 Laboratory for Chemistry 112 (I or II, 1)

Semimicroqualitative analysis and its applications. (Lab. 3) Pre: credit or concurrent enrollment in 112. Staff (N)

124 Introduction to Organic Chemistry (I and II, 3) Elementary principles of organic chemistry with emphasis on aliphatic compounds, especially those of physiological significance such as amino acids and proteins, carbohydrates, fats, and waxes. (Lec. 3) Pre: 101, 102 or 103, 105, and concurrent enrollment in 126 required when curriculum specifies laboratory. Not open to chemistry or chemical engineering majors. Jacob and Staff (N)

126 Laboratory for Chemistry 124 (I and II, 1)

Introduction to chemistry procedures, with emphasis on properties of substances of physiological significance. (Lab. 3) Pre: credit or concurrent enrollment in 124. Not open to chemistry or chemical engineering majors. Staff

191 General Chemistry (I, 5) Includes descriptive inorganic chemistry, qualitative analysis, and an introduction to quantitative analysis. Required for students in the chemistry curriculum who have had a year of high school chemistry. (Lec. 4, Lab. 3) Not open to students with credit in 101 or 103. Kirschenbaum (N)

192 General Chemistry (II, 5) Continuation of 191. (Lec. 4, Lab. 3) Zoski (N)

212 Quantitative Analysis (I, 4) Principles of gravimetric and volumetric analysis with detailed attention to solution of stoichiometric problems. Laboratory analysis of representative substances by gravimetric or volumetric procedures. (Lec. 3, Lab. 3) Pre: 112 and 114. Forcé

226 Organic Chemistry Laboratory (I and II, 2)

Common techniques and typical preparative methods in both aliphatic and aromatic series. (Lab. 6) Pre: concurrent enrollment in 227. Not open to students with credit in 229 or 230. Cheer

227 Organic Chemistry Lecture I (I or II, 3) General principles and theories with emphasis on classification, nomenclature, methods of preparation, and characteristic reactions of organic compounds in aliphatic series. (Lec. 3) Pre: 112 and 114 or 192. Cheer and B. Vittimberga

228 Organic Chemistry Lecture II (I or II, 3)

Continuation of 227 with emphasis on the aromatic series. (Lec. 3) Pre: 227. Cheer and B. Vittimberga

229 Organic Chemistry Laboratory I (SS, 1)

Common techniques and typical preparative methods in aliphatic series. Pre: credit or concurrent enrollment in 227. B. Vittimberga

230 Organic Chemistry Laboratory (II and SS, 1)

Continuation of 229 with emphasis on the aromatic series. Pre: 229 or equivalent and credit or concurrent enrollment in 228. Only for students requiring a second credit of organic laboratory. B. Vittimberga

291 Organic Chemistry (I, 4) Development of principles and theory through an examination of structure, nomenclature, and reactions of organic compounds. (Lec. 3, Lab. 3) Pre: 192 or permission of instructor. Not open to students with credit in 227. Rosen

292 Organic Chemistry (II, 4) Continuation of 291 with extension to several additional families of compounds. (Lec. 3, Lab. 3) Pre: 291. Not open to students with credit in 228. Rosen

335 Physical Chemistry Laboratory (I, 2)

Physical chemical properties of gases, liquids, and solutions; electrochemical cells; phase diagrams of binary and ternary systems; and chemical kinet-

ics. Designed for chemistry majors. (Lab. 4)

Pre: 431. May be taken concurrently with 431, 432. Freeman and Peterson

**353, 354 Undergraduate Research (I and II, 1-6 each)** Methods of approach to a research problem. Literature, laboratory work, and a report of an original problem or problems. (Lab. 3-18) Pre: permission of instructor. May be repeated for a maximum of 12 credits. Staff

**401 Intermediate Inorganic Chemistry (I, 3)** Principles of inorganic chemistry broadly related to structure and reactivity. Many-electron atoms bonding theories, acid-base concepts, coordination chemistry, reaction mechanisms. (Lec. 3) Pre: 432. Nelson

**402 Physical Inorganic Laboratory (II, 2)** Synthesis of inorganic compounds emphasizing inert atmosphere and vacuum line techniques; characterization by spectroscopic and electro-mechanical techniques. (Lab. 6) Pre: 401. Euler

**412 Instrumental Methods of Analysis (II, 3)** Theory and application of optical and electrical instruments to solution of chemical problems: flame photometry, emission spectroscopy, ultraviolet, visible, and infrared spectrophotometry, colorimetry, turbidimetry, nephelometry, fluorometry, potentiometry, voltametric titration methods. (Lec. 3) Pre: 228 and credit or concurrent enrollment in 432. C. Brown

**414 Instrumental Methods of Analysis Laboratory (II, 2)** Applications of instrumental methods to the solution of problems in analytical chemistry. (Lab. 6) Pre: credit or concurrent enrollment in 412. Forcé

**425 Qualitative Organic Analysis (I, 2)** Methods of identification of pure organic compounds. Separation of mixtures and identification of components by infrared and nuclear magnetic resonance spectroscopy. (Lab. 6) Pre: 292 or equivalent and credit or concurrent enrollment in 427. Staff

**427 Intermediate Organic Chemistry (I, 3)** Intermediate organic chemistry with emphasis on organic reaction mechanism, stereochemistry, spectroscopic characterization, and newer synthetic methods. (Lec. 3) Pre: 226, 228, or 292. Staff

**431, 432 Physical Chemistry I, II (I and II, 3 each)** 431: Gas laws, kinetic theory, laws of thermodynamics, chemical equilibrium, phase equilibria, and electrochemistry. 432: Atomic theory, quantum chemistry, bonding, molecular interactions, and chemical kinetics. (Lec. 3) Pre: 112 or 192, MTH 142, PHY 111 and 112 or PHY 213, 214, 285, and 286. May be taken for graduate credit only by undergraduates whose programs do not require physical chemistry. Yang and Peterson

**492 Seminar in Chemistry (II, 1)** Preparation and presentation of papers on selected topics in chemistry. Required of seniors in chemistry. (Lec. 1) Pre: prior or concurrent enrollment in 432. Not for graduate credit. Staff

**501 Advanced Inorganic Chemistry I (I or II, 3)**

**502 Advanced Inorganic Chemistry II (II, 3)**

**504 Physical Methods of Inorganic Chemistry (II, 3)**

**511 Advanced Analytical Chemistry I (I, 3)**

**512 Advanced Analytical Chemistry II (II, 3)**

**518 Radiochemistry (II, 3)**

**519 Theoretical Concepts in NMR (I, 3)**

**520 Interpretation of 1D NMR Spectra (II, 3)**

**521 Advanced Organic Chemistry I (I, 3)**

**522 Advanced Organic Chemistry II (II, 3)**

**524 Interpretation of 2D NMR Spectra (II, 3)**

**531 Advanced Physical Chemistry I (I, 3)**

**532 Advanced Physical Chemistry II (II, 3)**

**566 Foundations for Advanced Chemical Research (I or II, 2-6)**

## Chinese (CHN)

Chairperson: Professor Grandin (Modern and Classical Languages and Literatures)

**101 Beginning Chinese I (I and II, 3)** Fundamentals of grammar and pronunciation, exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior Chinese is required. Staff (F)

**102 Beginning Chinese II (I and II, 3)** Continuation of 101. (Lec. 3) Pre: 101 or equivalent. Staff (F)

**103 Intermediate Chinese I (I and II, 3)** Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. (Lec. 3) Pre: 102 or equivalent. Staff (F)

**104 Intermediate Chinese II (I and II, 3)** Continuation of 103. (Lec. 3) Pre: 103 or equivalent. Staff (F)

## Civil and Environmental Engineering (CVE)

Chairperson: Professor Urish

**216 Introduction to Civil and Environmental Engineering Systems (I, 3)** Introduction to a wide range of civil and environmental engineering topics. Emphasis on application of mathematical techniques and computer programming to the solution of problems. (Lec. 3) Pre: MTH 141 and CSC 201. Staff

**220 Mechanics of Materials (I and II, 3)** Theory of stresses and strains, thin-walled cylinders, beam deflections, columns, combined bending, and direct stresses, joints, indeterminate beams. (Lec. 3) Pre: MCE 162. Staff

**304 Introduction to Professional Practice I (I, 1)** Discussion with faculty and visiting engineers and other speakers on curriculum and career planning, professional practice and ethics, employment opportunities, and graduate study. (Lab. 2) Required of all juniors in civil engineering. Staff

**305 Introduction to Professional Practice II (I, 1)** Discussion with faculty and visiting engineers and other speakers on curriculum and career plan-

ning, professional practice and ethics, employment opportunities, and graduate study. (Lab. 2) Required of all seniors in civil engineering. Staff

**315 Surveying I (I, 3)** Theory and practice of plane surveying including use, care, and adjustment of surveying instruments, boundary surveys, horizontal and vertical curves, earthwork, and topography. (Lec. 2, Lab. 3) Pre: MTH 141. Offered in fall of even-numbered years. Staff

**322 Civil Engineering Laboratory (I and II, 2)** Properties and behavior of engineering materials. Directed work in concrete and experimental stress analysis. Independent student projects. (Lec. 1, Lab. 3) Pre: 220. Staff

**334 Construction Planning and Specifications (II, 3)** Introduction to construction planning; procedures involved in construction activities with major emphasis on heavy construction. (Lec. 3) Pre: 220. Offered in fall of odd-numbered years. Staff

**347 Highway Engineering (II, 4)** Principles of design of modern highways and streets including administrative and economic considerations; bituminous materials, pavements, geometric layout, drainage, construction, and maintenance. (Lec. 3, Lab. 3) Pre: 216. Lee

**352 Structural Analysis I (I, 3)** Structural systems: beams, frames, trusses; conjugate beam, virtual work, general method for indeterminate structures. Introduction to matrix methods. (Lec. 3) Pre: 220. Staff

**353 Structural Analysis II (II, 3)** Energy methods, slope deflection, moment distribution, influence lines, stability, matrix methods. Introduction to finite elements. (Lec. 3) Pre: 352. Staff

**370 Hydraulic Engineering (II, 4)** Applied hydraulics of flow in closed conduits and open channels. River and groundwater hydraulics. Analysis of hydraulic structures. Reservoir design. Principles of hydrology. (Lec. 3, Lab. 3) Pre: MCE 354. Wright

**374 Environmental Engineering (I, 4)** Urban water supply and treatment systems, sewerage treatment of municipal and industrial waste waters, stream pollution, air pollution, and disposal of solid waste materials. Methods of laboratory analysis for water and wastewater physical and chemical parameters. (Lec. 3, Lab. 2) Pre: MTH 243 or permission of chairperson. Thiem

**381 Geotechnical Engineering (I, 4)** Engineering properties of soils, seepage, consolidation theory, calculation of stresses, failure theories, shear strength of sand, shear strength of clay. Laboratory studies of physical properties, compaction, seepage, consolidation, and shear strength. (Lec. 3, Lab. 3) Pre: 220 and credit or concurrent enrollment in MCE 354. Kovacs, Silva, and Veyera

**391 Honors Work (I and II, 3)** Independent study under close faculty supervision. Discussion of advanced topics in civil engineering in preparation for graduate work. Pre: junior standing or permission of chairperson. Staff

**396 Civil Engineering Analysis (II, 3)** Problems from several fields of civil and environmental engineering solved by numerical methods with particular emphasis on use of electronic digital computers. Computer assignments in the area of each student's interest. (Lec. 2, Lab. 3) Pre: 216. Marcus

**442 Traffic Engineering (I, 3)** Highway traffic characteristics and methods of providing for an effective, free, and rapid flow of traffic. Types of studies, regulations, control devices and aids, planning and administration. (Lec. 2, Lab. 3) Pre: 347 or permission of instructor. Lee

**446 Transportation Engineering (II, 3)** Transportation planning and design, technological characteristics and design considerations of major transportation systems. (Lec. 3) Pre: 347 or permission of instructor. Lee

**453 Computer Analysis of Structures (I, 3)** Introduction to matrix methods of structural analysis. Solutions of planar structures using a digital computer. (Lec. 3) Pre: 353 and 396. Staff

**460 Analysis and Design of Metal Structures (II, 3)** Properties of metal; current design codes; practice for the design of steel structural components; simplified and computer-oriented methods of analysis and design. Nonlinearities. Comprehensive design problems. (Lec. 2, Lab. 3) Pre: 352. Not for graduate credit in civil and environmental engineering. Staff

**465 Analysis and Design of Concrete Structures (I, 3)** Current criteria and practice for design of reinforced and prestressed concrete structures. Elastic and ultimate strength analysis of beams, slabs, columns, and frames. Comprehensive design problems. (Lec. 3, Lab. 3) Pre: 353. Not for graduate credit in civil and environmental engineering. Staff

**470 Water and Wastewater Transport Systems I (II, 3)** Computer analysis of water storage and transmission. Design of water distribution and wastewater collection systems. (Lec. 3) Pre: 370 or 374 or permission of instructor. Thiem

**471 Water and Wastewater Treatment Systems II (I or II, 3)** Development of water quality standards. Design and analysis of physical, chemical, and biological treatment processes and their application to water and wastewater purification systems. (Lec. 2, Lab. 3) Pre: 374 or permission of instructor. Staff

**472 Industrial Air Pollution (I or II, 3)** Sources and characteristics of urban-industrial air pollution, allowable concentrations and control, stack sampling, chemical supplements in air pollution control, diffusion of pollutants, site selection and abatement programs. Air resources management programs. (Lec. 3) Pre: permission of chairperson. Staff

**474 Water Quality Sampling and Analysis (II, 3)** Laboratory and field work including sampling of surface and groundwater, chemical and biological analyses for water, monitoring, treated effluent quality control, and detection of hazardous con-

taminants. (Lec. 1, Lab. 6) Pre: 374 or permission of instructor. Offered in spring of odd-numbered years. Thiem

**475 Water in the Environment (II, 3)** Evaluation of water as a resource and its relation to the environment: hydrologic cycle, water budgets, water uses, drought, flood, current water problems. (Lec. 3) Pre: MTH 243 and CVE 374 or permission of instructor. Offered in spring of even-numbered years. Urish

**478 Hazardous Waste Disposal and Solid Waste Management (I or II, 3)** Sources, collection, treatment, and disposal of hazardous wastes and solid wastes. Conservation, recovery, and reuse of material. Economics of waste treatment, disposal, and reuse. (Lec. 3) Pre: junior standing or permission of chairperson. Poon

**483 (or OCE 483) Foundation Engineering (II, 3)** Applications of geotechnical engineering principles to analysis and design of shallow foundations. Topics include foundation types, bearing capacity, settlement analysis, shallow foundations, earth pressures, retaining walls, introduction to deep foundations. (Lec. 3) Pre: 381. Kovacs, Silva, and Veyera

**485 Engineering Geophysics**  
See Geology 485.

**491, 492 Special Problems (I and II, 1-6 each)** Advanced work under supervision of a staff member arranged to suit the individual requirements of the student. (Lec. or Lab. according to nature of problems) Pre: permission of chairperson. May be repeated for a maximum of 12 credits. Staff

**495 Civil and Environmental Engineering Systems (I, 3)** Civil and environmental engineering projects are studied, analyzed, designed, and discussed in areas of water resources, pollution control, geotechnics, structures, and transportation using systems techniques. (Lec. 3) Pre: senior or graduate standing in civil and environmental engineering. Marcus

**498 Civil Engineering Design (II, 3)** Elements of planning, design, and analysis of a civil engineering project integrating the principles learned in previous courses; a group project involving all major aspects of civil engineering design. (Lec. 1, Lab. 6) Pre: 304, 305, and senior standing. Not for graduate credit. Staff

**523 (or OCE 523) Coastal Structures (II, 3)**

**545 Pavement Design (I, 3)**

**546 (or CPL 546) Urban and Rural Transportation (I, 3)**

**547 Geometric Design of Highways (I, 3)**

**548 Pavement Materials and Mix Design (II, 3)**

**551 Finite Element Analysis in Civil Engineering (I or II, 3)**

**556 Variational Methods in Structural Engineering (I, 3)**

**560 Structural Design (I or II, 3)**

**565 Structural Dynamics (I or II, 3)**

**568 (or MCE 568) Theory of Plates (I or II, 3)**

**570 Sanitary Chemistry (I, 3)**

**571 Sanitary Chemistry Laboratory (II, 3)**

**572 Biosystems in Sanitary Engineering (I or II, 3)**

**573 Theory of Water Purification and Treatment (I, 3)**

**575 Open Channel Hydraulics (I or II, 3)**

**581 (or OCE 581) Experimental Geomechanics (I or II, 3)**

**582 (or OCE 582) Seabed Geotechnics (I or II, 3)**

**583 (or OCE 583) Advanced Foundation Engineering (I or II, 3)**

**585 Soil Dynamics (I or II, 3)**

**587 Groundwater Flow and Seepage Pressures (I, 3)**

**588 Groundwater Hydrology (II, 3)**

**591, 592 Special Problems (I, 1-6 each)**

**596 Numerical Methods in Structural Engineering (I or II, 3)**

## Classics (CLA)

Section Head: Assistant Professor Suter

**391 Ancient Laughter: The Comic Tradition in Greece and Rome (I or II, 3)** Introduction to the comic tradition in western literature through its origins in Greece and Rome. Readings in English translation include examples of comic drama, novel, and satire. (Lec. 3) Suter, Wright (A) (F)

**395 Greek Mythology: Gods, Heroes, and Humans (I and II, 3)** Nature and function of myth in the ancient world and today: ideas of divinity, relationship of divine to human, origins of cosmos and human society, male and female principles, power hierarchies, coming of age, the heroic experience. Theories of analysis. Readings in English translation. (Lec. 3) Suter, Wright (A) (F)

**396 Myths of Rome (I and II, 3)** Nature and function of myth in Roman society; origins and influence of Romanitas as found in Roman literature: history, epic, lyric, novel. Roman religion: magic, animism, anthropomorphism, and goddesses. Readings in English translation. (Lec. 3) Suter, Wright (A) (F)

**397 Greek Myth and Tragedy (I or II, 3)**

Relationship between Greek myth and classical tragedy, birth and evolution of tragedy (ancient, French, English, American), employment of the same myth for different dramatic and political purposes. Readings in English translation. (Lec. 3) Suter, Wright (F)

## Communication Skills (CMS)

**101 College Communication Skills (I and II, 6)** An integrated, interdisciplinary approach to the acquisition of communication skills. Instruction given in composition and oral communication utilizing a theoretical model common to both. Not open to students with credit or concurrently enrolled in SPE 101 or WRT 101. Schwegler, Martin, and Brownell (Cw) (C)

## Communications

### Communication Skills

- 101 College Communication Skills

### Journalism

- 220 Introduction to News Reporting and Writing  
320 Public Affairs Reporting and Writing  
321 Magazine Article and Feature Writing

### Speech Communication

- 101 Fundamentals of Oral Communication  
103 Interpersonal Communication  
215 Argumentation and Debate  
220 Group Discussion  
302 Advanced Public Speaking Writing

### Writing

- 002 Writing Lab  
101 Composition  
112 English as a Second Language I  
122 English as a Second Language II  
123 College Writing for Returning Students  
201 Intermediate Writing  
227 Business Communications  
301 Advanced Writing  
333 Scientific and Technical Writing

## Communicative Disorders (CMD)

*Chairperson:* Associate Professor Singer

**260 Speech Development and Correction (II, 3)**  
Normal development of human speech, causes of speech and hearing disorders, and techniques of speech and hearing rehabilitation. For those in teaching, nursing, guidance, psychology, and education of the physically handicapped and mentally retarded. (Lec. 3) Staff

**261 Survey of Hearing and Deafness (II, 3)**  
Introduction to the science of audiology. Pathologies of the hearing mechanism, basic methods of audiometry, interpretation of the audiogram, hearing aids, and rationale and methods in hearing conservation programs. Observations and practice in the Rhode Island Hospital Hearing and Speech Center. (Lec. 3) Staff

**372 Auditory and Speech Mechanisms (I, 3)**  
Structure and function of the organs of hearing and speech as they relate to normal and pathological communication; theories of cortical involvements, central and peripheral nervous systems relevant to rehabilitation procedures. (Lec. 3) *Pre: junior standing and permission of chairperson.* Staff

**373 Phonetics (I, 3)** International Phonetic Alphabet; analysis of phonetic and phonemic elements in major American English dialects; practice in transcription of standard and defective speech. (Lec. 3) *Pre: junior standing.* Beaupre and Staff

**374 Communication Processes (I, 3)** Psycho-communication processes basic to speech; theories of language learning; psychology of hearing

and deafness; interrelationships between speech and personality. (Lec. 3) *Pre: junior standing.* Beaupre

**375 Language Development (I, 3)** Development phenomena in speech and language; causal factors of delayed speech and language; survey of evaluative and habilitative programs for children with deviant language development. (Lec. 3) *Pre: junior standing.* Staff

**376 Hearing and Speech Science (II, 3)** Physical properties and speech signal, analysis of the physical bases of speech production and speech perception. (Lec. 3) *Pre: 372 and 6 credits in natural sciences.* Staff

**378 Introduction to Aural Habilitation and Rehabilitation (II, 3)** Effects of hearing loss on human development, the nonmedical remediation of hearing loss, and the application of public laws to the hearing-impaired child. (Lec. 3) *Pre: 261 or equivalent.* Hurley

**391, 392 Honors Work (I and II, 1-3 each)** Thesis work or an equivalent independent project under faculty supervision for honors students participating in the University honors program. *Pre: admission to departmental honors program.* Staff

**465 Clinical Methods in Communicative Disorders (I and II, 4)** Observation of diagnosis and treatment of communicative disorders; developing interviewing, report writing, and counseling techniques; introduction to diagnostic procedures; establishing therapeutic goals, treatment, and remediation of various disorders. (Lec. 3, Lab. 2) *Pre: 260, 261, and three of the following—372, 373, 374, 375, 376.* Not for graduate credit in communicative disorders. Staff

**475 Gestural Communication (II, 3)** Visual language systems with emphasis on the cherology and syntax of Ameslan, and levels of language among deaf communicators; finger spelling and sign language for educational, rehabilitative, and artistic goals studied. (Lec. 2, Lab. 2) *Pre: junior or graduate standing.* Beaupre

**491, 492 Special Problems (I and II, 1-3 each)** Selected areas of study pertinent to communicative disorders. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. Staff

**504 Speech and Hearing Research (II, 3)**

**506 Speech and Hearing Science (I, 3)**

**551 Measurement of Hearing (I, 3)**

**552 Advanced Measurement of Hearing (II, 3)**

**553 Pediatric Audiology (I, 3)**

**554 Rehabilitative Audiology (I, 3)**

**555 Amplification for the Hearing Impaired (II, 3)**

**556 Electrophysiological Measures in Audiology (II, 3)**

**560 Disorders of Phonation (II, 3)**

**561 Articulation Disorders (I, 3)**

**564 Language Disorders in School-Aged Children (II, 3)**

**567 Clinical Practicum in Speech Pathology (I and II, 1-3)**

**568 Clinical Practicum in Audiology (I and II, 1-3)**

**569 Diagnostic Procedures (I, 3)**

**570 Clinical Practicum in Communicative Disorders (I or II, 1-5)**

**572 Medical Audiology (I, 3)**

**573 Contemporary Problems in Audiology (II, 3)**

**574 Environmental Audiology (II, 3)**

**577 Speech and Language for Hearing Impaired (II, 3)**

**580 Augmentative Communication (II, 3)**

**581 Cerebral Palsy (I, 3)**

**582 Motor Speech Disorders (II, 3)**

**584 Language Disorders in Developmentally Young Children (I, 3)**

**585 Aphasia and Allied Language Disorders (II, 3)**

**586 Alaryngeal Speech (I, 3)**

**591 Contemporary Issues in Speech and Language Pathology (II, 3)**

**592 Stuttering and Cluttering (I, 3)**

## Community Planning (CPL)

*Director:* Professor Feld

**410 Fundamentals of Urban Planning (I or II, 3)**  
Survey of urban planning principles, methods, and techniques pertinent to contemporary urban problems. History of city forms and functions and development of urban planning as a profession. Problems and priorities in shaping the future urban environment. (Lec. 3) *Primarily for students not enrolled in the graduate curriculum in community planning and area development.* Kupa

**434 Introduction to Environmental Law (II, 3)**  
Surveys issues arising out of laws designed to protect the environment and manage resources: right to a decent environment, government regulation versus private property rights, citizen participation in planning environmental controls. (Lec. 3) *Primarily for students not enrolled in the graduate curriculum in community planning and area development.* Schatz

**501 Introduction to Community Planning Practice (I, 3)**

**510 Community Planning and Political and Social Change (II, 3)**

**511 Planning and Natural Environmental Systems (I, 3)**

**512 Spatial and Fiscal Relationships of Communities (I, 3)**

**516 (or MAF 516) Seminar on the Urban Waterfront (I, 3)**

**522 Planning Law (I, 3)**

**523 Planning Theory (I, 3)**

**525 Introduction to Planning Methods (I, 3)**

**526 Planning and Policy Analysis (II, 3)**

**530 Urban Design and Public Policy (I or II, 3)**

**535 Human Resources Planning (I or II, 3)**



- 536 **International Comparisons in Urban and Regional Planning** (I, 3)  
 537 (or REN 532) **Land Resources Economics** (I, 3)  
 538 **Site Planning** (II, 3)  
 539 **Environmental Law** (II, 3)  
 541 **Urban and Rural Housing Policy** (II, 3)  
 543 **Social Indicator Analysis in Planning** (I, 3)  
 545 **Land Development Seminar** (I, 3)  
 546 (or CVE 546) **Urban and Rural Transportation** (I, 3)  
 547 **Planning Behavior and Organizations** (II, 3)  
 549 **Seminar in Ecological Planning** (II, 3)  
 591, 592 **Special Problems in Planning** (I or II, 1-6 each)  
 593-598 **Special Problems in Planning** (I or II, 1-6 each)

## Comparative Literature Studies (CLS)

*Coordinator:* Associate Professor Dvorak (English)

160 **Masterpieces of Literature**  
 See English 160.

235 (or PHL 235) **Modern Thought: Philosophy and Literature** (I or II, 3) Introduction to recent thought in philosophy and literature. Emphasis on Kierkegaard, Marx, Nietzsche, Freud, Sartre, and complementary literary texts. (Lec. 3) *Team-taught.* Kuhn and Johnson (L)

250 **Themes and Myths** (I or II, 3) Study of the evolution and transformation of a myth or theme in several national literatures. An introduction to a comparative and interdisciplinary approach. (Lec. 3) *May be repeated for credit as often as topic changes. May be taken once for General Education credit.* Fall 1992: *The World of Business.* Trivelli (A)

335 (or ENG 335) **Interdisciplinary Studies in Comparative Literature** (I or II, 3) Study of the interrelationships of two or more national literatures (in translation) with another discipline. (Lec. 3) *May be repeated for credit as often as topic changes.* Staff (A)

350 (or ENG 350) **Literary Theory and Criticism** (I or II, 3) Introduction to theories of literature and their application in the analysis of selected texts. (Lec. 3) *May be repeated for credit as often as topic changes.* Staff (C)

450 **Studies in Comparative Literature** (I or II, 3) Detailed study of literary movement, genre, or an aspect of literature as seen in two or more literatures. (Lec. 3) *Pre: 6 credits in literature or permission of instructor. May be repeated for credit as often as topic changes.* Staff

510 **Introduction to Comparative Literature** (I or II, 3)

520 **Literary Theory and Criticism** (I or II, 3)

530 **Approaches in Comparative Literature** (I or II, 3)

597 **Special Problems** (I and II, 1-6)

## Computer Science (CSC)

*Chairperson:* Associate Professor Lamagna

101 **Computing Concepts** (I or II, 3) Capabilities and limitations of computers. Applications of computers in today's society. Overview of computing systems and programs. Students will complete several projects using a computer. (Lec. 3) *Not open to students who have credit in any college-level computer science course. Not open to computer science majors.* Staff

200 **Introduction to Computer Programming for Engineers** (I or II, 3) Computer programming in FORTRAN; application to engineering problems. VAX/VMS DCL; noninteractive computer graphics. (Lec. 3) *Pre: credit or concurrent enrollment in MTH 141. Designed for engineering students. Only one of 200, 201, or 211 may be taken for credit.* Staff

201 **Introduction to Computing** (I and II, 3) Computer characteristics, algorithms, data representation, program development. Students will write several programs to solve numerical and nonnumerical problems. (Lec. 3) *Pre: MTH 111 or equivalent. Not for major credit in computer science. Students may not earn credit for both 201 and 211.* Staff (M)

205 **Computational Methods for Engineers and Scientists** (I, 3) Roots of equations and systems of equations, curve fitting, plotting, integration, errors. Students will write several programs to solve numerical problems. (Lec. 3) *Pre: 201 or 211, credit or concurrent enrollment in MTH 142. Not for major credit in computer science.* Staff

211 **Introduction to Computer Science I** (I and II, 3) Algorithm development, programming and program structure, data representation, organization and characteristics of computers. Students will write several programs to solve numerical and nonnumerical problems. (Lec. 3) *Pre: prior experience with computers and programming and MTH 111 or equivalent. Students may not earn credit for both 201 and 211. Intended for computer science majors.* Staff

212 **Introduction to Computer Science II** (I and II, 3) Fundamentals of software engineering including programming style, development, testing, maintenance, and evaluation. Structured data types. Data structures and their implementation. Principles of recursion. (Lec. 3) *Pre: 201 or 211 and MTH 141. Intended for computer science majors.* Staff

301 **Fundamentals of Programming Languages** (II, 3) Syntactic and semantic issues in programming languages. Topics include scanners, recursive descent parsers, interpreters, direct and continuation semantics, run-time structures, and data abstraction. Several significant programming exercises. (Lec. 3) *Pre: 212.* Staff

311 **Machine and Assembly Language Programming** (II, 3) Introduction to machine and assembly language programming for a particular computer. Instruction definitions, machine representations of data and instructions, programming tech-

niques. Computer solution to several numerical and nonnumerical problems. (Lec. 3) *Pre: 212.* Staff

312 **Advanced Assembly Language Programming** (I, 3) Continuation of 311. Subprograms, macro-level input and output, decimal and floating-point representations, conversions between data representations, macro definitions. (Lec. 3) *Pre: 311. In alternate years. Next offered fall 1994.* Staff

320 **Social Issues in Computing** (I, 3) Discussion of the social and ethical issues created by the use of computers. The problems that computers solve and those that they produce. Ethics and responsibilities of the computer professional. (Lec. 3) *Pre: 212, junior standing, or permission of instructor. In alternate years. Next offered fall 1993.* Staff

331 **Data Structures** (I, 3) Implementation and manipulation of lists, trees, graphs, arrays, and other data structures. Searching and sorting methods. File structures and data management. Data structures in programming languages. (Lec. 3) *Pre: 212 and 340 or MTH 447 (or CSC 447).* Staff

340 **Applied Combinatorics** (II, 3) Combinatorial techniques used in nonnumerical computation and analysis of algorithms. Topics include enumeration, recurrence relations, graphs and networks. Complexity analysis of several representative problems and algorithms for their solutions. (Lec. 3) *Pre: 212 and credit or concurrent enrollment in MTH 215.* Staff

402 **Compiler Design** (I, 3) Grammars and languages; lexical analysis, parsing and translation, symbol tables, run-time storage administration, object code generation. Students will construct a compiler for a small programming language. (Lec. 3) *Pre: 301 and 331.* Staff

406 **Computer Graphics** (II, 3) Interactive raster graphics; hardware, software, and algorithms. Point plotting, line drawing, geometrical transformations, clipping and windowing. Three-dimensional graphics including curves, surfaces, perspective, hidden objects, shading. User interfaces; graphical programming environments. (Lec. 2, Lab. 2) *Pre: 331 and MTH 215 and 243.* Staff

411 **Computer Organization** (I, 3) Logical structure of computer systems viewed as a hierarchy of levels. Topics include digital logic, microprogramming, processor organization, addressing techniques, instruction sets, virtual memory, assemblers, linkers, and loaders. (Lec. 3) *Pre: 311.* Staff

412 **Operating Systems** (II, 3) Presentation of the general concepts underlying operating systems. Topics include process management, concurrency, scheduling, memory management, information management, protection and security, modeling and performance. (Lec. 3) *Pre: 311 and 331.* Staff

420 **Software Engineering** (II, 3) Programming environments and methodologies for the design, development, testing, and maintenance of large

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## Community Planning (CPL)

*Director:* Professor Feld

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Surveys issues arising out of laws designed to protect the environment and manage resources: right to a decent environment, government regulation versus private property rights, citizen participation in planning environmental controls. (Lec. 3) Primarily for students not enrolled in the graduate curriculum in community planning and area development. Schatz

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**526 Planning and Policy Analysis (II, 3)**

**530 Urban Design and Public Policy (I or II, 3)**

**535 Human Resources Planning (I or II, 3)**

**135 Technique: Clinical Dental Hygiene I (I, 1)** An introduction to knowledge and skills essential for the performance of dental hygiene services. Emphasis on principles of instrumentation and perfecting clinical competence on manikin heads and laboratory partners. (*Practicum 6, Lec. 1*) *Pre: permission of chairperson. For dental hygiene majors only.* Staff

**136 Clinical Dental Hygiene II (II, 2)** Development of clinical skills. Application of the basic principles of oral inspection, charting, radiology, fluoride application, and dental health education. (*Practicum 14, \* Lec. 1*) *For dental hygiene majors only.* Staff

**141 Dental Assisting (I, 1)** Lectures, clinical observations, and practice devoted to methods of assisting dentists. (*Practicum 4*) *For dental hygiene majors only.* Staff, Regional Dental Center, Newport

**227 General and Oral Pathology (I, 3)** Significance, signs, symptoms, and relationship of general disease to oral disease. Stress on manifestation of oral pathology and clinical recognition of atypical or abnormal oral conditions and disease. (*Lec. 3*) *For dental hygiene majors only.* Aschaffenberg

**231 Roentgenology (I, 2)** Lectures, demonstrations, and laboratory practice. Study of nature and behavior of X-rays, extra- and intra-oral radiographic techniques and procedures. Recognition and interpretation of information revealed by radiographic examination. (*Lec. 1, Lab. 2*) *For dental hygiene majors only.* Brown and Staff

**237 Clinical Dental Hygiene III (I, 2)** Continuation of 136. (*Practicum 20\**) *For dental hygiene majors only.* Staff

**238 Clinical Dental Hygiene IV (II, 2)** Continuation of 237. (*Practicum 20\**) *For dental hygiene majors only.* Staff

**244 Dental Materials and Operative Technique (II, 1)** Study of physical, chemical, and mechanical properties of materials used in dentistry. Laboratory procedures develop skill in preparation, manipulation, and use of materials relevant to the practice of dental hygiene. (*Lec. Practicum 3 for 8 weeks*) *For dental hygiene majors only.* Coletti

**248 Legal and Ethical Responsibilities in Dental Practice Management (II, 2)** Ethics and legal responsibilities relating to the practice of dental hygiene and dentistry. Emphasis on principles of practice management in private practice and in the specialty areas. (*Lec. 2*) *For dental hygiene majors only.* Staff

**252 Community Health (II, 3)** Philosophy and background of public health practice. Review of current health concepts, practice, needs, and problems. Emphasis on methods for promotion of optimal health for all. Supervised field experiences. (*Lec. 3*) *For dental hygiene majors only.* Brown

**350 Dental Health Education (II, 3)** Educational philosophy, teaching methods, and acquisition of skills in methods of research. Investigation, review,

interpretation, and critical evaluation of scientific literature as the basis for dental health education. (*Lec. 3*) *For dental hygiene majors only.* Brown

**462 Oral Care of the Aged and Medically Compromised (I, 3)** Practical approach for the health-related professional. Emphasis on recognition of oral disorders, oral health care strategies, and principles of prevention for the aged and chronically ill. (*Lec. Field Study 3*) *Pre: ZOO 242 and HCF 220 or permission of instructor. For dental hygiene majors only.* Saunders

**464 Field Experience in Community Oral Health (II, 3)** Directed field experience in dental health education in cooperation with community-based agencies. Weekly seminar. The experience will be defined by a job description and learning contract or letter of intent arranged by the instructor with the student and the agency supervisor. *Pre: 252 or permission of instructor. For dental hygiene majors only.* Brown

## Earth Science

*See courses offered by the Department of Geology.*

## Economics (ECN)

*Chairperson:* Associate Professor Ramsay

**125, 126 Economic Principles I, II (I and II, 3 each)** Principles underlying the organization and functioning of the economic system. Description and analysis of institutions and market forces affecting the production and distribution of goods and services, business fluctuations, and international trade. (*Lec. 3*) *Pre: 125 for 126 or permission of chairperson.* Staff (S)

**300 Radical Critiques of Contemporary Political Economy (II, 3)** Radical right and radical left critiques. Radical views on values, methodology, production planning, income distribution, economic power, the military-industrial complex, imperialism, and racial and sexual discrimination. (*Lec. 3*) *Pre: 125 or permission of instructor.* Staff (S)

**301 Labor Economics (I or II, 3)** Impact of industrialization on workers; survey of the basic principles of labor market organization and operation; unemployment and remedies; wage determination under union and nonunion conditions. (*Lec. 3*) *Pre: 125 and 126.* Miller

**302 Economic Development of the United States (I or II, 3)** Developmental factors in American economic life introduce students to the past and present business environment. (*Lec. 3*) *Pre: 126 or permission of chairperson.* Ramstad

**323 Intermediate Microeconomics (I, 3)** Theory of consumer behavior, the firm, market equilibrium, general equilibrium, imperfect competition, optimization over time, and linear models. Models of microeconomics are developed using calculus and linear algebra. *Pre: 125, 126, MTH 141, 142, 215.* Miller

**324 Intermediate Macroeconomics (II, 3)** Theory of consumption, investment, monetary and fiscal policy, static and dynamic models, economic growth, unemployment, and inflation. Macroeconomics developed using calculus and linear algebra. *Pre: 125, 126, MTH 141, 142, 215.* Lardaro

**327 Intermediate Economic Theory: Income and Employment (I or II, 3)** Measurement of national income. Theory of the determination of the general level of income, employment, and prices. Business fluctuations. (*Lec. 3*) *Pre: 125 or 126 or 590 or permission of instructor.* Staff

**328 Intermediate Economic Theory: Pricing and Distribution (I or II, 3)** Market conditions and forces affecting the pricing and production of goods and services, the allocation of resources, and the distribution of income. (*Lec. 3*) *Pre: 126 or permission of instructor.* Staff

**334 Money and Banking (II, 3)** Structure and functioning of monetary institutions. Analyses of monetary theories. The role of monetary policy. U.S. banking structure: its operations and functioning. (*Lec. 3*) *Pre: 126 or permission of instructor.* Barnett

**337 Business and Government (I or II, 3)** Historical and present attitudes and policies of various levels of government toward the changing structure of American business. Emphasis on legal and economic concepts of business activity. (*Lec. 3*) *Pre: 125 or 126 or permission of instructor.* Hellman

**338 International Economics (I or II, 3)** Theory and evidence on international trade and finance. Includes determinants and welfare effects of foreign trade, international investment, migration, exchange rates, and the balance of payments. (*Lec. 3*) *Pre: 125 or permission of instructor.* Burkett

**342 Public Finance (II, 3)** Examination of the theory and practice of public expenditures, revenues, and fiscal policy with major emphasis on federal fiscal affairs. (*Lec. 3*) *Pre: 125 or 126 or permission of instructor.* Starkey

**344 International Financial Economics (II, 3)** History, theory, and politics of the international financial system. Topics include the foreign exchange market, international banking, macroeconomic stabilization under fixed and floating exchange rates, exchange rate reform, and the global debt crisis. (*Lec. 3*) McIntyre

**351, 352 Assigned Work (I and II, 3 each)** Special work in economics when it can be arranged to meet the needs of individual students who desire independent work. (*Lec. 3*) *Pre: 125 or 126 or permission of instructor. S/U credit.* Ramsay

**361 A Survey of Economic Thought (I and II, 3)** Economic thought from Middle Ages to present; characteristics of classical, neo-classical, and contemporary doctrinal developments. (*Lec. 3*) *Pre: 125 or 126 or permission of instructor.* Ramstad (S)

**363 Economic Growth and Development**

(I or II, 3) Basic problems in economic growth and development of so-called backward or preindustrial countries. Emphasis on population trends, agrarian reforms, capital formation, international aid programs, respective roles of private and public enterprise. (Lec. 3) Pre: 125 or 126 or permission of instructor. Sharif

**374 Introduction to Quantitative Methods in Economics** (I or II, 3) Survey of the basic quantitative tools used by economists: mathematics, statistics, and computer software. (Lec. 3) Pre: 125 and 126. Staff

**375 Introduction to Quantitative Methods I** (I, 3) Mathematical techniques used in modern economic theory. Linear algebra, the calculus of several variables, constrained maximization, and differential equations. Application to economic problems. (Lec. 2, Lab. 2) Pre: 125, 126, and MTH 141, or permission of instructor. Miller

**376 Introduction to Econometrics** (I, 4) Application of econometric methods to economic problems. Econometric tools applied to micro- and macro-economic problems. (Lec. 3, Lab. 2) Pre: 126 or permission of instructor. Lardaro

**402 Urban Economics** (I or II, 3) Analysis of selected economic problems of urban areas. Development of methodological approaches through discussion of policy issues. (Lec. 3) Pre: 125 or 126 or permission of instructor. Mead

**403 Corporate Crime and Government Regulation** (I, 3) Analysis of illegal corporate activity and the problems of social control through law and enforcement. Emphasis on the regulatory process and the impact of regulation and deregulation on the concentration of capital and on health, safety, and the environment. (Lec. 3) Barnett

**404 Political Economy of Class, Race, and Gender** (I, 3) Theoretical and empirical analysis of class, race, and gender differentials in income and wealth within the framework of structural versus individual characteristics. Special attention paid to economic development, labor markets, the educational system, and the state. Pre: 126 or permission of instructor. Starkey

**444 Applied Research in Economics** (II, 3) The application of economic theory, econometrics, and computing to specific problems. Emphasis on formulation of hypotheses in mathematical form, transformation into forms suitable for empirical testing, testing using the computer, report writing, and oral presentation. Pre: 323, 324, and 376. Staff

**464 Comparative Economic Systems** (I or II, 3) Theory and evidence concerning the influence of economic systems (capitalism, planned socialism, and market socialism) on national economics performance (growth, development, efficiency, equity, stability) and international economic relations (trade and finance). (Lec. 3) Pre: 125 or 126 or permission of instructor. Burkett

**512 History of Economic Analysis** (I, 3)

**515, 516 Economic Research** (I and II, 1-3 each)

**526** (or LRS 526) **Economics of Labor Markets** (I, 3)

**527 Macroeconomic Theory** (II, 3)

**528 Microeconomic Theory** (I, 3)

**532 Industrial Organization and Public Policy** (II, 3)

**534** (or LRS 534) **Information Sources and Uses in Labor Relations and Labor Economics** (I, II, and SS, 3)

**538 International Economics** (II, 3)

**543 Public Finance and Fiscal Policy** (II, 3)

**544 International Financial Economics** (II, 3)

**552 Monetary Theory and Policy** (II, 3)

**566 Economic Planning and Public Policy in Developing Nations** (II, 3)

**575 Introduction to Mathematical Economics** (I, 3)

**576 Econometrics** (I, 4)

**590 Principles of Economics** (I and II, 3)

**595 Problems of Modernization in Developing Nations** (II, 3)

**Education (EDC)**

*Chairperson:* Assistant Professor Kellogg

**102 Introduction to American Education** (I and II, 3) Introduction to the fundamental structure, functions, and problems of American education. Emphasis on education as both a sociocultural phenomenon and an embodiment of philosophical commitments. *Not for major credit in elementary and secondary education programs.* (Lec. 2, Rec. 1) Staff (S)

**250 Supervised Preprofessional Field Experience** (I or II, 1) Supervised early field experience and seminar for students wishing to explore one or more possible career choices in education. Pre: permission of chairperson. May be repeated for credit. Staff

**279 Career Development Seminar** (I and II, 1) Individualized approach to career concerns, skill identification, self-awareness, career development theory, decision making. Emphasis on understanding long- and short-term goals. Staff

**302 Topics in Educational Studies** (I and II, 3) Consideration of basic purposes, values, and changes in American education as a means of analyzing selected topics drawn from foundational studies in education. Topics vary. (Lec. 3) Pre: sophomore standing or permission of instructor. Staff

**312 The Psychology of Learning** (I and II, 3) An analysis of learning with emphasis on principles and procedures applicable to any human teaching and learning situation. (Lec. 3) Pre: PSY 113. Staff (S)

**329 Music for the Elementary School Teacher** See Music 329.

**350 Primary School Practicum** (II, 1) Students apply methodology in a public school setting for grades K-2 for three hours each week for 10 weeks.

Lessons are taught and principles of classroom management, individualized instruction, and integrated curriculum are applied. (Practicum) Pre: HCF 150, 200, and acceptance into the early childhood education program. Trostle and Staff

**360 Foundations of American Education** (I or II, 3) An analysis of historical, social, and philosophical foundations of American education, emphasizing theory and practice in contemporary schools and the relevance and appropriateness of the educational values schools reflect. (Lec. 3) Pre: open to students admitted to concentrations in elementary or secondary education. Student must be accepted into the education program. Russo and Willis

**371 Educational Measurements** (I and II, 3) An analysis of concepts and procedures involved in creating, selecting, summarizing, and using tests and other measurement devices in educational settings. (Lec. 3) Pre: 312. Staff

**401 Development and Utilization of Instructional Materials** (I and II, 3) Methods of developing and making classroom application of selected materials: nonprojected, projected, and audio. Specific attention to utilization in the social sciences, English, reading, the natural sciences, the humanities, arithmetic, and mathematics. (Lec. 1, Lab. 4) Pre: senior standing and 6 hours of education. Howard

**402 The Education of Special Needs Students** (I and II, 3) Legislative, judicial, social, and psychological issues related to the assessment, identification, and remediation of special needs students' problems in the regular and special education classroom. (Lec. 3) Pre: PSY 232 or HCF 200 and EDC 312. Staff

**403 History of Education** (I, 3) Study of main currents of educational thought in historical perspective; relevance of past educational movements and practices to the contemporary school. (Lec. 3) Pre: junior standing. Staff

**407 Philosophy of Education** (I and II, 3) Examines influence of philosophical ideas on education. Questions on reality, knowledge, and value examined from different views to analyze controversial issues in theory and practice. (Lec. 3) Pre: junior standing. Russo

**410 Seminar and Supervised Field Practicum in Education of the Aging** (I and II, 3) Adult educational methods as applied to older adults, including preretirement education, current education programs for the elderly, and evaluation of educational activities with the aging. (Lec. 2, Lab. 3, Practicum 150 hours) Pre: 581 or permission of chairperson. Staff

**424 Teaching of Reading** (I and II, 3) Philosophy, materials, and methods underlying the teaching of reading with special emphasis on developing understanding. (Lec. 3) Pre: 312 or graduate standing. Staff

**425 The Use of Trade Books in the Reading Program** (I, 3) Understanding and using children's literature as an extension of elementary school

textbooks with emphasis on broadening the classroom teacher's instructional philosophy. (Lec. 3) Staff

**426 Methods and Materials in Primary School Teaching (II, 3)** Principles and practices of developing knowledge and skills in social studies, math, science, music, art, physical education, and language arts for grades pre-one, one, and two. (Lec. 3) Pre: HCF 301. Open only to elementary education early childhood option majors. Not for graduate credit in education. Trostle

**427 Methods and Materials in Elementary Teaching I (I and II, 3)** Language arts and reading principles and practices of guiding children in skillful use of basic means of communication (speaking, listening, writing, and reading). (Lec. 3) Pre: PSY 113 and 232, EDC 312, concurrent enrollment in EDC 428, and permission of chairperson. Open only to elementary education majors. Not for graduate credit in education. Staff

**428 Methods and Materials in Elementary Teaching II (I and II, 3)** Principles and practices of developing skills and knowledge in social studies, math, and science with elementary school children. (Lec. 3) Pre: PSY 113 and 312, EDC 312, concurrent enrollment in EDC 427, and permission of chairperson. Concurrent enrollment in 250 required. Open only to elementary education majors. Not for graduate credit in education. Staff

**429 Emergent Literacy (II, 1)** History and foundations of beginning reading, writing, and language development, and contemporary and practical applications of literacy activities, including language experience projects and storytelling. Focuses on the young child from birth to five years. (Lec. 1) Pre: credit or concurrent enrollment in 424. Not for graduate credit. Trostle and Staff

**430 Methods and Materials in Secondary Teaching (I and II, 3)** Principles of education and human sciences as related to curricular materials and classroom situations. Sectioned by academic major: business, English, mathematics, modern language, science, social studies. (Lec. 3) Pre: 102, 312, PSY 232, senior standing, and permission of instructor. Concurrent enrollment in 250 required. Open only to secondary education majors. Second semester only for students in the College of Business Administration. Not for graduate credit in education. Staff

**435 The Teaching of Composition**  
See Writing 435.

**444 Teaching of Agribusiness and Natural Resources (I, 3)** Organization of instructional programs; development of resource units, teaching plans, methods, techniques, and occupational experience programs. (Lec. 3) Pre: 102 and 312. Not for graduate credit in education. McCreight

**448 Reading in the Content Areas (I, 3)** Emphasis on the development of specialized vocabulary, textbook reading techniques, and other study skills needed to read math, science, social studies, business, and other content area materials. (Lec. 3) Pre: 312 or permission of the chairperson. Staff

**453 Individual Differences (I, 3)** Analyzing the needs of various student populations with attention given to the concomitant values, resources, and curriculum modifications necessary for success in learning. Pre: acceptance into the elementary education program or permission of the chairperson. Not for graduate credit. First offered fall 1992. Staff

**454 Individual Differences Field Component (I, 1)** Supervised field experience related to 453 consisting of special education, language minority, compensatory education, gifted and talented, and at-risk students. Pre: acceptance into the elementary education program or permission of the chairperson. Not for graduate credit. First offered fall 1992. Staff

**478, 479 Problems in Education (I and II, 0-3 each)** Advanced work in education, conducted as seminars or as supervised individual projects. (Lec. or Lab.) Pre: permission of chairperson. Staff

**484 Supervised Student Teaching (I and II)** Under selected and approved critic teachers, students participate in classroom teaching and other school activities for a period determined by credit to be earned. Areas include: secondary nonvocational, S/U credit; elementary education, S/U credit; home economics, S/U credit; resource development; business; music; theatre. Pre: methods course(s) of department involved. Not for graduate credit in education. Staff

**485 Seminar in Teaching (I and II, 3)** Practicum for teachers, their immediate problems, use of resource materials, and cooperative help of other members of seminar. Areas include: secondary nonvocational, elementary education, home economics, resource development, business, music, physical education (S/U only), theatre. (Lec. 3) Pre: concurrent enrollment in 484 and permission of chairperson. Not for graduate credit in education. Staff

**486 Student Teaching in Elementary Physical Education (I and II, 6)** Under selected and approved critic teachers, students participate in classroom teaching and other school activities. Pre: methods courses of department. Not for graduate credit in education. Staff

**487 Student Teaching in Secondary Physical Education (I and II, 6)**  
See 486.

**488 Student Teaching in Special Physical Education (I and II, 6)**  
See 486.

**489 Student Teaching in Health Education (I and II, 6)**  
See 486.

**502 The Modern Curriculum Movement (I, 3)**

**503 Education in Contemporary Society (II, 3)**

**504 Adult Basic Education (I and II, 3)**

**505 Leadership Development in Adult Programs (I or II, 3)**

**508 Introductory Curriculum Development (I, II, and SS, 3)**

**509 Critique of Public Policy in Human Services and Education (I and II, 3)**

**514 Current Trends in Elementary Education (I, 3)**

**515 Discipline and Youth in Schools (I or II, 3)**

**516 Teaching English as a Second Language to Adults (II, 3)**

**517 Teaching Social Studies in the Elementary School (I, II, and SS, 3)**

**518 Teaching Science in the Elementary School (I or II, 3)**

**520 Teaching of Arithmetic (I, 3)**

**521 Teaching Basic Reading to Adults (I or II, 3)**

**522 Microcomputer Applications in the Classroom (I and II, 3)**

**528 Teaching Language Arts (II, 3)**

**529 Foundations of Educational Research (I and II, 3)**

**530 Qualitative Research and Evaluation (I or II, 3)**

**531 School-Home Relations (I or II, 3)**

**534 Mathematics in the Secondary School (II, 3)**

**535 Classroom Observation and Evaluation (I or II, 3)**

**538 Teaching the Gifted and Talented (I or II, 3)**

**539 Evaluation and Monitoring of Occupational Training Programs (I or II, 3)**

**540 (or PSY 540) Learning Disabilities: Assessment and Intervention (SS, 3)**

**548 Applications of Reading in the Content Areas (II, 3)**

**561 Analysis of Reading Disabilities (I, 3)**

**562 Techniques in Remedial Reading (II, 3)**

**563 Teaching Reading to Multicultural Populations (I, 3)**

**565 Analysis and Evaluation of Current Research in Reading (I, 3)**

**566, 567 Practicum in Reading (I and II, 3 each)**

**569 Middle School Curriculum (SS, 3)**

**570 Elementary School Curriculum (II, 3)**

**571 The Secondary School Curriculum (II, 3)**

**572 Cooperative Supervision (I and II, 3)**

**574 Current Trends in Secondary Education (I and II, 3)**

**575, 576 Supervised Field Study and Seminar in Elementary or Secondary Education (I and II, 3)**

**577 Organization and Administration in Elementary School (I, 3)**

**579 (or LRS 579) Labor Relations and Collective Bargaining in Education (I or II, 3)**

**580 Organizing and Administering Youth Programs (I or II, 3)**

**581 Administering Adult Programs (I or II, 3)**  
**582 Instructional Systems Development for Adult Programs (I, 3)**

**583 Planning, Design, and Development of Adult Learning Systems (I, 3)**

**584 The Adult and the Learning Process (I and II, 3)**

**586, 587 Problems in Education (I and II, 0-3 each)**

**588, 589 Supervised Field Practicum and Seminar in Youth and Adult Education (I and II, 3)**

**594 Organization and Supervision of Reading Programs (II, 3)**

**596 (or HCF 562) Organization Development in Education (II, 3)**

## Electrical Engineering (ELE)

*Chairperson:* Professor Lindgren

*Admission to all 200-level courses in electrical engineering is limited to students formally transferred to the College of Engineering. Exceptions are possible, with permission of the ELE department, for advanced students in other disciplines.*

**201 Digital Circuit Design (I, 3)** Logic gates, Boolean algebra, combinatorial and sequential circuits, analysis and design of sequential systems, multi-input system controllers, asynchronous finite state machines. (Lec. 3) *Pre: sophomore standing.* Staff

**202 Digital Circuit Design Laboratory (I, 1)** Laboratory experience in digital electronics; logic design projects using standard integrated circuits. (Lab. 3) *Pre: credit or concurrent enrollment in 201.* Staff

**205 Microprocessor Laboratory (I and II, 3)** Hands-on familiarization with computer and microprocessor software and hardware. Computer architecture and interfacing with input and output devices. (Lec. 2, Lab. 3) *Pre: credit or concurrent enrollment in MTH 141.* Staff

**210 Introduction to Electricity and Magnetism (I, 3)** Static electric and magnetic fields; Gauss's, Coulomb's, and Ampere's laws; capacitance and inductance. Behavior of electric charges in stationary and time-varying fields. Lumped versus distributed parameters; electric circuit concepts, principles, and theorems. (Lec. 3) *Pre: MTH 142 and PHY 213.* Staff

**211 Linear Systems and Circuit Theory (I, 3)** Application of Kirchoff's laws and mathematical models for circuit elements to predict responses of electrical circuits to input signals and to initial condition. Complexity is limited to first and second order differential equations. (Lec. 3) *Pre: MTH 142 or PHY 214.* Staff

**212 Linear Circuit Theory (II, 3)** Kirchoff's Laws, DC-resistive networks, dependent sources, natural and forced response of first- and second-order circuits, sinusoidal steady-state response, phasors, AC power. (Lec. 3) *Pre: MTH 243 and credit or concurrent enrollment in 362.* Staff

**214 Circuits Laboratory I (I, 1)** DC measurements, resistive circuits, the oscilloscope, time constants of first order circuits, operational amplifiers, natural response of second order circuits, combinational digital logic circuits. (Lab. 3) *Pre: credit or concurrent enrollment in 211.* Staff

**215 Linear Circuits Laboratory (II, 2)** DC measurements, natural and step response of first- and second-order circuits, AC measurements, impulse and frequency response, operational amplifier circuits. (Lec. 1, Lab. 3) *Pre: credit or concurrent enrollment in 212.* Staff

**220 Passive and Active Circuits (II, 3)** Electrical circuit laws and theorems, transient and steady-state response, phasors, frequency response, resonance. Diode and transistor circuits, digital logic devices. (Lec. 3) *Not open to electrical engineering majors. Pre: PHY 204, 214 or ELE 210.* Staff

**221 Electronic Instruments and Electromechanical Devices (I, 3)** Amplifiers, frequency response, feedback, field effect transistors, operational amplifier applications, electrical measurements. Magnetic circuits, transformers, electromechanical transducers, and systems, DC and AC machines. (Lec. 3) *Not open to electrical engineering majors. Pre: 220.* Staff

*Prerequisites for all 300-level courses in electrical engineering include mathematics through MTH 243, ELE 210 or PHY 214, ELE 211, 212, 214, and 215. Additional prerequisites are indicated with each course. Exceptions are possible, with permission of the Department of Electrical Engineering, for advanced students in other disciplines.*

**313 Linear Systems (I, 3)** Fourier series, Fourier transform, bilateral Laplace transform, transfer function, transient and steady-state response, natural response and stability, signal flow graphs, convolution integral, introduction to state-space analysis. (Lec. 3) *Pre: 212.* Staff

**314 Linear Systems and Signals (II, 4)** Continuous-time and discrete-time systems, frequency response, stability criteria, z-transforms, filters, sampling, introduction to controls systems, and applications. Students will design a system and report on its characteristics. (Lec. 3, Rec. 1) *Pre: 313.* Staff

**322 Electromagnetic Fields I (I, 3)** Electrostatics and magnetostatics, forces on charged particles. Analysis employs vector algebra and vector calculus in orthogonal coordinates. Simple applications to engineering problems. (Lec. 3) *Pre: MTH 243 and one of the following—ELE 210, PHY 204 or 214.* Staff

**323 Electromagnetic Fields II (II, 4)** Transmission lines, Maxwell's equations, wave equation, reflection and refraction phenomena, waveguides and antennas. Design projects requiring application of electromagnetic theory and use of numerical methods. (Lec. 3, Rec. 1) *Pre: MTH 362 and ELE 322.* Staff

**331 Introduction to Solid State Devices (I, 3)** Properties of solids, chiefly semiconductors, which are utilized in modern electronic devices. The physics of these materials and devices is stressed, but some time is devoted to fabrication technology and applications. (Lec. 3) *Pre: PHY 306 or 341 or equivalent.* Staff

**342 Electronics I (II, 4)** Introduction to diode and transistor circuits. Biasing, analysis, and design of BJT and FET amplifiers. SPICE, power amplifiers, digital logic families, TTL, ECL, CMOS. (Lec. 3, Lab. 3) *Pre: 212, 215, and 331.* Staff

**391, 392 Honors Work (I and II, 1-3 each)** Independent study and seminar-type work under close faculty supervision. Discussion of advanced topics in electrical engineering in preparation for graduate work. *Pre: junior standing and permission of chairperson.* Staff

*Prerequisites for all 400-, 500-, and 600-level electrical engineering courses include mathematics through calculus (MTH 243), at least 6 credits in circuit theory, and 3 credits in electromagnetic fields. Additional prerequisites are indicated with each course. Some circuits and fields prerequisites may be waived for 481, 482, 545, 588, and 589 for students with suitable backgrounds.*

**401 Lasers, Optical Systems, and Communications (I, 4)** Concepts of modern optics, coherence, diffraction, and Fourier Optics, optical resonators, Gaussian beam optics, laser fundamentals, and light amplification. Course includes a design project concerning an optical system or instrument. (Lec. 3, Lab. 3) *Pre: 323.* Staff

**405 Digital Computer Design (II, 3)** Hardware implementation of digital computers. Arithmetic circuits, memory types and uses, control logic, basic computer organization, microprogramming, input/output circuits, microcomputers. (Lec. 3) *Pre: 205 or CSC 311.* Staff

**408 Computer Organization Laboratory (II, 4)** Engineering design problems involving modern microprocessor systems, operation of ALVs, data paths, control units, input/output, and memory systems. (Lec. 2, Lab. 5) *Pre: 405 or CSC 311.* Staff

**427 Electromechanical Systems Laboratory (I, 4)** State-variable models. Electromechanical devices and systems in translation and rotation. Design of sensors, actuators, and systems as used in control applications. (Lec. 3, Lab. 3) *Pre: 313 and 322.* Staff

**432 Electrical Engineering Materials (II, 4)** Continuation of 331. Electronic and optical properties of materials, mainly semiconductors, applied to the performance and design of electronic devices. Measurements and analysis of these properties will be performed in the laboratory. (Lec. 3, Lab. 3) *Pre: 331 or equivalent.* Staff

**436 Communication Systems (I, 4)** Representation of signals and noise. Basic principles of modulation and demodulation. Waveform and digital transmission systems. Design of a component of a communication system. (Lec. 4) *Pre: 313 and 314.* Staff

**437 Computer Communications (II, 3)** Computer networks, layering standards, communication fundamentals, error detection and recovery, queuing and delay—throughput trade-offs in networks, multiple-access channels, design issues in wide and local area networks. (Lec. 3) *Pre: 436 or MTH 451 or IME 411.* Staff

**443 Electronics II (I, 5)** Signal flow graph analysis techniques, biasing and stability, small signal amplifiers, frequency response characteristics, operational amplifiers, SPICE, and nonlinear circuits. Computer-aided design of amplifiers and active filters. (Lec. 3, Lab. 5) Pre: 342. Staff

**444 Advanced Electronic Design (II, 4)** Design of advanced digital circuits, distributed circuits, circuit and logic simulation, interfacing, designs based on MSI and LSI components, EPROMS, and PALS. (Lec. 3, Lab. 3) Pre: 342. Staff

**447 VLSI Design and Simulation (II, 4)** Design and simulation of digital integrated circuits. Extensive use of software tools such as magic, circuit extractors, and simulators. Student designs are fabricated and tested. (Lec. 2, Lab. 5) Pre: 342. Staff

**457 Feedback Control Systems (I, 3)** Fundamental techniques for the analysis and design of linear feedback systems. Stability, sensitivity, performance criteria, Bode diagrams, Nyquist criterion, root locus techniques, state variables, and compensation methods. (Lec. 3) Pre: 313. Staff

**458 Systems Laboratory: Digital Control Laboratory (II, 4)** Design of digital control systems using state-space techniques. State feedback and observers. Laboratory includes computer simulation and hardware implementation of control laws for electromechanical systems. (Lec. 3, Lab. 3) Pre: 457 or permission of instructor. Staff

**482 Biomedical Engineering Seminar (II, 1)** Selected topics in biomedical engineering research from current scientific literature. Presented by students and invited staff. Pre: permission of chairperson. Ohley

**491, 492, 493 Special Problems (I and II, 1 each)** Special engineering problems assigned to student according to his or her interests and capabilities. (Lec. or Lab.) Pre: permission of instructor. Staff

**495 Electrical Engineering Practice I (I, II, or SS, 3)** Industrial experience in electrical engineering at companies or government laboratories selected by department. Student works on a design or other engineering project under supervision of engineers from industry and URI faculty. Major written report required. Pre: senior standing in electrical engineering and permission of chairperson. Not for graduate credit in electrical engineering. Staff

**501 Linear Transform Analysis (I, 3)**

**502 Nonlinear Systems Analysis (I or II, 3)**

**503 (or MCE 503) Linear Control Systems (I or II, 3)**

**504 (or MCE 504) Optimal Control Theory (II, 3)**

**506 Digital Signal Processing (II, 3)**

**509 Systems with Random Inputs (I or II, 3)**

**510 Communication Theory (II, 3)**

**511 Engineering Electromagnetics (I, 3)**

**514 Microwave Electronics (I or II, 3)**

**515 Quantum Electronics (I or II, 3)**

**525 Fiber Optic Communication Systems (II, 3)**

**526 Fiber Optic Sensors (II, 3)**

**527 Current Topics in Lightwave Technology (I, 3)**

**531 Solid State Engineering I (I and II, 3)**

**532 Solid State Engineering II (I and II, 3)**

**535 Transistor Circuits (I and II, 3)**

**536 Semiconductor Electronics (I or II, 3)**

**537 VLSI System Design (I or II, 3)**

**538 Principles of Remote Sensing (I or II, 3)**

**539 Analog VLSI (I or II, 3)**

**542 Fault-Tolerant Computing (I or II, 3)**

**544 Computer Arithmetic for VLSI (II, 3)**

**545 Design of Digital Circuits (I, 3)**

**546 Computer-Based Instrumentation (I, 3)**

**548 Computer Architecture (I and II, 3)**

**549 Computer System Modeling (I, 3)**

**571 (or OCE 571) Underwater Acoustics I (I, 3)**

**575 (or MTH 575) Approximation Theory and Applications to Signal Processing (II, 3)**

**581 (or CSC 581) Special Topics in Artificial Intelligence (I or II, 3)**

**582 Robotics (I or II, 3)**

**583 (or CSC 583) Computer Vision (I, 3)**

**584 (or EST 584) Pattern Recognition (II, 3)**

**588 Biomedical Engineering (I, 3)**

**591, 592 Special Problems (I and II, 1-3 each)**

## Engineering (EGR)

**101 Introduction to Engineering (I or II, 3)** Introduction to various engineering curricula. Highlights of programs and research areas in chemical, material, civil and environmental, electrical, computer, industrial and manufacturing, mechanical, and ocean engineering. (Lec. 3) Staff

**102 Basic Graphics (I, 1)** Theory of orthographic projection and principles of descriptive geometry, construction of exact drawings of three-dimensional objects including auxiliary views, pictorial drawings, cross-sections and dimensioning, free-hand sketching. (Lab. 3) Staff

**411 Advanced Technical German (II, 3)** Seminar on advanced scientific and engineering topics in an international context. All reading, discussion, and associated writing is conducted in German. (Lec. 3) Pre: any 400-level course in German and senior standing in an approved engineering program. Not for graduate credit. Lengyel and Karamanlidis

## English (ENG)

Acting Chairperson: Professor Stineback

**103 Introduction to Literature**

See Writing 103.

**160 (or CLS 160) Masterpieces of Literature (I and II, 3)** Introduction to the major works of world literature. (Lec. 3) Staff (A)

**205 Creative Writing (I and II, 3)** Various types of creative composition: essays, stories, and poetry. Students analyze work by class members and by professional writers. Only students with an aptitude for writing should elect this course. (Lec. 3) Pre: permission of instructor. Staff

**232 The Evolution of the English Language (I and II, 3)** The history of English from its German origins, through the Norman Conquest, the Renaissance, and the Age of Enlightenment. Special attention to the cultural forces which molded a standard dialect. (Lec. 3) Staff (S)

**241, 242 American Literature I, II (I and II, 3 each)** 241: Selections from American literature, beginnings to the mid-nineteenth century. 242: Selections from American literature, mid-nineteenth century to the present. (Lec. 3) 241 not required for 242. Staff (A)

**243 The Short Story (I and II, 3)** Critical study of the short story from the early nineteenth century to the present. (Lec. 3) Staff (A)

**247 (or AAF 247) Introduction to Pan-African Literature (II, 3)** Comparative survey of major themes, genres, and motifs in the literature of Africa, the Caribbean, and Black America. Study of both oral and written literature with emphasis on the religious, historical, sociopolitical, and cultural ideas of black people. (Lec. 3) Staff (A)

**248 (or AAF 248) Afro-American Literature from 1900 to Present (II, 3)** Survey of modern Afro-American literature from publication of DuBois' *Souls of Black Folk* (1903) to the present. Also includes study of the literature of the Harlem Renaissance and the Black Arts Movement of the 1960s and 1970s. (Lec. 3) Staff (A)

**251, 252 English Literature I, II (I and II, 3 each)** 251: Selections from English literature, beginnings to 1798. 252: Selections from English literature, 1798 to the present. Staff (A) for 251; (A) (F) for 252.

**260 Women and Literature (I and II, 3)** Critical study of selected topics. (Lec. 3) Staff (A)

**263 The Poem (I and II, 3)** Introduction to the study of poetry. (Lec. 3) Staff (A)

**264 The Drama (I and II, 3)** Introduction to the study of drama. (Lec. 3) Staff (A)

**265 The Novel (I and II, 3)** Introduction to the study of novels. (Lec. 3) Staff (A)

**270 Literature of the Bible (I and II, 3)** Introduction to poetry and narrative in the Old Testament and the Apocrypha, primarily in the Authorized (King James) Version. (Lec. 3) Staff

**280 Shakespeare (I and II, 3)** Introduction to the major plays and poetry of Shakespeare. (Lec. 3) Staff (A)

**300 Literature into Film (I and II, 3)** Analysis of themes, techniques, and form in literature and film aimed at developing critical appreciation of printed and film narratives. Emphasis will alternate between fiction and drama. May not be repeated. Staff

**305 Advanced Creative Writing (I and II, 3)** Provides further training for students especially talented in creative writing. Increased emphasis on

independent projects in longer forms of prose and poetry. (Lec. 3) *Pre: 205 and permission of chairperson.* Staff

**310 Techniques of Critical Writing (I and II, 3)** Practice in the writing of literary criticism. Methods of literary analysis illustrated and applied to specific works. (Lec. 3) Staff

**330 The Structure of American English (I and II, 3)** A comparison of prescriptive and descriptive grammars and their effect on our attitudes concerning American English. The influence of contemporary language studies on literary criticism and the teaching of English. (Lec. 3) Staff (S)

**335 Interdisciplinary Studies in Comparative Literature**  
See Comparative Literature Studies 335.

**336 The Language of Literature (I and II, 3)** An introduction to those linguistic theories which have recently been applied to literary style, meaning, and evaluation. Intensive study of the language of a particular writer or work. (Lec. 3) Staff

**337 Varieties of American English (I and II, 3)** A study of the regional and social varieties of American English with emphasis on and field work in New England dialects. (Lec. 3) Staff

**340 Literary Heritage of New England to 1860 (I and II, 3)** Literature of New England through the colonial, national, and romantic periods to the Civil War. Field trips will be taken to important literary sites. (Lec. 3) Staff

**346 American Film Classics (I and II, 3)** Study of major American film genres (the Western, Film Noir, Screwball Comedy) and of prominent American directors (Ford, Hitchcock, Hawks). *Emphasis will vary.* (Lec. 3) Tutt and Kunz

**347 American Romanticism (I and II, 3)** Poetry and prose of the American Romantic Movement. Focus on Irving, Poe, Emerson, Thoreau, Hawthorne, Melville, and others. (Lec. 3) Staff

**348 American Realism (I and II, 3)** Major developments in American Realism and Naturalism. Emphasis on the work of Twain, Howells, Crane, James, Dreiser. (Lec. 3) Staff

**349 Modern American Literature (I and II, 3)** Poetry, drama, and fiction of the period during and since World War I. Emphasis on major figures such as Frost, Eliot, Stevens, O'Neill, Faulkner, Hemingway, and others. (Lec. 3) Staff

**350 Literary Theory and Criticism**  
See Comparative Literature Studies 350.

**360 Africana Folk Life**  
See African and Afro-American Studies 360.

**362 (or AAF 362) Afro-American Poetry and Drama (I, 3)** Critical study of Afro-American poetry and drama in the continued oral and written heritage of Africa and America. Focus on Hughes, Dunbar, Walker, Bullins, Baraka, Giovanni, Baldwin. (Lec. 3) Staff

**363 (or AAF 363) Afro-American Fiction (I, 3)** Critical study of the linguistic and thematic development of the Afro-American short story and novel. Focus on Wells Brown, Dunbar, Bontemps, Hughes, Wright, Elison, Margaret Walker, Morrison, Reed, Alice Walker, and Baldwin. (Lec. 3) Staff

**364 (or AAF 364) The African Novel (II, 3)** Critical study of contemporary African writers, with a focus on the literary traditions and issues expressed in the novel. (Lec. 3) *Pre: AAF 250.* Staff

**366 Greek and Roman Drama (I, 3)** Survey of Greek and Roman drama with special emphasis on art and achievement of major dramatists: Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, Terence, and Seneca. (Lec. 3) Staff (F)

**367 The Epic (I and II, 3)** Studies in epic literature from Homer to the modern period. Historical emphasis will vary with instructor. (Lec. 3) Staff

**370 British Literature of the Middle Ages (II, 3)** Introduction to various types of medieval literature, usually read in modern English versions. Chronicle and romance, lyric and satire, visionary and homiletic writings, drama. (Lec. 3) Staff

**371 British Literature of the Renaissance I (I and II, 3)** Study of developments in sixteenth century poetry and prose with emphasis on the nondramatic works of More, Wyatt, Sidney, Spenser, Marlow, Shakespeare, and others. (Lec. 3) Staff

**372 British Literature of the Renaissance II (I and II, 3)** Study of developments in prose and poetry of the seventeenth century, especially the works of Bacon, Donne, Johnson, Browne, Herbert, Marvell, Milton, and others. (Lec. 3) Staff

**374 British Literature of the Enlightenment (I and II, 3)** Study of major trends in verse, satire, prose, drama, and fiction from the late seventeenth and eighteenth centuries in such writers as Dryden, Congreve, Swift, Johnson, and Sterne. (Lec. 3) Staff

**376 British Romanticism (I and II, 3)** Major poetry and significant nonfiction prose of Burns, Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and others. (Lec. 3) Staff

**377 Victorian Literature (I and II, 3)** Poetry, nonfiction prose, and novels from the early Victorian to the Edwardian periods. Emphasis on writers such as Carlyle, Browning, Dickens, Tennyson, Arnold, Hardy, Hopkins, Wilde, and others. (Lec. 3) Staff

**379 Modern British Literature (I and II, 3)** Poetry, drama, nonfiction prose, and selected fiction of the modern period. Emphasis on the work of Conrad, Joyce, Lawrence, Yeats, Thomas, and others. (Lec. 3) Staff

**380 Chaucer (I and II, 3)** Selections from Chaucer's major poems, read in Middle English. (Lec. 3) Staff

**384 Milton (I and II, 3)** Poetry and prose of John Milton, with special emphasis on *Paradise Lost*. (Lec. 3) Staff

**385 Women Writers (I and II, 3)** Analysis of the poetry, drama, or fiction of women writers. Emphasis on nineteenth-century, twentieth-century, or contemporary authors. Course may be repeated for credit when taken with different emphasis. (Lec. 3) Staff

**394, 395 Independent Study (I and II, 1-3 each)** Extensive individual study and research, culminating in a substantial essay. *Pre: permission of chairperson. May be repeated for a maximum of 6 credits.* Staff

**397 The Literary Landscape of Britain (SS, 3)** Taught in England, second summer session. Examines impact of English social and natural landscape on and their treatment in selected literary works. (Lec. 3) *Usually taught in conjunction with HIS 397.* Staff (F)

**399 Special Topics in Literature (I and II, 3)** Specialized topics in the study of literature offered by specialists in the field. (Lec. 3) Staff

**445 Ethnic Images in American Literature (II, 3)** Critical study of writings by and about various ethnic groups in American literature. (Lec. 3) *Pre: permission of instructor.* Staff

**446 Modern Drama (I and II, 3)** Studies in representative works by modern American, British, Irish, and continental playwrights. (Lec. 3) Staff

**447 Modern British and American Poetry (I and II, 3)** Studies in major contributions and movements in British and American poetry from 1900 to present. (Lec. 3) Staff

**448 Traditions of the American Novel (I and II, 3)** Studies in the development of the American novel up to 1900. (Lec. 3) Staff

**458 Traditions of the British Novel (I and II, 3)** Studies in the development of the British novel up to 1900. (Lec. 3) Staff

**468 Traditions of the Continental Novel (I and II, 3)** Studies in major developments of the European novel (excluding England and Ireland) up to 1900. (Lec. 3) Staff

**469 The Modern Novel (I and II, 3)** Studies in major developments in the novel since 1900, with primary emphasis on the British, American, or the continental novel. (Lec. 3) Staff

**472 Shakespeare's Plays (I and II, 3)** Critical studies in Shakespeare's drama. May be repeated once with alternate syllabus. (Lec. 3) Staff

**474 (or AAF 474) Topics in Pan-African Literature (II, 3)** Intensive study of specific authors, literary movements, or comparative themes in African and Afro-American literatures. (Lec. 3) *May be repeated for credit.* Staff



- 477 **Traditions of British Drama** (*I and II, 3*)  
Studies in major developments in British drama up to 1900. (*Lec. 3*) Staff
- 485 **American Authors** (*I and II, 3*) Intensive study of the work of one or two outstanding American writers. May be repeated, barring duplication of writers being studied. (*Lec. 3*) Staff
- 486 **British Authors** (*I and II, 3*) Intensive study of the work of one or two outstanding British writers. May be repeated, barring duplication of writers being studied. (*Lec. 3*) Staff
- 499 **Senior Seminar** (*I and II, 3*) Intensive study of literature and literary criticism as a discipline through selected works and authors, English and American, culminating in a substantial research project. (*Lec. 3*) *Open only to senior English majors.* Staff
- 510 **Bibliography and Literary Research** (*I or II, 3*)
- 530 **History of the English Language** (*I, 3*)
- 531 **History of Critical Theory** (*I, 3*)
- 532 **Modern Literary Criticism** (*I, 3*)
- 534 **Structure of the English Language** (*I or II, 3*)
- 535 **Old English** (*II, 3*)
- 536 **Problems in Linguistics and Literature** (*I or II, 3*)
- 540 **Modern American Novel** (*I, 3*)
- 545 **Problems in American Realism and Naturalism** (*I, 3*)
- 546 **Problems in American Romanticism** (*I, 3*)
- 547 **Early American Literature to 1800** (*II, 3*)
- 549 **Modern American Poetry** (*I or II, 3*)
- 550 **Middle English Literature** (*I or II, 3*)
- 551 **The Metaphysical Poets** (*I, 3*)
- 554 **Modern British Poetry** (*I, 3*)
- 555 **Modern British Novel** (*I, 3*)
- 556 **English Literature of the Sixteenth Century** (*II, 3*)
- 557 **English Literature of the Seventeenth Century** (*I, 3*)
- 558 **English Literature of the Eighteenth Century** (*II, 3*)
- 559 **English Literature of the Romantic Period** (*I, 3*)
- 560 **English Literature of the Victorian Period** (*II, 3*)
- 561 **Modern European Novel** (*II, 3*)
- 570 **Anglo-Irish Writers** (*II, 3*)
- 571 **Problems in Chaucer** (*II, 3*)
- 573 **Problems in Shakespeare** (*II, 3*)
- 574 **The Scots' Poetic Tradition Through Robert Burns** (*II, 3*)
- 575 **Modern Southern Literary Renaissance** (*II, 3*)
- 576 **English Novel of the Eighteenth Century** (*I, 3*)
- 577 **English Novel of the Nineteenth Century** (*II, 3*)
- 578 **Problems in Milton** (*II, 3*)
- 580 **Selected Topics in Women and Literature** (*I or II, 3*)
- 590 **Selected Topics** (*I and II, 3*)

## Environmental Topics

### Animal and Veterinary Science

- 101 Introduction to Animal Science  
323, 324 Animal Management I, II

### Aquacultural Science and Pathology

- 281 Introduction to Aquaculture  
381 Shellfish Aquaculture  
401 Introduction to Pathology  
555, 556 Pathology Rotation

### Botany

- 101 Biology of Plants  
111 General Botany  
216 Algae, Fungi, and Human Affairs  
262 Introductory Ecology  
455 Marine Ecology  
457 Marine Ecology Laboratory

### Civil and Environmental Engineering

- 374 Environmental Engineering  
470, 471 Water and Wastewater Transport Systems I, II  
472 Industrial Air Pollution  
474 Water Quality Sampling and Analysis  
475 Water in the Environment  
478 Hazardous Waste Disposal and Solid Waste Management  
570 Sanitary Chemistry  
571 Sanitary Chemistry Laboratory  
572 Biosystems in Sanitary Engineering  
573 Theory of Water Purification and Treatment  
588 Groundwater Hydrology

### Community Planning

- 434 Introduction to Environmental Law  
511 Planning and Natural Environmental Systems  
538 Site Planning  
539 Environmental Law  
545 Land Development Seminar  
549 Seminar in Ecological Planning

### Fisheries Science and Technology

- 200 Introduction to Marine and Freshwater Science  
315 Living Aquatic Resources  
415 Fishery Science  
510 Applied Problems in Marine Fisheries Ecology  
516 Early Life History of Aquatic Resource Animals

### Food Science and Nutrition

- 523 Water Pollution Microbiology  
525 Water Pollution Microbiology Laboratory

### Geology

- 100 Environmental Geology  
103 Physical Geology  
210 Geomorphology  
301 Geology of Mineral Resources  
401 Ore Deposits  
450 Introduction to Sedimentation and Stratigraphy  
468 Hydrogeochemistry  
483 Hydrogeology  
485 Engineering Geophysics  
515 Glacial Geology  
568 Isotopes in Hydrogeology  
577 Coastal Geologic Hazards  
583 Advanced Hydrogeology

### Management

- 380 Business and Society

### Marine Affairs

- 100 Human Use and Control of the Marine Environment  
120 Maritime New England  
220 Introduction to Marine and Coastal Law  
312 The Politics of the Ocean  
315 Marine Pollution Policy  
410 Problems in Marine Affairs  
456 Polar Resources and Policy  
461 Coastal Zone Uses  
471 Island Systems  
511 Ocean Uses and Marine Science  
512 Seminar in Marine Science Policy and Public Law  
520 Seminar in Coastal Margin Management  
523 Fisheries Law and Management  
526 Landsat Remote Sensing and Analysis  
571 Marine Geography  
572 Management of Ocean Regions  
577 International Ocean Law  
579 Marine Jurisdictional Issues  
586 Environmental Impact Assessment and Analysis

### Mechanical Engineering

- 434 Thermal Environmental Engineering

### Microbiology

- 211 Introductory Microbiology  
523 Water Pollution Microbiology  
525 Water Pollution Microbiology Laboratory

### Natural Resources Science

- 100 Natural Resource Conservation  
212 Introduction to Soil Science  
300 Seminar in Natural Resources  
301 Introduction to Forest Science  
302 Fundamentals of Forest Management  
304 Field Ornithology  
305 Principles of Wildlife Management  
312 Methods in Soil and Water Analysis  
324 Biology of Mammals  
351 Soil Morphology Practicum  
399 Natural Resources Internship  
401 Forested Watershed Hydrology  
402 Wildlife Biometrics  
406 Wetland Wildlife Management  
410 GIS Methods in Environmental Management  
423 Wetland Ecology  
424 Wetlands and Land Use  
444 Current Issues in Natural Resources Policy  
450 Soil Conservation and Land Use  
451 Soil Conservation Technology  
461 Hydrology and Water Management  
500 Graduate Seminar in Natural Resources  
505 Biology and Management of Migratory Birds  
510 Soil-Water Relations  
512 Chemistry of Soils and Sediments  
514 Fate of Organic Chemicals in Soils and Sediments  
522 Advanced GIS Analysis of Environmental Data  
524 Wetland Mapping and Evaluation  
526 Microbial Ecology of Soils and Sediments  
532 Conservation Biology

534 Ecology of Fragmented Landscapes  
 567 Soil Genesis and Classification  
 568 Recent Advances in Natural Resources Science

#### Ocean Engineering

101 Introduction to Ocean Engineering  
 307 Coastal Engineering Design  
 410 Basic Ocean Measurements  
 411 Basic Coastal Measurements

#### Oceanography

123 Oceans, Atmosphere, and Global Change

#### Pharmacology and Toxicology

546 Advanced Toxicology

#### Physics

130 Physics and Climatic Change

#### Plant Sciences

200 Introduction to Plant Protection  
 204 Agricultural Plant Science  
 385 Introductory Entomology  
 461 Weed Science  
 475 Plant Nutrition and Soil Fertility  
 529 Systems Science for Ecologists  
 555 Insect Pest Management  
 561 Aquatic Entomology

#### Political Science

402 Environmental Policy and Politics

#### Resource Economics

105 Introduction to Resource Economics  
 432 Economics of Land and Water Resources  
 456 Tourism Economics  
 460 Economics of Ocean Management  
 534 Economics of Natural Resources  
 540 Applied Resource Economics

#### Speech Communication

301 Systems of Communication  
 315 Environmental Dimensions of Communication

#### Zoology

262 Introductory Ecology  
 286 Humans, Insects, and Disease  
 455 Marine Ecology  
 457 Marine Ecology Laboratory  
 465 Limnology

### Experimental Statistics (EST)

Section Head: Professor Hanumara

220 **Statistics in Modern Society** (*I and II, 3*) Elementary concepts in sampling, polls, surveys, random samples. Foundations of statistical inference; estimation, comparison prediction. Statistics for the consumer, quality of data, credibility of statistical evidence. Environmental measurements and experiments. (*Lec. 3*) Staff (M)

307 **Introductory Biostatistics** (*I or II, 3*) Statistical methods applicable to health sciences. Data presentation. Vital statistics and life tables. Fitting models to health data. Testing, estimation, analysis of cross-classifications, regression, correlation. (*Lec. 3*) Pre: MTH 107 or 108. Not open to students with credit in 308 or 409. Staff

308 **Introductory Statistics** (*I and II, 3*) Descriptive statistics, presentation of data, averages, measures of variation, skewness, kurtosis. Elementary probability, binomial and normal distributions. Sampling distributions. Statistical inference, estimation, confidence intervals, testing hypotheses, linear regression, and correlation. (*Lec. 3*) Pre: MTH 107 or 108. Not open to students with credit in 307 or 409. Staff

409 **Statistical Methods in Research I** (*I and II, 3*) Same as 308, but for students who have better mathematical preparation. (*Lec. 3*) Pre: MTH 142. Not open to students with credit in 307 or 308. Staff

412 **Statistical Methods in Research II** (*I or II, 3*) Multiple linear regression and correlation analysis, curvilinear regression. Analysis of variance and covariance. Analysis of enumerative data. Some nonparametric methods. (*Lec. 3*) Pre: 307 or 308 or 409. Staff

413 **Data Analysis** (*I or II, 3*) Exploring data from experimental trials, sample surveys, multivariate studies; weighing chances, detecting patterns, identifying outliers, finding models; elementary computational procedures. (*Lec. 3*) Pre: 307 or 308 or 409 and CSC 201. Staff

415 **Introduction to Experimental Design** (*I, 3*) Experimental units and replication. Nesting. Reduction of variance: blocking, concomitant variables. Commonly used designs: completely randomized, randomized blocks, split plots, Factorial arrangement of treatments, confounding. Incomplete block designs. (*Lec. 3*) Pre: 412. Not for graduate credit. Staff

416 **Survey of Advanced Statistical Methods** (*II, 3*) Selected topics for multivariate, nonparametric and sampling methodology. Multivariate normal, Hotelling's T<sub>2</sub>, discriminant function; rank tests; simple random sampling, stratified sampling, cluster sampling and systematic sampling. (*Lec. 3*) Pre: 412. Not for graduate credit. Staff

491 **Directed Study in Experimental Statistics** (*I and II, 1-3*) Advanced work in experimental statistics. Conducted as supervised individual projects. Pre: permission of chairperson. S/U credit. Staff

492 **Special Topics in Experimental Statistics** (*I or II, 3*) Advanced topics of current interest in experimental statistics. (*Lec. 3*) Pre: permission of chairperson. Staff

500 **Nonparametric Statistical Methods** (*I or II, 3*)

501 **Analysis of Variance and Variance Components** (*I or II, 3*)

502 **Applied Regression Analysis** (*I or II, 3*)

517 (or PSY 517) **Small N Designs** (*II, 3*)

520 **Fundamentals of Sampling and Applications** (*I or II, 3*)

532 (or ASP 532 or PSY 532) **Experimental Design** (*I, 3*)

541 **Multivariate Statistical Methods** (*I or II, 3*)

542 **Discrete Multivariate Methods** (*I or II, 3*)

550 **Ecological Statistics** (*I, 3*)

576 (or ECN, REN 576) **Econometrics** (*I, 3*)

584 (or ELE 584) **Pattern Recognition** (*II, 3*)

591 **Directed Study in Experimental Statistics** (*I and II, 1-3*)

592 **Special Topics in Experimental Statistics** (*I or II, 3*)

### Film Studies

Coordinator: Professor Keller

#### Art

215 Filmmaking I  
 316 Filmmaking II

#### Art History

374 Topics in Film

#### English

300 Literature into Film  
 346 American Film Classics

#### History

358 Recent America in Film

#### Italian

315 Italian Cinema

### Finance (FIN)

Chairperson: Associate Professor Dash (Finance and Insurance)

301 **Financial Management** (*I and II, 3*) An analysis of the investment and financing issues facing domestic and multinational business firms. (*Lec. 3*) Pre: ECN 126, ACC 202, and QBA 202, or permission of instructor. Proficiency test available. Staff

322 **Security Analysis** (*I and II, 3*) Problems in investing funds from the point of view of individual and institutional investors. Particular attention is given to analysis of current investment theories and international implications. (*Lec. 3*) Pre: credit or concurrent enrollment in 301. Staff

331 **Financial Institutions and Markets** (*I and II, 3*) Comprehensive analysis of financial institutions and the markets in which they operate. Emphasis on the internal operations of the institutions. (*Lec. 3*) Pre: ECN 126, ACC 202, and MGS 202 or permission of instructor. Staff

341 **Fundamentals of Real Estate** (*I or II, 3*) Analysis of real estate principles. An examination of land utilization, valuation, financing techniques, urban development, property rights, markets, and government regulation. (*Lec. 3*) Pre: ECN 126. Staff

401 **Advanced Financial Management** (*I or II, 3*) Intensive research on selected current topics relating to the financial management of the firm. Extensive use of the case method. (*Lec. 3*) Pre: 301 or permission of instructor. Not for graduate credit for students in the College of Business Administration. Staff

**420 Speculative Markets (I or II, 3)** Examination of the concepts of forward pricing and its applications to the area of commodity and financial futures and options. (Lec. 3) Pre: 301 or permission of instructor. Staff

**425 Portfolio Theory and Management (I or II, 3)** Examination of portfolio theory and current portfolio management practices from the individual and institutional view. Techniques for portfolio building, management, and performance evaluation are discussed. (Lec. 3) Pre: 322 or permission of instructor. Not for graduate credit for students in the College of Business Administration. Staff

**433 Bank Financial Management (I or II, 3)** Nature of the financial decisions facing the management of an individual bank. Current bank financial practices, research, and appropriate banking models considered. (Lec. 3) Pre: 301, 331, or permission of instructor. Not for graduate credit for students in the College of Business Administration. Staff

**441 (411) Financial Theory and Policy Implications (I or II, 3)** Examination of the determinants of long-run financial success of the firm. Includes a study of how the capital budgeting process is linked to capital structure management. (Lec. 3) Pre: 301. Not for graduate credit. Staff

**452 Multinational Finance (I or II, 3)** Methods of financing multinational corporations. Foreign exchange, translation of financial statements, multinational funds flow and international liquidity, international financial reporting and tax policy, international money, stock, and bond markets. (Lec. 3) Pre: 301 or permission of instructor. Not for graduate credit for students in the College of Business Administration. Staff

**460 Basic Managerial Economics (I or II, 3)** Introduction to the classic theories of demand, production, and cost management in the context of modern financial theory. Includes empirical model-building using microcomputers. (Lec. 3) Pre: 301. Not for graduate credit. Staff

**491, 492 Directed Study (I and II, 1-3 each)** Directed readings and research work involving financial problems under the supervision of members of the staff. Plan of study required. Pre: permission of instructor. Not for graduate credit for students in the College of Business Administration. Staff

**493 Internship in Finance (I or II, 3)** Approved, supervised work experience with participation in management and problem solving related to finance. Fifteen working days (or 120 hours). Pre: junior standing and proposal approved by the College of Business Administration. May be repeated for a maximum of 6 credits. Not for graduate credit. S/U only. Staff

## Fisheries Science and Technology (FST)

*Chairperson:* Associate Professor Nippo (Fisheries, Animal and Veterinary Science)

**200 Introduction to Marine and Freshwater Science (I and II, 3)** Introduction to the marine and freshwater environments and their relationship to the capture and culture fisheries. (Lec. 3) DeAlteris, Recksiek, and Rice

**201 Health Emergencies at Sea and Distress Communications (II, 3)** First-response and continuing medical aid at sea. The International Medical Code. Use of radio for emergency and extended treatment. BLS cardiopulmonary resuscitation certification. (Lec. 3) Staff

**231 General Seamanship and Marine Safety (II, 3)** Principles and practices of seamanship. Watch standing. Routine and emergency evolutions. Basic fiber and wire rope splicing. Fire prevention, firefighting, and fire safety. Real fires will be fought. (Lec. 2, Lab. 3) Staff

**290 Small Boats: Their Equipment and Operation (I, 3)** Principles and practices of vessel operation from outboard skiffs to small trawlers. Basic nomenclature, navigation and shiphandling. Rigging and working gear used in fisheries and oceanography. (Lec. 2, Lab. 3) Wing

**315 Living Aquatic Resources (II, 3)** Survey of major aquatic resource groups; life histories, distribution, and exploitation of representative finfishes, mollusks, and crustacea in major fisheries ecosystems; management practices and patterns of fisheries development. (Lec. 3) Pre: 200 and ZOO 111 or at least one semester of general zoology. Recksiek

**321 World Fishing Methods (II, 3)** Survey of the fish catching methods of the world; methods of fish detection; development of the basic techniques used in fishing gear construction and maintenance. (Lec. 3) Pre: 200 or permission of instructor. DeAlteris

**341 Marine Propulsion Systems (I, 4)** Detailed study of marine propulsion systems including gasoline, diesel, and steam. Emphasis on the principles and practices of construction, operation, maintenance, and testing. (Lec. 3, Lab. 3) Wing

**342 Marine Auxiliary Systems (II, 4)** Detailed study of ship's auxiliary systems, including AC and DC electrical generating and distribution systems, the application of hydraulics to operate deck machinery and steering systems, and refrigeration systems used aboard ship. (Lec. 3, Lab. 3) Wing

**343 Vessel Repair and Maintenance (II, 3)** In-depth study of the design, construction, and repair of vessels made of wood, fiberglass, and metal. Emphasis on the use of each material, its comparative cost, and good maintenance techniques. (Lec. 2, Lab. 3) Wing

**380 Inshore and Coastwise Navigation (I, 4)** Theory and practice of navigation for operators of vessels working up to 200 miles offshore. Chartwork, tides, currents, instruments, visual and electronic aids, graphical and mathematical dead reckoning. (Lec. 3, Lab. 3) Pre: MTH 111 and PHY 111, or permission of instructor. Staff

**381 Mid-Ocean Navigation (I or II, 3)** Theory and practice of celestial navigation. Solution of the navigational spherical triangle. Compass calibration by celestial observation. Great circle sailing. The day's work of the professional ocean navigator. (Lec. 3) Pre: 380. Staff

**390 Fishing Operations (I, 3)** Fishing operations procedures in navigation, electronics, vessel layout, rigging, and handling of various types of fishing gear. (Lec. 2, Lab. 3) Pre: 290. Wing

**391, 392 Special Problems and Independent Study (I and II, 1-3 each)** Special work to meet individual needs of students in various fields of fisheries and marine technology. (Lec. and/or Lab. according to nature of project) Pre: permission of chairperson. Staff

**415 Fishery Science (I, 3)** Classification of resource groups, fishing methods, fisheries mensuration, biology of aquatic resource animals, fisheries ecology, population analysis, aquatic resource management, fish and shellfish farming. (Lec. 2, Lab. 3) Pre: 315. Recksiek

**421 Design of Fish Capture Systems (I, 3)** Detailed study of the design considerations and methods of construction of specific representative commercial and scientific sampling fish capture gear. Full-scale and model nets are designed, constructed, and tested. (Lec. 2, Lab. 3) Pre: 321 or permission of instructor. DeAlteris

**433 Research Diving Methods (I, 3)** Underwater methods used to assess the biological, physical, chemical, and geological characteristics of estuarine and coastal environments are presented. Techniques are used to investigate seasonal changes in these parameters in the Narragansett Bay environment. (Lec. 2, Lab. 3) Pre: SCUBA certification and permission of instructor. DeAlteris

**510 Applied Problems in Marine Fisheries Ecology (I, 3)**

**516 Early Life History of Aquatic Resource Animals (II, 3)**

**521 Evaluation of Fish Capture System (II, 3)**  
**591, 592 Special Problems (I and II, 1-3 each)**

## Food Science and Nutrition (FSN)

*Chairperson:* Professor Traxler

**150 Food in Affluence and Poverty (II, 3)** Relationships between food and current problems including the world food problem, hunger and malnutrition, food fads and misinformation, food processing and additives, food ecology, food and nutrition improvement programs. (Lec. 3) Staff (S)

- 201 Introduction to Food Study (I, 3)** Basic principles of food selection in today's market and preparation to retain maximum nutritive values and palatability. (Lec. 2, Lab. 3) Pre: CHM 124 or 227. Proficiency test available. Staff
- 207 General Nutrition (I and II, 3)** Fundamental concepts of the science of nutrition with application to world, community, and personal aspects. (Lec. 3) Proficiency test available. Staff (N)
- 237 Introductory Food Science (I, 3)** Survey of basic principles of food science and technology. (Lec. 3) Proficiency test available. Rand
- 307 Nutrition and Aging (I, 3)** Nutrition of the elderly as affected by metabolic and physiologic factors in aging. Study of the nutritional requirements and status of the elderly as well as the effectiveness of nutrition support systems. (Lec. 3) Pre: 207 or HCF 220, BIO 102 or equivalent. Eshleman
- 308 Nutrition in Growth and Pregnancy (I, 3)** Examines current issues in maternal and child nutrition as related to growth and physical development. Discusses specific nutrition-related problems including development of food habits, food consumption patterns, and nutrient requirements. (Lec. 3) Pre: 207, BIO 102 or equivalent. Sebelia
- 309 Nutrition in Obesity and Weight Control (II, 3)** Etiology of weight control examined, emphasis upon the physiological basis of energy balance. Abnormal eating behavior leading to obesity or undernutrition studied, and management protocol evaluated. Nutritionally adequate and effective reducing diets emphasized. (Lec. 3) Pre: 207 and BIO 102. Caldwell
- 310 Nutrition in the Community (I, 3)** Theory of delivering quality nutrition services in the community with emphasis on needs assessment, and planning and evaluating cost-effective nutrition plans. (Lec. 3) Pre: 207, BIO 102, or equivalent. Next offered fall 1992. Eshleman
- 331 Advanced Food Study (II, 3)** Food systems. Physical and chemical changes occurring in food during preparation, serving, and storage. Laboratory application, including assessment of food quality. (Lec. 2, Lab. 3) Pre: 201 or permission of instructor. Staff
- 333 Quantity Food Production (I and II, 3)** Application, analysis, and evaluation of producing, distributing, and serving quality food in quantity. Experience in a food service facility. (Lec. 1, Lab. 4) Pre: 201, MIC 201 or 211, senior standing, or permission of instructor. English
- 334 Quantity Food Purchasing and Cost Control (II, 3)** Production, distribution, storage, cost analysis of food supplies to serve as basis for institutional purchasing by specification. Investigation and analysis of existing purchasing systems. (Lec. 3) Pre: credit or concurrent enrollment in 333 and senior standing, or permission of instructor. English
- 335 Food Service Management (I, 3)** Administrative responsibilities in organizing, planning, analyzing, controlling, and evaluating. Technical operations of sub-units in relation to the whole in food service systems. (Lec. 3) Pre: 201, 207, and junior standing, or permission of instructor. English
- 336 Computer Applications in Food Science and Nutrition (II, 3)** Basic computer operation and the use and comparison of microcomputer software programs in food science and nutrition. (Lec. 2, Lab. 2) Pre: 207, 237, or permission of instructor. English
- 347 Nutritional Evaluation of Food Processing (II, 3)** Effect of processing from origin to consumption upon the nutrient content of food. Emphasis on relationship between food processing and nutrient retention and availability. (Lec. 3) Pre: 207, 237, and CHM 124. Simpson
- 378 Sensory Evaluation of Foods (I, 3)** Nature of the sensory response; chemistry of compounds responsible for flavor and odor; measurement of taste, odor, color, and texture; design and methodology of panel testing. (Lec. 2, Lab. 2) Staff
- 386 Food Sanitation (II, 3)** Principles of sanitation as applied to the food service and food processing industry. Emphasis on bacteria and other organisms causing food-borne illness, pest control, sanitation, and safe food handling. (Lec. 3) Pre: 237, MIC 201, or permission of instructor. Constantinides
- 421 Food Analysis (I, 4)** Principles and procedures for the chemical and physical analysis of foods. Emphasis on the determination of common food constituents and the instrumentation for their analysis. (Lec. 1, Lab. 6) Pre: 431. Constantinides
- 422 (or MIC 422) Biotechnology of Industrial Microorganisms (II, 3)** Application of microorganisms to industrial processes. Culture handling and strain development. Regulation and control of fermentation products. (Lec. 3) Pre: BCP 311 and an advanced course in microbiology, or permission of instructor. In alternate years. Next offered fall 1993. Traxler
- 431 Biochemistry of Food (I, 3)** Introduction to the chemistry and biochemistry of the essential components common to foods of plant and animal origin. (Lec. 3) Pre: BCP 311 or equivalent. Fischl
- 432 Food Processing (II, 3)** Changes involved in behavior of foods in unit operations such as fermentation, canning, chilling, freezing, dehydration, and concentration for processing and preservation. (Lec. 2, Lab. 3) Pre: 431 and MIC 211. Rand
- 433 Food Quality (II, 3)** Technological problems of procurement, manufacture, transportation, grading, packaging, and storage of food products. Field trips required. (Lec. 2, Lab. 3) Pre: 431 and MIC 211. Staff
- 434 Marine Food Processing (II, 4)** Theory and application in processing of finfish, shellfish, and seaweed from harvesting to product development, including identification of current issues. (Lec. 3, Lab. 3) Pre: 432 or permission of instructor. C. Lee
- 438 Food Chemistry Laboratory (II, 3)** Principles and techniques of basic and applied food research. Investigation of special food problems. Writing and evaluation of technical reports on research findings. (Lec. 1, Lab. 6) Pre: 431 or permission of chairperson. Fischl
- 441 Advanced Human Nutrition (I, 3)** Comprehensive study of principles of nutrition. Physiological and metabolic processes and interrelationships involving nutrients. Factors affecting nutritional health status and requirements during life span. (Lec. 3) Pre: 207, ZOO 242, BCP 311, or permission of instructor. Gerber
- 444 Nutrition and Disease (II, 3)** Effect of disease on metabolism and nutritional requirements, implications for dietary change and factors affecting acceptance of such change. (Lec. 3) Pre: 441 or permission of instructor. Staff
- 447 Food Engineering I**  
See Chemical Engineering 447.
- 451, 452 Field Experience in Food Science and Nutrition (I and II, 1-3 each)** Individual supervised field experiences and seminar in community, educational, government, health-oriented, or commercial activities and services related to food science and nutrition. (Lec. and Lab.) Pre: permission of chairperson. May be repeated for a maximum of 6 credits. Not for graduate credit in food science and nutrition. Staff
- 458 Nutrition Education (I and II, 3)** Principles and practices of teaching individuals and groups to translate nutrition knowledge into action. Emphasis on nutrition education research and evaluation. (Lec. 3) Pre: 310, 441, or permission of instructor. Eshleman
- 461 Food Safety (II, 3)** Safety and status of food-borne substances and additives. Chemical-biologic mechanisms and factors influencing toxicity. Toxicological testing methods. Risks versus benefits. Legal and regulatory aspects. (Lec. 3) Pre: 431 or permission of instructor. Dymysza
- 491, 492 Special Projects (I and II, 1-3 each)** Advanced work under supervision of staff member. Arranged to suit individual requirements of student. Pre: senior standing and permission of chairperson. Staff
- 502 Physical Chemistry and Properties of Food (I, 3)**
- 503 Food Science and Nutrition Research Methods (I, 4)**
- 504 Research Methods in Dietetics (SS, 3)**
- 505 Marine Foods Seminar (I, 1)**
- 511, 512 Food Science and Nutrition Seminar (I and II, 1 each)**
- 523 (or MIC 523) Water Pollution Microbiology (I, 3)**

525 (or MIC 525) **Water Pollution Microbiology Laboratory** (I, 1)  
 526 (or MCH 526) **Lipid Chemistry** (I, 3)  
 532 **Seafood Quality** (II, 3)  
 542 **Minerals and Vitamins** (II, 3)  
 545 **Protein Nutrition** (II, 3)  
 548 (or CHE 548) **Separations for Biotechnology** (II, 3)  
 549 (or CHE 549) **Food and Biochemical Engineering III** (II, 3)  
 550 **Issues in International Nutrition** (I, 3)  
 591, 592 **Special Research Problems**  
 (I and II, 1-4 each)

## French (FRN)

*Section Head:* Associate Professor Morello

101 **Beginning French I** (I and II, 3) Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3) *Pre:* none *prior French.* Staff (F)

102 **Beginning French II** (I and II, 3) Continuation of 101. *Pre:* 101 or equivalent. Staff (F)

103 **Intermediate French I** (I and II, 3) Development of facility in reading texts of moderate difficulty; supplemented by further work in grammar, conversation, and composition. (Lec. 3) *Pre:* 102 or 131 or equivalent. Staff (F)

104 **Intermediate French II** (I and II, 3) Continuation of 103. *Pre:* 103 or equivalent. Staff (F)

131 **Refresher Course in French** (I and II, 3) Rapid one-semester review of beginning French structures and vocabulary. For students with one or two years of high school French who are not ready for 103 or higher level. (Lec. 3) *Pre:* one or two years of precollege French or permission of section head. Not open to students with credit in 101 or 102. Not for major credit in French. Staff (F)

205, 206 **Conversation and Composition** (I and II, 3 each) Comprehension of spoken French; speaking with ease and an acceptable accent on assigned topics; oral reports on articles read in newspapers and periodicals, and frequent written compositions. (Lec. 3) *Pre:* 104 or equivalent. Staff

208 **Preparation for Study in France** (II, 3) Emphasis on listening comprehension and oral expression through class discussion, visiting lecturers, and language laboratory. *Pre:* 205 or equivalent and permission of instructor. Required of and open only to students participating in Orleans Exchange Program. Not open to freshmen. Staff

301, 302 **The Civilization of France I, II** (I and II, 3 each) Geographical, historical, economic, social, and aesthetic factors contributing to the cultural development of France. (Lec. 3) *Pre:* 206 for 301, 301 for 302, or permission of chairperson. Recommended for French majors in general teacher education. Staff

305 **Composition** (I, 3) Writing of literary French. Frequent compositions and critiques with emphasis on the stylistic devices. Recommended for those concentrating in French. (Lec. 3) *Pre:* 206 or equivalent. Staff

306 **Oral Expression in French** (II, 3) Discussion, short speech making, pronunciation, everyday vocabulary, and improvement of conversation. Matters of current interest in French selected by instructor and students. (Lec. 3) *Pre:* 206 or equivalent. Staff

327 **Survey of French Literature from the Middle Ages to 1789** (I, 3) Survey of major writers and literary movements of French literature from the Middle Ages to 1789. Introduction to poetry and drama as genres. *Explication de texte* and short papers. *Pre:* 206 or permission of instructor. Staff (A)

328 **Survey of French Literature from 1789 to Present** (II, 3) Survey of major writers and literary movements of French literature from 1789 to present times. Introduction to the novel as genre. *Explication de texte* and short papers. *Pre:* 206 or permission of instructor. Staff (A)

391 **Literature to 1789 in Translation** (I and II, 3) Major developments in French literature from the Middle Ages through 1789. Reading in translation of selected literary works from representative authors. (Lec. 3) *Not for major credit in French.* Kuhn (A)

392 **Nineteenth-Century Literature in Translation** (I or II, 3) Reading in translation of selected literary works from representative nineteenth-century authors. (Lec. 3) *Not for major credit in French.* Kuhn (A) (F)

393 **Twentieth-Century Literature in Translation** (I or II, 3) Reading in translation of selected literary works from representative twentieth-century authors. (Lec. 3) *Not for major credit in French.* Kuhn (A) (F)

394 **Literary Topics in Translation** (I or II, 3) Selected topics in French literature in translation. (Lec. 3) *Not for major credit in French.* Staff

402 **French Phonetics** (II, 3) Introduction to articulatory phonetics, phonetic notation, and phonetic transcription. Rudiments of recognizing and reproducing French intonation patterns. Laboratory in phonetics and intonation. (Lec. 3) *Pre:* 205 or permission of instructor. Next offered fall 1993. Rogers

411 **Medieval Literature** (I, 3) Representative works of the late eleventh century through the fourteenth century. (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered spring 1993. Rogers

433 **Seventeenth-Century Literature** (II, 3) General survey of the writers of the period including Corneille, Moliere, Racine, Pascal, and the Moralistes. (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered spring 1993. Morello

443 **Eighteenth-Century Literature** (I, 3) Principal literary movements as illustrated by Voltaire, Diderot, Rousseau, and other leading writers. (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered spring 1991. Rothschild

453 **Nineteenth-Century Literature Until 1848** (I, 3) General survey of poets and prose writers of the period including the major Romantics (Lamartine, Vigny, Hugo, Musset, and novelists such as Stendhal and Balzac). (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered fall 1992. Touloudis

454 **Nineteenth-Century Literature Since 1848** (II, 3) General survey of poets and prose writers of the period including the major Realists (Flaubert, Zola) and Symbolists (Baudelaire, Verlaine, Rimbaud). (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered fall 1992. Chartier

461 **Twentieth-Century Theatre** (I, 3) Representative dramatists. (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered fall 1992. Waters

465 **Twentieth-Century Prose** (I, 3) Major prose works of this period including those of Proust, Gide, Mauriac, Colette, Sartre, Camus, the new novelists, and others. (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered spring 1994. Kuhn

473 **French Canadian Literature** (I, 3) Early historical and biographical works, but primarily the novel, poetry, and theatre of the twentieth century (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered fall 1993. Chartier

474 **Black Literature in French** (I, 3) Authors of Africa and the Diaspora; includes Camara, Cecaïre, Dadie, Senghor. (Lec. 3) *Pre:* 327 or 328 or permission of instructor. Next offered spring 1993. Waters

480 **Business French** (I or II, 3) Study of concepts and terminology relating to the French business world. *Pre:* junior standing, credit or concurrent enrollment in at least one 300-level French language course. Next offered fall 1993. Morello

497, 498 **Directed Study** (I and II, 3 each) For the advanced student. Individual research and reports on problems of special interest. *Pre:* acceptance of a project by staff member and approval of chairperson. Staff

501 **Advanced Composition** (II, 3)

503 **History of the French Language** (II, 3)

513 **Seminar in Medieval Literature** (I, 3)

523 **Seminar in Sixteenth-Century Literature** (I, 3)

533 **Seminar in Seventeenth-Century Literature** (I, 3)

544 **Seminar in Eighteenth-Century Literature** (II, 3)

554, 555 **Seminar in Nineteenth-Century Literature** (I and II, 3 each)

- 564 Seminar in Modern Poetry (I, 3)  
 565 Seminar in Twentieth-Century Theatre (II, 3)  
 566 Seminar in Twentieth-Century Prose (I, 3)  
 594 Special Topics (I and II, 3)

## Genetics

*Coordinator:* Associate Professor Mottinger

### Aquacultural Science and Pathology

- 352 General Genetics  
 354 Genetics Laboratory  
 476 Genetics of Fish

### Botany

- 352 General Genetics  
 454 Genetics Laboratory  
 554 Cytogenetics  
 579 Advanced Genetics Seminar

### Microbiology

- 410 Molecular Genetics of the Protozoa  
 502 Techniques in Microbial and Molecular Genetics  
 552 Microbial Genetics  
 561 Recent Advances in Molecular Cloning

### Plant Science

- 472 Plant Improvement

### Zoology

- 203 Introduction to Evolutionary Genetics  
 573 Developmental Genetics  
 579 Advanced Genetics Seminar

## Geography (GEG)

*Chairperson:* Professor Juda (Marine Affairs)

- 100 **The Geography of Human Ecosystems** (I and II, 3) The evolution of human environments from the Stone Age to the contemporary megalopolis and the emergent world city in terms of man-earth-space-resource relationships. (Lec. 3) Gordon (S)
- 102 **Geography of Social Issues** (I and II, 3) Geographic perspective of socioeconomic processes in the city. Emphasis on spatial patterns of social mobility, ethnic diversity, class interaction, and problems of adaptation to the urban-industrial environment. Simulation games. (Lec. 3) Gordon (S)
- 103 **Economic Geography** (I and II, 3) Surveys the geographic backgrounds of economic activities. Populations and the resources of agriculture, industry, and commerce in terms of their world and regional distribution. (Lec. 3) Marti
- 104 **Political Geography** (I and II, 3) Pattern of political units throughout the world, special emphasis on boundaries, newly independent nations, and other aspects of political control over territory. (Lec. 3) Staff (S)

## Geology (GEL)

*Chairperson:* Professor Hermes

- 100 **Environmental Geology** (I and II, 3) Geologic processes and how they affect people; geologic hazards, earthquake impact, shoreline development, offshore oil, waste disposal, water and other resources, nuclear power plant siting. (Lec. 3) Cain and Staff (N)
- 101 **Geological Field Trips** (I, 1) Field trips to coastal, glacial, and rock exposure. The relation of structures and materials to the history of the earth, mineral resources, and our environment. (Lab. 2) In alternate years. Next offered 1992-93. Frohlich
- 102 **The Evolution and Extinction of the Dinosaurs** (II, 3) General introduction to the dinosaurs. Variety, habits, warm-bloodedness and extinction discussed. Pterosaurs and bird origins presented. (Lec. 3) Fastovsky (N)
- 103 **Physical Geology** (I and II, 4) Physical processes on and within the earth; its composition; development and modification of surficial features and their relationships to internal processes; resource and environmental aspects. (Lec. 3, Lab. 2) Pre: concurrent enrollment in 106. Not open to students with credit in 105. Cain or Hermes (N)
- 210 **Geomorphology** (II, 4) Classification of landforms, their development, distribution, and associated geologic processes. Cycles of development of coastal, glacial, and fluvial landforms. Laboratory: landform analysis of topographic maps, aerial photographs, and field studies. (Lec. 3, Lab. 2) Pre: 102 or permission of instructor. Veeger
- 240 **Introduction to Paleontology** (II, 4) History, methods, nature, and problems. Systematic survey of animal organisms found as fossils with particular emphasis on their morphology, taxonomy, and geologic distribution. (Lec. 3, Lab. 2) Pre: 102 or 103 or ZOO 111 or BIO 102 or permission of instructor. Fastovsky
- 301 **Geology of Mineral Resources** (I, 3) Origin, distribution, extraction, and importance of various mineral resources; energy sources, metals, building and industrial materials, water. Strategic minerals, their world distribution and part played in world affairs. (Lec. 3) Pre: 103 or permission of instructor. Cain
- 320 **Hand Sample Mineralogy and Petrology** (I, 4) Crystallography and physical properties of minerals related to crystal structure. Composition, classification, genesis, and interpretation of rocks as related to geological occurrence. Emphasis on hand sample identification. (Lec. 2, Lab. 4) Pre: 103, credit or concurrent enrollment in CHM 101 or 103. Hermes

321 **Optical Petrography and Petrogenesis** (II, 4) Continuation of 320 emphasizing optical mineralogy and petrography. Petrogenesis and associations of igneous, sedimentary, and metamorphic assemblages. (Lec. 2, Lab. 4) Pre: 320, PHY 112 or 214, and credit or concurrent enrollment in CHM 112. Hermes

370 **Structural Geology** (II, 4) Stress and strain relationships as they pertain to rocks. Manifestations of these phenomena in geologic structures and criteria for recognizing them. (Lec. 3, Lab. 2) Pre: 103; PHY 213 and 285 or 111 and 185. Murray

401 **Ore Deposits** (II, 3) Origins of metallic ore deposits; factors localizing deposits; mining methods; uses of metals; environmental effects; discussion of specific metals and mining districts. (Lec. 2, Rec. 1) Pre: 301 or 320 or equivalent or permission of instructor. Next offered spring 1994. Cain

421 **Geochemistry** (I, 3) Introduction to thermodynamics of rock and minerals, stable isotopes, geochronology, and cosmogeochemistry. Emphasis on the geochemistry of igneous and metamorphic rocks. (Lec. 3) Pre: CHM 112, GEL 321, and MTH 132 or 142 or permission of instructor. Murray

450 **Introduction to Sedimentation and Stratigraphy** (I, 4) Principles underlying formation, composition, sequence, and correlation of sedimentary rocks. Methods, procedures, and techniques to study sedimentary processes, depositional environments, stratigraphic relationships, and stratigraphic correlation. (Lec. 3, Lab. 2) Pre: 321 or permission of instructor. Boothroyd

465 **Introduction to Geophysics** (I, 3) Introduction to physical properties of the earth and application of geophysical exploration techniques. Seismic, gravity, magnetic and electrical field techniques; basic methods of interpretation. (Lec. 2, Lab. 2) Pre: 103, PHY 112 or 214, MTH 132 or 142, or permission of instructor. Frohlich

468 **Hydrogeochemistry** (I, 3) Introduction to the geochemical processes controlling the composition of water in low-temperature environments, including: the carbonate system, mineral equilibria, chemical weathering, and the chemical evolution of groundwater. (Lec. 2, Lab. 3) Pre: CHM 101, 102, 112, 114, and GEL 103 (or 105), 106 and 320 or permission of instructor. Offered in odd-numbered years. Next offered fall 1993. Veeger

480 **Summer Field Camp** (SS, 4-8) Geologic field mapping and principles. Pre: 210, 240, 321, 370, 450 recommended. Course not offered through URI; prior approval of selected camp required by the Department of Geology. Recommended between junior and senior years. Not for graduate credit in geology. Staff

**483 Hydrogeology (I, 3)** Study and interpretation of groundwater flow systems and the interaction between groundwater and the geologic framework, including: groundwater flow, aqueous geochemistry, groundwater resource evaluation, and groundwater in geologic processes. (Lec. 2, Lab. 3) *Pre: 103, 210, and MTH 141 or 131 or permission of instructor.* Veeger

**485 (or CVE 485) Engineering Geophysics (II, 3)** Field and lab methods of determining physical rock constants such as density, porosity, permeability, electrical conductivity, and seismic velocity, with applications in engineering geology and geotechnical engineering. (Lec. 2, Lab. 2) *Pre: 103, MTH 132 or 142, PHY 111 and 185 or PHY 213 and 285, and junior standing, or permission of instructor.* In alternate years. Next offered 1992–93. Frohlich and Urish

**487 Quantitative Geology (II, 3)** Introduction to the management and analysis of data in geology using microcomputers. Applications of statistical, graphic, spreadsheet, and other programs to structural geology, geomorphology, petrology, geochemistry, geophysics, and sedimentology. (Lec. 2, Lab. 2) *Pre: MTH 132 or 142, CSC 201, and senior standing, or permission of instructor.* In alternate years. Next offered 1993–94. Frohlich

**488 Geological Evolution of North America (II, 3)** Advanced treatment of the evolution of major sedimentary basins of North America within a tectonic framework. Regional paleoenvironments and paleogeography through time reconstructed from lithofacies and faunas. Ten-day field trip to southern Appalachians. *Pre: 450 or permission of instructor.* Fastovsky

**491 Special Topics (I and II, 1–3)** Advanced work for undergraduates under the supervision of a faculty member arranged to suit the individual requirements of the student. *Pre: permission of instructor.* Not for graduate credit in geology. Staff

**499 Senior Thesis (I and II, 3)** Independent research. Student selects an area of study and works in close conjunction with a faculty member of his or her choice. (Lab. 6) *Pre: senior standing and permission of instructor.* Not for graduate credit in geology. Staff

**515 Glacial Geology (I, 3)**

**530 Igneous Petrology (II, 3)**

**531 Metamorphic Petrology (I, 3)**

**550 Sedimentary Processes (II, 3)**

**554 Sedimentary Petrology (I, 3)**

**565 Advanced Interpretation in Applied Geophysics (II, 3)**

**568 Isotopes in Hydrogeology (II, 3)**

**570 Structural Analysis (I, 3)**

**577 Coastal Geologic Hazards (II, 3)**

**580 New England Geology (I, 3)**

**581 (or OCG 581) Topics in Tectonic Geology (I, 3)**

**583 Advanced Hydrogeology (II, 3)**

**590, 591 Special Problems (I and II, 1–3 each)**

## German (GER)

*Section Head:* Professor Grandin

**101 Beginning German I (I and II, 3)** Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3) *Pre: no prior German.* Staff (F)

**102 Beginning German II (I and II, 3)** Continuation of 101. (Lec. 3) *Pre: 101 or equivalent.* Staff (F)

**103 Intermediate German I (I and II, 3)** Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. (Lec. 3) *Pre: 102 or equivalent.* Staff (F)

**104 Intermediate German II (I and II, 3)** Continuation of 103. *Pre: 103 or equivalent.* Staff (F)

**105, 106 Basic Conversation I, II (I and II, 1 each)**  
**105:** Practice in conversational skills. (Lec. 1) *Pre: credit or concurrent enrollment in 103.* **106:** Continued practice in conversational skills. (Lec. 1) *Pre: credit or concurrent enrollment in 104.* Staff

**111, 112 Intensive Beginning German (SS, 4 each)** Study of the fundamentals of German with special emphasis on listening and speaking skills. (Lec. 4) *Pre: 111 or equivalent for 112.* Not for major credit in German. Staff

**113, 114 Intensive Intermediate German (SS, 4 each)** Practice in listening and speaking. Development of basic reading and writing skills. Review of grammatical structure. (Lec. 4) *Pre: 112 or equivalent for 113; 113 or equivalent for 114.* Staff

**121 Conversational German for Business and Travel (SS, 4)** Intensive study of the fundamentals of German with special emphasis on the listening and speaking skills pertinent to international business. (Lec. 4) Not for major credit in German. Staff

**201, 202 Intermediate Conversation I, II (I and II, 1 each)** Conversation skills for students who have completed intermediate German. **202:** continuation of 201. (Lec. 3) *Pre: 104 or permission of instructor.* Staff

**205, 206 Conversation and Composition (I and II, 3 each)** Development of facility in spoken and written German using contemporary writings and topics; special emphasis on general classroom discussion. (Lec. 3) *Pre: 104 or equivalent.* Staff

**215, 216 Advanced Conversational German (SS, 4 each)** Intensive practice in speaking and listening, with some attention to writing skills. (Lec. 4) *Pre: 114 or equivalent.* Einbeck

**221 Introduction to Business German (SS, 1)** Conversational practice in German with emphasis on the acquisition of vocabulary pertinent to international business. *Pre: 112 or equivalent.* Grandin

**305 Advanced Conversation (I, 3)** Intensive practice in spoken German based on matters of current interest in German-speaking countries. (Lec. 3) *Pre: 206 or equivalent.* In alternate years. Next offered 1993–94. Crossgrove

**306 Advanced Composition (II, 3)** Training in various forms of writing by means of frequent compositions and critiques. (Lec. 3) *Pre: 206 or equivalent.* In alternate years. Next offered 1992–93. Crossgrove

**315, 316 Language Study Abroad (I and II, 3–5 each)** Credit for advanced language study in a German-speaking country. *Pre: 206 or equivalent and permission of chairperson.* Staff

**325 Introduction to Modern German Literature: Genres (II, 3)** Traditional and recent forms of narrative, drama, and lyric as illustrated by leading writers from 1885 to the present. (Lec. 3) *Pre: 104 or equivalent.* In alternate years. Next offered 1993–94. Staff (A)

**326 Introduction to Modern German Literature: Movements (II, 3)** Literary and cultural developments as reflected by leading writers from 1885 to the present. (Lec. 3) *Pre: 104 or equivalent.* In alternate years. Next offered 1992–93. Staff (A)

**392 Masterpieces of German Literature (II, 3)** Literary works in English translation from 1800 to the present. (Lec. 3) Not for major credit in German. Staff (A) (F)

**421 Business German (I and II, 3)** Study of the concepts and terminology of the German language common to the realm of international business. Intended for advanced students of business and German. (Lec. 3) *Pre: junior standing, credit or concurrent enrollment in 305 and 306.* Next offered fall 1992. Grandin

**441, 442 German Literature of the Eighteenth Century (I and II, 3 each)** Principal literary movements of the century as illustrated by leading writers of the time. (Lec. 3) *Pre: 206 or equivalent.* **441 is not required for 442.** In alternate years. Next offered 1992–93. Grandin

**451, 452 German Literature of the Nineteenth Century (I and II, 3 each)** Principal literary movements of the century as illustrated by leading writers of the time. (Lec. 3) *Pre: 206 or equivalent.* **451 is not required for 452.** In alternate years. Next offered 1993–94. Dornberg

**485, 486 Special Studies (I and II, 1–3 each)** Special topics in German literature not emphasized in other courses. (Lec. 1–3) *Pre: one semester of German at the 300 level or permission of chairperson.* In alternate years. Next offered summer 1992–93. Staff

**497, 498 Directed Study (I and II, 1–3 each)** Designed particularly for the advanced student. Individual research and reports on problems of special interest. *Pre: acceptance of project by staff member and permission of chairperson.* Staff

**586 Seminar in German Studies (I, II, and SS, 1–3)**  
**598 Directed Studies (I, II, and SS, 1–3)**

## Gerontology

*Acting Director:* Associate Professor Phillip Clark

### Human Development,

### Counseling, and Family Studies

220 Gerontology: Theory and Application

221 Work with the Aging

420 Human Development During Adulthood

421 Death, Dying, and Bereavement

422 Aging: Case Coordination

431 Family and the Elderly

440 Environmental Context of Aging

520 Developmental Issues in Later Life

527 Health Care Policy and the Elderly

529 Practicum Seminar in Gerontology

555 Gerontological Counseling

### Consumer Studies

342 Housing for the Elderly

### Dental Hygiene

462 Oral Care of the Aged and Medically Compromised

### Education

410 Seminar and Supervised Field Practicum in Education of the Aging

### Food Science and Nutrition

307 Nutrition and Aging

### Human Science and Services

530 Multidisciplinary Health Seminars for the Elderly

### Nursing

349 Aging and Health

### Physical Education

563 Fitness Programs for the Middle-Aged and Elderly

564 Physiology of Aging

### Recreation

416 Physical Aging and Leisure Skill

### Sociology

438 Aging in Society

## Greek (GRK)

*Chairperson:* Professor Grandin (Modern and Classical Languages and Literatures)

101 **Ancient Greek I** (I, 3) Grammar and syntax of Attic Greek, reading practice. (Lec. 3) *Pre: no prior Greek is required.* Wright (F)

109, 110 **Introduction to Ancient Greek Culture** (I or II, 3 each) Aspects of Greek culture: literature, religion, myth, philosophy, art, private life, athletics, archaeology. Readings in English translation. (Lec. 3) Wright (F)

301 **Intermediate Greek** (I, 3) Grammar review; readings selected in accordance with students' needs and interests. (Lec. 3) *Pre: 102 or equivalent.* Suter (F)

302 **Intermediate Greek** (II, 3) Readings selected in accordance with interests of students. (Lec. 3) *Pre: 301 or permission of instructor. May be repeated for credit with a different topic.* Suter (F)

497, 498 **Directed Study** (I or II, 1-6 each) Individual readings and research. *Pre: acceptance of project by staff member and approval of chairperson. May be repeated for credit with a different topic.* Staff

## Health (HLT)

*Chairperson:* Associate Professor Crooker (Physical Education, Health, and Recreation)

123 **Foundations of Health** (I and II, 3) Development of attitudes and practices that lead to more healthful living. Personal and community health problems are studied. (Lec. 3) Staff (S)

172 **First Aid** (I and II, 1) Basic instruction and practice in accident prevention and first aid procedure. Students successfully meeting requirements will receive a Standard First Aid Certificate. (Lec. 1) *Not open to students with credit or concurrent enrollment in 272.* Staff

272 **Advanced First Aid** (I and II, 2) Instruction and practice in advanced first aid and emergency care techniques and skills. Fulfills requirements for Red Cross Advanced First Aid Certificate. (Lec. 1, Lab. 2) Seleen

356 **Methods and Materials in Health Education** (I or II, 3) Curricular materials for school and public health education; evaluation of techniques and current methodology for use in elementary and secondary schools. (Lec. 3) Faraone

357 **Principles of Community Health** (II, 3) Principles of community health with emphasis on problems of health departments, public and private agencies, and schools in the community health education program. (Lec. 3) *Pre: 123, 367, or permission of chairperson.* Faraone

358 **Current Problems of Safety and First Aid** (I, 3) Major emphasis on content, methods, procedures, and techniques of teaching safety. Reports on the latest developments in teachers' liability and responsibilities for accidents to school children. (Lec. 3) Nedwidek

359 **Field Work in Health** (I and II, 3) Directed participation in community health education in cooperation with community health organizations. Weekly seminars. (Lab. 6) *Pre: 357 or permission of chairperson.* Staff

367 **School Health Program** (I, 3) Organization of the school health program in relation to the community health program. Emphasis on health instruction, health services, and healthful school environment. (Lec. 3) Faraone

377 **Current Health Problems** (I and II, 3) Health problems of current importance on an individual, community, national, and international basis. Content application. Solutions to health problems. Includes the school, community, and public

health approaches to these problems. *Pre: 367 or permission of chairperson.* Faraone

380 **Organization of Community Health Services** (I or II, 3) An examination of the health services delivery system in the United States with emphasis on the role and function of state and local health agencies. Agency visits required. (Lec. 3) *Pre: 357 or permission of instructor.* O'Donnell

### 391 Directed Study

See Physical Education 391.

### 457 Health and Safety Issues of Consumer Products

See Consumer Studies 457.

459 **Birth Defects: Family and Community Health Perspectives** (SS, 3) Consideration of the effects of a birth defect on the individual, the family, and society. Includes basic information on genetic diseases and professional treatment. *Pre: junior standing in one of the health or helping professions and permission of instructor.* Staff

### 484 Supervised Field Work

See Physical Education 484.

### 486 Field Experience Seminar

See Physical Education 486.

560 (or PED 560) **Seminar in Health, Physical Education, and Recreation** (I or II, 3)

570 (or PED 570) **Major Health Problems and Curriculum Planning in Health Education** (I or II, 3)

591 (or PED 591) **Special Problems** (I or II, 3)

592 (or PED 592) **Internship** (I, II, or SS, 3)

595 (or PED 595) **Independent Study** (I or II, 3)

## Hebrew (HBW)

*Chairperson:* Professor Grandin (Modern and Classical Languages and Literatures)

101 **Beginning Hebrew I** (I or II, 3) Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3) *Pre: no prior Hebrew.* Jagolinzer (F)

102 **Beginning Hebrew II** (I or II, 3) Continuation of 101. *Pre: 101 or equivalent.* Jagolinzer (F)

103 **Intermediate Hebrew I** (I and II, 3) Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. (Lec. 3) *Pre: 102 or equivalent.* Staff (F)

104 **Intermediate Hebrew II** (I or II, 3) Continuation of 103. (Lec. 3) *Pre: 103 or equivalent.* Staff (F)

## History (HIS)

*Chairperson:* Professor Briggs

105 **Freshman Seminar in History** (I or II, 3) Recreating the past by the use of original historical source materials in topics and areas to be selected. *Pre: permission of chairperson. Limited to 15 freshmen.* Staff (L)



- 111 History of Ancient Greece and Rome (I, 3)** From the Greek and Latin settlements to the Germanic invasions with emphasis on political, social, economic, and aesthetic developments. Includes rise of the Christian church. (Lec. 3) Daniel (F) (L)
- 112 History of Medieval Europe (II, 3)** Primarily western Europe. Continuation of 111. Medieval church, feudalism, revival of town life, commerce, industry, and money economy, rise of national states, and development in the arts. (Lec. 3) Daniel (F) (L)
- 113 History of Western Civilization from the Late Middle Ages to 1789 (I and II, 3)** Introductory course treating Western civilization in its broadest sense from the late Middle Ages to the French Revolution and the beginnings of industrialization. (Lec. 3) Staff (F) (L)
- 114 History of Western Civilization since 1789 (I and II, 3)** Continuation of 113. Western civilization of the present time. (Lec. 3) Staff (F) (L)
- 115 The History of Science to 1800 (I, 3)** A survey of the developments of science from Ancient Greece through the Scientific Revolution of the seventeenth and eighteenth centuries. (Lec. 3) Briggs (L)
- 116 The History of Science Since 1800 (II, 3)** A survey of the developments of science in society over the last two centuries. (Lec. 3) Briggs (L)
- 118 Women in European History (II, 3)** Attitudes toward women, their role in society, women's work, and the feminist movement. Emphasis on nineteenth and twentieth centuries with background material from earlier periods. (Lec. 3) Staff (L)
- 123 Modern British Civilization (I or II, 3)** An introduction to British culture in the nineteenth and twentieth centuries. Surveys of the impact of the industrial revolution, political developments, and social change; also Britain's role in the world, Ireland, and the world wars. *Not open to students with credit in 122.* Gutchen (F) (L)
- 125 Introduction to German History (I or II, 3)** A topical introduction to traditions and movements which have shaped German history in the modern era. (Lec. 3) Honhart (F) (L)
- 132 Introduction to Russian and Soviet History (I or II, 3)** Selected topics in the development of Russian civilization since the ninth century. (Lec. 3) Thurston (F) (L)
- 141 History of the United States to 1877 (I or II, 3)** Colonial and Revolutionary periods, and economic, social, and political development of the United States through the Civil War and Reconstruction. (Lec. 3) Staff (L)
- 142 History of the United States Since 1877 (I or II, 3)** General social, economic, and political development from 1877 to the present. (Lec. 3) Staff (L)
- 143 Special Topics in the History of the United States (I and II, 1-3)** Topical approach to, rather than a survey of, American history. Topics vary from semester to semester. (Lec. 3) Staff (L)
- 145 Women in American History (I or II, 3)** American women from the colonial period to the present. Emphasis on institutionalization of the Victorian ideal, women in the labor force, and origins of liberation ideology. (Lec. 3) Strom (L)
- 150 (or AAF 150) Introduction to Afro-American History (I or II, 3)** Survey of Negro American history from African origins to the current racial confrontation. (Lec. 3) Weisbord (L)
- 171 East Asian Culture and History (I or II, 3)** Introduction to the culture and history of East Asia. Emphasis on the literary, artistic, and philosophical traditions of East Asia especially those aspects which relate to and influence contemporary developments. (Lec. 3) Kim (F) (L)
- 176 The Islamic Middle East: From Muhammad to the Mongols (I and II, 3)** History of the Islamic Middle East from the rise of Islam in the seventh century through the Mongol conquests in the thirteenth century. (Lec. 3) Marmon (F) (L)
- 177 The Islamic Middle East: From the Mongols to Modern Times (I or II, 3)** History of the Islamic Middle East from the Mongol invasions of the thirteenth century to the present. Includes the Ottoman Empire, the impact of European colonialism, the rise of nationalism, the Arab-Israeli conflict, and the Iranian revolution. (Lec. 3) Marmon (F) (L)
- 180 Introduction to Latin American Civilization (I or II, 3)** Social, cultural, and political history of the Latin American region from the pre-conquest era to the present time. (Lec. 3) Staff (F) (L)
- 300 Archaic Greece: 900-500 B.C. (II, 3)** The revolutionary social, political, intellectual, and artistic developments of the archaic period set in the context of the Iron Age eastern Mediterranean world. (Lec. 3) *Pre: 111 or 112 or permission of instructor.* Schwartz
- 303 The Roman Empire: 31 B.C. to 284 A.D. (I, 3)** Political and social history of the Roman Empire: "Romanization" of the provinces and survival of native cultures; women and slaves, religions of the Roman Empire, and the spread of Christianity. *Pre: 111 or GRK 109 or 110 or permission of instructor.* Schwartz
- 304 Western Europe in the High Middle Ages (I, 3)** Primarily France and England in the twelfth and thirteenth centuries. Emphasis on the Medieval Gothic-Catholic culture, the rise of towns, and the development of a money economy. (Lec. 3) Daniel (F) (L)
- 305 The Renaissance (II, 3)** Europe in transition during the fourteenth through the early sixteenth centuries. The economic, social, and religious backgrounds of the Renaissance. Emphasis on culture and artistic developments. (Lec. 3) Daniel (F) (L)
- 306 The Protestant and Catholic Reformation I (I, 3)** Change of European society resulting from the Protestant Reformation and Catholic Reaction; rise of secular states and emerging national states; effects of religious crises upon culture and society. (Lec. 3) Daniel (F) (L)
- 307 The Protestant and Catholic Reformation II (II, 3)** Catholic and Counter Reformation, Northern Renaissance, wars of religion, social and cultural manifestations of the early Baroque. (Lec. 3) Daniel (F) (L)
- 309 The French Revolution and Napoleon (I, 3)** Examination of the Revolution and Napoleonic eras with emphasis on the connections among economic, social, and political developments. Special attention to problems in interpretation. (Lec. 3) *Pre: junior standing.* Staff (L)
- 310 History of Europe: 1815-1914 (I, 3)** Major political, economic, and intellectual developments in Europe from the defeat of Napoleon I to the outbreak of World War I, emphasis on the Revolutions of 1848, unification of Italy and Germany, impact of the Industrial Revolution, nationalism and imperialism, background of World War I. (Lec. 3) *Pre: junior standing.* Staff (F) (L)
- 311 History of Europe Since 1914 (II, 3)** Detailed study of developments from 1914 to present: wars, post-war adjustments, communist and fascist ideologies, history of individual states, and social and intellectual trends. (Lec. 3) *Pre: junior standing.* Staff (F) (L)
- 314 Seventeenth- and Eighteenth-Century European Cultural History (I, 3)** Intellectual and social movements of the Age of Reason and the Age of Enlightenment. (Lec. 3) Briggs (F)
- 315 Nineteenth- and Twentieth-Century European Cultural History (II, 3)** Intellectual and cultural movements from Romanticism through Existentialism. (Lec. 3) Thurston (F) (L)
- 321 History of England: 1485-1660 (I, 3)** Political, economic, and religious change from the beginning of the Tudor dynasty to the Puritan Revolution and the Commonwealth. (Lec. 3) Gutchen (L)
- 323 History of England: 1815-1896 (I, 3)** Impact of industrialization and urbanization on political, economic, religious, and cultural forces in the Victorian age. (Lec. 3) Gutchen (L)
- 324 History of England Since 1896 (II, 3)** History of Britain since 1896, with emphasis upon its changing role as a world power, the impact of economic change on politics and society, and the development of the social welfare state. (Lec. 3) Gutchen (L)
- 326 German History to 1914 (I, 3)** Survey of German history to 1914 with emphasis on the eighteenth and nineteenth centuries. (Lec. 3) Honhart (F)

- 327 German History Since 1914 (II, 3)** The collapse of Germany's social and political order between 1914 and 1945 and the subsequent creation of antagonistic liberal and socialist societies in West and East Germany. Emphasis on national socialism. (Lec. 3) Honhart (F) (L)
- 328 The Holocaust (I or II, 3)** Study of Nazi efforts to exterminate Jews and others in Europe. Focuses on Nazi programs and policies; Jewish experiences; and the responses of the outside world. (Lec. 3) *Pre: junior standing.* Weisbord and Honhart
- 330 History of France Since 1815 (II, 3)** French political and social history from the end of the First Empire to the Fifth Republic. Complexities of class divisions and their repercussions on French political history. (Lec. 3) Staff (F)
- 332 History of Russia (I, 3)** Russian society, politics, and world view from the Muscovite order of the seventeenth century to the late Imperial period. Heavy emphasis on informal writing by students, analyzing documents, trends, interconnections. (Lec. 3) Thurston (F) (L)
- 333 History of the Soviet Union (II, 3)** From industrialization and regrouping in the 1890s, an examination of the new political and economic system that emerged from revolutions and civil war. Literature studied as forum for debate about the just society. Regular informal writing. (Lec. 3) Thurston (F) (L)
- 335 American Colonial History to 1763 (I, 3)** American history from the founding of the colonies to the end of the French and Indian War, including developments within the colonies as well as their relationship with England. (Lec. 3) *Pre: 141 or equivalent.* Cohen
- 336 The American Revolution and Confederation: 1763–1789 (I, 3)** Social, political, and economic aspects of the Revolution and Confederation periods. (Lec. 3) *Pre: 141 or permission of instructor.* Cohen
- 337 Creation and Crisis of the Union: America from 1789 to 1860 (I or II, 3)** Transformation of society and politics: emergence of mass political parties; social antagonisms and urban violence arising from conflicts over immigration, industrialization, drinking, sex, slavery, and female roles. Impending crisis between North and South. (Lec. 3) Murphy
- 339 Emergence of Industrial America: 1877–1917 (I, 3)** Growth and consolidation of business, urbanization, and the Populist and Progressive movements. America's emergence as a world power. (Lec. 3) *Pre: 142 or permission of instructor.* Klein and Findlay
- 340 United States History from 1917 to 1945 (I or II, 3)** Social, political, and economic developments between the World Wars. Emphasis on domestic affairs, special attention to the involvement of the United States in World War II. (Lec. 3) Klein and Findlay (L)
- 341 United States History Since 1945 (I or II, 3)** Social, political, and economic developments since the end of World War II. Equal emphasis upon the domestic sphere and the role of the United States in the world. (Lec. 3) Klein and Findlay (L)
- 342 Social and Intellectual History of the United States to 1865 (I, 3)** Survey of social and intellectual development to the end of the Civil War, including literary, artistic, and scientific trends, reform movements, and growth of the democratic ideal. (Lec. 3) Murphy and Strom (L)
- 344 History of the North American Indian (I or II, 3)** Native North Americans from pre-Columbian times to present. Emphasis on ideological conflict between Indians and whites. (Lec. 3) Costigliola (F)
- 346 Immigration to Ethnicity in Modern America (I, 3)** Nature of population movements to the United States in nineteenth and twentieth centuries, formation of ethnic communities and their internal dynamics, role of ethnic groups in American social, cultural, and political history. (Lec. 3) Findlay (L)
- 349 History of American Labor (I or II, 3)** Changes in work, lifestyle, and political consciousness of American workers in nineteenth and twentieth centuries; conflicts between labor and capital, and relationship to emergence of labor movements. (Lec. 3) Murphy
- 351 American Women in the Nineteenth Century (II, 3)** Emphasis on women's paid and unpaid labor, culture, and domestic arts; the emergence of the women's rights movement; the impact of industrialization and urbanization; and changing notions of sexuality. *Pre: 141 or 142, 145, or WMS 200, or permission of instructor.* Strom
- 352 American Women in the Twentieth Century (II, 3)** Emphasis on the history of women's work and sexuality; women in the labor, civil rights, and feminist movements; and images of women in popular culture. *Pre: 141 or 142, 145, or WMS 200, or permission of instructor. Not open to students with credit in 347.* Strom
- 353 United States Diplomatic History to 1914 (I or II, 3)** Analysis of the people, ideas, and institutions which shaped the rise of the United States from thirteen colonies to the most powerful nation in the world. (Lec. 3) Costigliola (L)
- 354 United States Diplomacy in the Twentieth Century (I or II, 3)** Analysis of people, ideas, and institutions which have shaped American relations with the rest of the world from World War I to the present. (Lec. 3) Costigliola (L)
- 357 History of Religion in the United States (I, 3)** Background, emergence of evangelical Protestant synthesis, disintegration of this synthesis, and development of a pluralistic religious community in modern America. (Lec. 3) Findlay
- 358 Recent America in Film (II, 3)** An investigation of American culture and history since 1930 using films as the major resource for study, with emphasis on the Great Depression, World War II, sexual interaction, and race relations. (Lec. 1, Lab. 4) Strom
- 360 American Culture 1865–1940 (I or II, 3)** Explores the nature and sources of American culture with emphasis on the diversity of its origins and forms of expression. (Lec. 3) Klein
- 362 History of Rhode Island (II, 3)** History of Rhode Island from the first English settlement to the present day. Social, political, and economic aspects of internal development and the relation of the state to the region and the nation. (Lec. 3) *Pre: 141 and 142.* Staff
- 365 Civil War and Reconstruction (I or II, 3)** American history during the period 1850–1877, giving equal emphasis to the background of the Civil War, the war itself, and the social, political, and economic aspects of Reconstruction. (Lec. 3) Klein and Strom
- 372 Science and Ethics (I or II, 3)** A historical study of the ways in which science has produced a new range of ethical concerns. Examples, case histories, and public policies. (Lec. 3) *Pre: junior standing or permission of instructor.* Briggs (L)
- 373 (or ZOO 373) History of Biology (I or II, 3)** Development of basic ideas and paradigms of biology from the Greek world to the present. Emphasis on the period of the last three centuries. (Lec. 3) Briggs
- 374 History of Modern China (II, 3)** Political, social, economic, and cultural development of China since 1800 with emphasis on the development of Chinese nationalism and on the rise, theory, and practice of Chinese communism. (Lec. 3) Kim (F)
- 375 History of Modern Japan (I, 3)** Background and significance of the Meiji restoration (1868) and modernization; the development of Japanese militarism, the fall of the Japanese Empire and the emergence of the "New Japan." (Lec. 3) Kim (F)
- 376 Women in Muslim Societies (I or II, 3)** Examines gender relations in the modern Middle East through novels, poetry, and oral histories, as well as through historical and anthropological studies. (Lec. 3) Marmon (F) (L)
- 377 Revolution in Islam (I or II, 3)** Examines the history of revolutionary ideology in Islamic thought and places modern revolutions—such as the Iranian revolution of 1978—within a broader context of both Sunni and Shi'i radical activism. (Lec. 3) Marmon (F) (L)
- 378 Arab-Israeli Conflict (I or II, 3)** An examination of the roots of Arab nationalism and modern political Zionism; conflict between the World Wars; the creation of the state of Israel and the causes of continuing conflict since its creation. (Lec. 3) Marmon (F)

**381 History of Colonial Latin America (I, 3)** The interaction of American-Indian civilizations with European and African elements in the Spanish and Portuguese empires of the New World, concluding with the wars for independence. (Lec. 3) Staff (F) (L)

**382 History of Modern Latin America (II, 3)** Historical analysis of the political, cultural, and social-economic dimensions of tradition, reform, and revolution in Latin America since 1810. (Lec. 3) Staff (F) (L)

**384 The Caribbean: New World/Third World (I or II, 3)** Historical and contemporary development of the Caribbean world, emphasizing efforts by the regions' peoples to achieve political, economic, and cultural independence from external domination. (Lec. 3) Staff (F) (L)

**385 Revolution and Unrest in Central America and the Caribbean (II, 3)** Historical origins of social unrest in Central America and the Spanish-speaking Caribbean. Cuban and Nicaraguan revolutions, civil conflict in Guatemala and El Salvador, U.S. policy. (Lec. 3) *Pre: 180, 381, or 382 are recommended, but are not required prerequisites.* Parker

**388 (or AAF 388) History of Sub-Saharan Africa (I, 3)** Ancient and medieval Africa, and the impact of Islam; the "Glorious Age" of the Sudanic empires; the slave trade and the age of exploration; the period of European partition and the rise of African nationalism. (Lec. 3) *Pre: junior standing.* Weisbord (F)

**390 War in the Nuclear Age (II, 3)** American military history from World War II. Operations in World War II, Korea, Vietnam. Emphasis on the revolution in warfare wrought by nuclear weapons, current conventional and nuclear strategies, probable consequences of nuclear war. (Lec. 3) *Pre: junior standing.* Staff

**391 Directed Study or Research (I and II, 3)** Special work arranged to meet the needs of individual students who desire advanced work. (Lec. or Lab.) *Pre: permission of chairperson. May be repeated for a total of 6 credits with permission of the instructor and the chairperson.* Staff

**393 Topics in History (I and II, 1-3)** Subject, course content, and years offered will vary according to expertise and availability of instructors. *May be repeated for credit with permission of chairperson.* Staff

**395 Seminar in History (I or II, 3)** Development of skills in historical research and writing and in the critical analysis of historical works. Topics vary. *Required of and open only to history majors. May be repeated for credit with different topic and permission of instructor.* Staff

**396 History Computer Workshop (I or II, 3)** Application of selected computer resources to historical research and writing. *Pre: junior or senior standing and at least one 300-level history course or*

*permission of instructor. There will be additional work at the outset for students not familiar with the computer resources used in the course.* Honhart

**397 The Historical Landscape of Britain (SS, 3)** Taught in England. Examines the impact of political, military, religious, economic, and social change in the past six or seven centuries on the landscape of village and field and town and country. (Lecture and field trips) Usually taught in conjunction with ENG 397. Gutchen (F)

**398 History Through Science Fiction (II, 3)** Ideas about history in popular culture as seen in the literary genre of science fiction. (Lec. 3) Briggs and Klein (L)

**500 Colloquium in Selected Topics in History (I or II, 3)**

**502, 503 Special Readings in European History (I and II, 3 each)**

**505 Seminar in Selected Topics in History (I or II, 3)**

**536, 537 Special Readings in American History (I and II, 3 each)**

**544 (or LRS 544) Colloquium in Worker History (I or II, 3)**

**588, 589 Special Readings in Third World History (I and II, 3 each)**

**591 Directed Study or Research (I and II, 3)**

## Home Economics (HEC)

**400 Home Economics Seminar (II, 1)** Didactic and experimental learning in the areas of home economics. Historic perspective, current issues, and futuristic trends in home economics. (Lec. 1) *Pre: HSS 320 and field experience. Intended for general home economics majors. Not for graduate credit.* Staff

## Home Economics Education (HED)

**337 Teaching Effectiveness (II, 4)** Development of curriculum materials specific to individualized instruction; focus on communication skills in an educational setting; implementation of advanced methods and techniques in a microteaching and school setting. (Lec. 2, Lab. 4) *Pre: 334.* Staff

**478 Problems in Home Economics Education (I and II, 1-3)** Advanced work in home economics education. Seminars or supervised individual projects. (Lec. or Lab.) *Pre: permission of chairperson.* Staff

**506 Instructional Communications (I or II, 3)**

**507 Curriculum Development (I or II, 3)**

**508 Supervision of Student Teachers (I or II, 3)**

**509 Seminar in Home Economics Education (I or II, 3)**

**531 (or FSN 531) Teaching of Nutrition (I or II, 3)**

**586, 587 Problems in Home Economics Education (I and II, 3 each)**

## Honors Program (HPR)

Director: Professor Klein

Honors courses (HPR) are open only to eligible students. Consult the Special Academic Opportunities section of this bulletin or the honors program brochure for requirements. Sections of Honors courses that have been approved for General Education credit in particular areas are so marked.

**101 Analytical Thinking in the Humanities (I and II, 3)** Identification and comparison of analytical and critical methods employed by humanistic disciplines. Practice in their application. Fall 1992: *Critical Thinking in the Arts.* Key (A) Spring 1993: *Cinema and Literature.* Key (A)

**102 Analytical Thinking in the Social Sciences (I and II, 3)** Identification and comparison of the analytical and critical methods employed in the social sciences. Practice in their application. Staff (S)

**103 Analytical Thinking in the Natural Sciences (I, 3)** General themes in science as the basis for studying the "scientific method" and methods of analytical thinking common to problem solving in the sciences. (Lec. 3) Fall 1992: *Human Origins (Honors Section of APG 201).* LaVelle (N); Spring 1993: *Environmental Geology.* (Honors section of GEL 100). Murray (N); *Color Science.* Bide (N)

**104 Analytical Thinking in the Letters (I and II, 3)** Identification and comparison of analytical and critical methods employed by historians and philosophers. Practice in their application. Staff (L)

**111 Honors Course in Fine Arts (I and II, 1-4)**

**112 Honors Course in Language or Literature (I and II, 1-4)** Fall 1992: *The Literature of Family Crisis.* Martin; *Science Fiction and Fantasy.* Vaughn. Spring 1993: *Masterpieces of Literature (Honors section of ENG 160 (or CLS 160)).* Reaves (A)

**113 Honors Course in Philosophy (I and II, 1-4)** Fall 1992: *Non-Marxist Russian Philosophy.* Roberts

**114 Honors Course in History (I and II, 1-4)** Fall 1992: *History of Western Civilization Since 1789 (Honors section of HIS 114).* Honhart (L)

**115 Honors Course in Political Science or Economics (I and II, 1-4)** Fall 1992: *Introduction to Macroeconomics (Honors section of ECN 125).* McIntyre (S)

**116 Honors Course in Sociology or Anthropology (I and II, 1-4)** Spring 1993: *Issues and Problems in Contemporary Society (Honors section of SOC 102).* Gelles (S)

**117 Honors Course in Psychology (I and II, 1-4)**

**118 Honors Course in Speech Communication or Journalism (I and II, 1-4)**

**119 Honors Course in Interdisciplinary Studies (I and II, 1-4)**

121 Honors Course in Mathematics (I and II, 1-4)

122 Honors Course in Physical Sciences (I and II, 1-4)

123 Honors Course in Biological Sciences (I and II, 1-4)

201, 202 Honors Colloquium (I and II, 3 each) Spring 1993: *New Information Technologies—Panacea or Peril?* Mundorf and Dholakia

203 **The Prepared Mind: Critical and Analytical Problem Solving** (II, 3) Introduction to problem solving through the development of creativity, critical thinking, and communication skills. Focus on individual development in these areas. Pre: Must qualify for honors program. Staff (L)

301, 302 Honors Tutorial (I and II, 3 each) Fall 1992 and Spring 1993: *Administrative Internship Tutorial*. Staff

311 Honors Tutorial in Fine Arts (I and II, 1-3)

312 Honors Tutorial in Language or Literature (I and II, 1-3) Fall 1992: *The Bible as Literature*. Reaves. Spring 1993: *Recent American Nonfiction*. Martin; *Scientific and Technical Writing* (Honors section of WRT 333). Vaughn (Cw)

313 Honors Tutorial in Philosophy (I and II, 1-3) Spring 1993: *The Challenge of Skepticism*. Roberts

314 Honors Tutorial in History (I and II, 1-3) Fall 1992: *The French Revolution and Napoleon* (Honors section of HIS 309). Silvestri (L); Spring 1993: *History Computer Workshop*. Honhart

315 Honors Tutorial in Political Science or Economics (I and II, 1-3) Fall 1992: *The Political Economy of the New World Orders: From Columbus to Bush*. McIntyre

316 Honors Tutorial in Sociology or Anthropology (I and II, 1-3) Spring 1993: *Exploring Human Biological Diversity*. LaVelle

317 Honors Tutorial in Psychology (I and II, 1-3)

318 Honors Tutorial in Speech Communication or Journalism (I and II, 1-3)

319 Honors Tutorial in Interdisciplinary Studies (I and II, 1-3)

321 Honors Tutorial in Mathematics (I and II, 1-3)

322 Honors Tutorial in Physical Sciences (I and II, 1-3)

323 Honors Tutorial in Biological Sciences (I and II, 1-3)

331, 332 Honors Tutorial in Human Science and Services (I and II, 1-3 each)

341, 342 Honors Tutorial in Business (I and II, 1-3 each) Fall 1992: *Total Quality Management*. Erahimpour; Spring 1993: *Tools of Total Quality*. Ebrahimpour

351, 352 Honors Tutorial in Nursing (I and II, 1-3 each)

361, 362 Honors Tutorial in Engineering (I and II, 1-3 each)

371, 372 Honors Tutorial in Resource Development (I and II, 1-3 each)

381, 382 Honors Tutorial in Pharmacy (I and II, 1-3 each)

401, 402 Honors Project (I and II, 3 each)

411, 412 Honors Seminar (I and II, 3 each) Fall 1992: *Family Violence*. Gelles. *Advanced Developmental Psychology: Crosscultural Comparison*. Brady

## Human Development, Counseling, and Family Studies (HCF)

Chairperson: Professor Schaffran

150 **Personal Development** (I and II, 3) Emphasis on self-understanding and human relationships in general. Influence of societal roles, groups interaction, and contemporary cultural issues of individual development. (Lec. 3) Staff

200 **Life-Span Development I** (I and II, 3) For students who intend to enter a profession dealing with children. Physical, social, mental, emotional growth and development, and interrelations among them from birth to puberty. (Lec. 3) Staff

201 **Life-Span Development II** (I and II, 3) For students entering the human services. Introduction to social, mental, emotional growth and development, and interrelations among them. Emphasis on adolescence through senescence. (Lec. 3) Staff

203 **Introduction to Work with Children** (I and II, 3) Theory and practice in care, teaching, and guidance of preschool children. Lectures, discussion, and participation in nursery school. (Lec. 2, Lab. 2) Pre: 200. Cohen and Horn-Wingerd

220 **Gerontology: Theory and Application** (I, 3) Introduction to the study of aging processes: biological, psychological, and social theories. Health, social, and other age-related problems will be examined in the classroom and through interaction with older people. (Lec. 3, Rec. 1) Staff (S)

221 **Work with the Aging** (II, 3) Includes theoretical, ethical, and practical aspects of work with the aging. Each student will have ongoing field experience in a setting with older people. Own transportation desirable. (Lec. 2, Lab. 2) Pre: 220. Staff

301 **Curriculum in Early Childhood** (I, 3) Program planning and teaching techniques that foster development of the young child in all curriculum areas. Includes Piagetian assessment and three hours per week in a local child care setting. (Lec. 2, Lab. 3) Pre: 203. Staff

302 **Literature for Children** (I or II, 3) Literary heritage of American children and criteria for the selection and presentation of literature to children. (Lec. 3) Pre: junior standing. Staff

303 **Early Childhood Practicum** (II, 3) Supervised teaching in the Child Development Center with children through kindergarten age. Includes curriculum design and working with special needs children. (Lec. 2, Lab. 3) Pre: 301 or permission of instructor. Staff

304 **Contemporary Philosophies of Guiding Children** (I and II, 3) Factors involved in developing a philosophy of guidance of children and adolescents. The evolution of present-day theory. Contemporary writers read and discussed. (Lec. 3) Pre: 203 or permission of instructor. Staff

310 **Adolescent Growth and Development** (I and II, 3) Physical, psychological, social, and emotional growth and development of the individual during adolescent years. (Lec. 3) Pre: 200 or PSY 232. Blood

330 **Marriage and Family Relationships** (I and II, 3) Male-female relationships in courtship and the family system as influenced by personality and culture in a changing society. Professional and functional orientation. (Lec. 3) Pre: junior standing. Schroeder

350 **Human Relations Laboratory** (I or II, 1) Understanding individual behavior in the context of a social group; discussion and selected group dynamics techniques. (Lab. 2) Pre: 150, 200, and permission of chairperson. S/U credit. Staff

357 **Family and Community Health** (I and II, 3) Health maintenance throughout life. Specific health concerns of various age groups. Community and world health needs and agencies concerned with meeting these needs. (Lec. 3) Pre: junior standing. Clark

380 **Field Experiences in Community Agencies** (I and II, 9) Supervised experience in community agencies for individuals or groups with special needs. Students should apply for permission by end of fourth semester. Pre: 12 credits in HCF, senior standing, and permission of chairperson. Frank

400 **Child Development: Advanced Course** (I and II, 3) Presentation of theory of human development and consideration of some of the classical and current investigations in the field. (Lec. 3) Pre: 200 or equivalent. Cohen and Horn-Wingerd

406 **Growth and Development During Infancy** (I or II, 3) Study of developmental sequences from birth to two years with emphasis on biological, psychological, social, and environmental influences affecting growth. Laboratory periods consist of observation and experience with infants in various settings. Pre: 200 and permission of instructor. (Lec. 2, Lab. 2) Staff

420 **Human Development During Adulthood** (I or II, 3) Major social and cultural factors influencing development after physiological maturity and prior to senescence. Major theorists and normal crises of adulthood. (Lec. 3) Pre: 200 or 310 or equivalent. Staff

**421 Death, Dying, and Bereavement (I or II, 3)** Exploration of human death, dying, and bereavement. Focus on biomedical, psychological, and sociocultural dimensions of the topic. (Lec. 3) Knott

**422 Aging: Case Coordination (II, 3)** Explores concepts, principles, methods, and models of case coordination for older people; client characteristics and needs; environmental resources; assessment, coordination, evaluation, and advocacy. (Lec. 3) Pre: 220 and one other aging-related course, or permission of instructor. Staff

**424 Design and Delivery of Services for Mentally Retarded Adults (II, 3)** Study of community-based services for mentally retarded adults. Offered for students who are interested in gerontology and/or who are planning careers in the multidisciplinary field of mental retardation. (Lec. 3) Pre: 220 or permission of instructor. Rubin

**430 Family Interaction (I and II, 3)** Interdisciplinary approach to the dynamics of intrafamily relationships, interactions of family units and family members with elements of the sociocultural environment. (Lec. 3) Pre: 330 or SOC 100. Schroeder

**431 Family and the Elderly (I or II, 3)** Emphasis on the elderly in analysis of intergenerational organization and relationships. Cultural values, psychosocial factors, economic considerations, and societal trends relative to family life. (Lec. 3) Staff

**432 Perspectives on Parenting (I or II, 3)** Comprehensive study of central issues, research, and recent developments in the field of parenting; the impact of the behavioral sciences and social change on parents. (Lec. 3) Pre: 200 or permission of instructor. Staff

**433 Family Life Education (I or II, 3)** Interdisciplinary consideration of relationships between the sexes during childhood and adolescence, including: family health, normal psychosexual development, marriage, ethics, sex education, teaching of family relations. (Lec. 3) Pre: 330 or permission of chairperson. Staff

**434 Children and Families in Poverty (I or II, 3)** Interdisciplinary approach to understanding culturally and economically deprived people. Some experience working with such individuals or groups. (Lec. 2, Lab. 2) Pre: permission of instructor. Staff

**437 (or SOC 437) Law and Families in the United States (I or II, 3)** Seminar to investigate family roles, relationships, rights, and responsibilities as defined by the law. Emphasis on explicit and implicit family policy revealed in the various branches of law. (Sem. 3) Pre: 330 or SOC 212 or permission of instructor. Staff

**440 Environmental Context of Aging (I or II, 3)** Identifies theories and domains of person-environment interaction. Study of the normal aging-related changes as design determinants of the physical milieu. Emphasis on assessment and analysis of environment-behavior issues. (Lec. 3) Pre: 220 or permission of instructor. Kalymun

**450 Introduction to Counseling (I and II, 3)** Introduces students in human sciences to interviewing and counseling skills in both professional and paraprofessional settings. Integrates theory, practice, and application by didactic and experimental learning. (Lec. 3) Pre: graduate standing or permission of chairperson. Staff

**455 Assessment in Early Childhood (II, 3)** An overview of cognitive, affective, and psychomotor assessments used by early childhood educators. Consideration of various types of assessment, evaluation of assessment techniques, and examination of current trends and practices. (Lec. 3) Pre: student teaching or equivalent and permission of instructor. In alternate years. Next offered spring 1994. Horm-Wingerd

**456 Assessment Practicum (II, 3)** Supervised experience in completing cognitive, affective, and psychomotor assessments of young children. (Lec. 1, Lab. 4) Pre: credit or concurrent enrollment in 455. In alternate years. Next offered spring 1994. Horm-Wingerd

**497, 498 Special Problems (I and II, 1-3 each)** Open to qualified seniors or graduate students who wish to do advanced work. (Lec. or Lab. according to nature of problem) Pre: senior standing and permission of chairperson. Staff

**500 Child Development Seminar (I or II, 3)**  
**501 Seminar in Early Childhood Education (I or II, 3)**

**502 Cognitive Aspects of Early Childhood (I and II, 3)**

**504 Contemporary Theories of Ego Development (I, 3)**

**505 Human Sexuality and Counseling (I or II, 3)**  
**520 Developmental Issues in Later Life (I or II, 3)**

**527 Health Care Policy and the Elderly (II, 3)**

**529 Practicum Seminar in Gerontology (I and II, 1)**

**530 Family Theory Seminar (I, 3)**

**535 Families Under Stress: Coping and Adaptation (I, 3)**

**550 Vocational Information and Career Development (I or II, 3)**

**551 Counseling Theory and Techniques (I and II, 3)**

**553 Counseling Practicum (I and II, 3)**

**554 Individual Appraisal in Human Services (II, 3)**

**555 Gerontological Counseling (I or II, 3)**

**559 Gender Issues in Therapy (I or II, 3)**

**560 Group Procedures in Counseling (I and II, 3)**

**562 Organization Development in Human Services (II, 3)**

**563 Marital and Family Therapy I (I, 3)**

**564 Marital and Family Therapy II (II, 3)**

**565 Family Therapy Practicum (I or II, 3)**

**566 Theoretical and Clinical Problems (II, 3)**

**567 Principles and Practices of Student Personnel Services in Higher Education (I, 3)**

**568 Organization and Administration of Student Personnel Services in Higher Education (II, 3)**

**569 Assessment in Family Therapy (I or II, 3)**

**570 Research in Human Development and Family Studies (I and II, 3)**

**580, 581 Professional Seminar in Counseling (I and II, 3 each)**

**583, 584 Master's Internship (I and II, 3-6 each)**

**590 Higher Education Law (I or II, 3)**

**597, 598 Advanced Study (I and II, 1-3 each)**

## Human Science and Services (HSS)

Dean: Associate Professor Brittingham

**222 Introduction to Human Science and Services (I and II, 3)** Survey of contemporary human service needs and delivery systems with emphasis on historical development, values, ethics, agency structures and functions, and consumers. (Lec. 3) Pre: any one of the following—ECN 125, PSC 113, SOC 102, PSY 113, HCF 200 or 201. McKinney

**320 Introduction to Research in Human Science and Services (II, 3)** Consideration of the philosophy, principles, methods, and materials involved in research in the human sciences. Emphasis also on research reading, writing, and presentation skills. (Lec. 3) Staff

**350 Foundations of Public Policy in Human Services (I and II, 3)** The analysis of recent public policy proposals in various areas of human services through differing ideological assumptions of traditional and contemporary views of helping professionals. (Lec. 3) Willis and Russo (S)

**370 Field Experience in Human Science and Services (I or II, 6-12)** Supervised field experience in human service agencies. Prior to placement, students must develop a learning contract in consultation with the agency and their faculty advisor. Pre: junior standing in human science and services and permission of instructor. S/U only. McKinney

**390 Topics in Human Science and Services (I or II, 1-3)** Study of contemporary issues in the field of human services. Subject and course content will vary according to expertise and availability of instructor. Pre: permission of instructor. May be repeated for credit with different topic. Staff

**399 Senior Project in Human Science and Services (I and II, 3)** Supervised project conducting research or creating a product for a human services agency. Pre: senior standing in human science and services. Staff

**491, 492 Special Problems (I or II, 1-3 each)** Independent study. Advanced work in the human services under the supervision of a faculty member. Pre: permission of instructor and the Division of Interdisciplinary Studies. Not for graduate credit in human development, counseling, and family studies. Staff

**530 Multidisciplinary Health Seminars for the Elderly (I or II, 3)**

## Industrial and Manufacturing Engineering (IME)

*Chairperson:* Professor Knight

**220 Introduction to Industrial Engineering (I, 3)** Role of industrial and manufacturing engineers, organization for optimum productivity, work measurement, labor relations, wage and salary administration, facilities and process design, safety, robotics, and other computer-aided manufacturing technology. (*Lec. 3*) *Pre:* MTH 142 and CSC 201. Staff

**240 Manufacturing Processes (II, 3)** Introduction to manufacturing processes. Metrological systems, various unit processes in manufacturing and numerical control of machine tools. Processes, measurement, accuracy, and precision as they relate to deformation, structure, and state of material. (*Lec. 2, Lab. 3*) *Pre:* CHM 101, PHY 214, credit or concurrent enrollment in CVE 220. Staff

**325 Computer Solution in Industrial and Manufacturing Engineering (II, 3)** Introduction to microcomputers including extensive computer laboratory experience. Problems in manufacturing, mathematical programming, inventory and production systems, methods and other systems where a computer is needed to reach a solution. Numerical methods. (*Lec. 3*) *Pre:* 220, CSC 201, and MTH 141. Reynolds

**340 (or CHE 340) Materials Processing and Metrology I (I, 3)** An introduction to the fundamentals of materials processing and metrology. Includes laboratory demonstrations and experiments in machining, casting, and metrology. (*Lec. 3*) *Pre:* CHE 333 or 437 and CVE 220. Brown

**391, 392 Special Problems in Industrial Engineering (I and II, 1-3 each)** Independent study and seminar work under close faculty supervision. Discussion of advanced topics in preparation for graduate work. *Pre:* junior standing and permission of chairperson. Staff

**404 Engineering Economy (I and II, 3)** Effects of economics on engineering decisions in design, selection, and replacement of equipment and evaluation of project proposals. Theory of depreciation and obsolescence. (*Lec. 3*) *Pre:* ECN 125 and MTH 142. Not for graduate credit in manufacturing engineering. Olson

**411 Probability for Engineers (I, 3)** Elementary probability theory, random variables, and probability distributions. Moment-generating functions, expected values, bivariate normal distributions. Introduction to applied statistics in engineering. (*Lec. 3*) *Pre:* MTH 243. Lawing or Shao

**412 Statistics for Engineers (II, 3)** Continuation of 411. Estimation, hypotheses tests, sampling theory, linear regression. Other engineering applications of applied statistics. (*Lec. 3*) *Pre:* 411. Staff

**430 Design and Analysis of Compensation Systems (II, 3)** Wage and employment theory, job evaluation, motivational systems, supplemental

payments; labor force loading, leveling, and scheduling. Analysis of influence of unions on labor price theory. (*Lec. 3*) *Pre:* senior standing. Staff

**432 Operations Research: Deterministic Models (I, 3)** Introduction to major areas of operations research and their application to systems analysis. Linear programming, game theory, elementary network analysis, and related topics. (*Lec. 3*) *Pre:* MTH 243, 362, or equivalent. Sohdi

**433 Operations Research: Stochastic Models (II, 3)** Introduction to inventory and replacement models, queuing theory, simulation, simple stochastic models, and their relation to selected problems. (*Lec. 3*) *Pre:* 411 and MTH 243. Sohdi

**435 Introduction to Operations Research (I and II, 3)** Major areas of operations research and their application in systems analysis; development of models and techniques for solving problems such as linear programming, networks, queuing, inventory, and simulation. (*Lec. 3*) *Pre:* MTH 243 or equivalent. Not for major credit in industrial and manufacturing engineering. Staff

**441 Metal Casting (II, 3)** An introduction to the field of metal casting. Areas covered include sand casting, investment casting, die casting, permanent mold casting, risering and gating, alloys, solidification phenomena, and casting design. (*Lec. 2, Lab. 3*) *Pre:* 240, CHE 333 or 437. Staff

**443 Machining and Machine Tools (II, 3)** Machine tool motions, power requirements, and machining times. Mechanics and economics of metal machining. Introduction to numerical control and computer-aided programming of CNC machine tools. (*Lec. 3*) *Pre:* CVE 220 and IME 240 or 340. Knight

**444 Assembly and Handling Automation (I, 3)** Types and economics of automatic assembly systems. Analyses of automatic feeding and orienting techniques for small parts. Application of robots in assembly. (*Lec. 3*) *Pre:* MCE 263 and IME 240 or 340. Boothroyd

**446 (or MCE 446) Metal Deformation Processes (II, 3)** Study of the characteristics of metal flow under different loading conditions. Theories, capabilities, and limitations of a wide range of deformation processes applied to industrial metalworking. (*Lec. 3*) *Pre:* 240 or 340, CVE 220, and CHE 333. Dewhurst

**449 (or MCE 449) Product Design for Manufacturability (I, 3)** Techniques for analyzing product structures for ease of assembly and manufacture. Manual, robot, and high-speed mechanized assembly systems considered for mechanical and electronic products. Covers choice of material and processes in early design. (*Lec. 3*) *Pre:* 240 or 340, 443, or permission of instructor. Dewhurst or Boothroyd

**450 Computer-Aided Industrial and Manufacturing Engineering (I, 3)** Algorithm formulation and computer-aided problem solving in engineering economics, materials processing and forming,

design for assembly, robotics, and operations research. Extensive computer laboratory experience on individual microcomputers. *Pre:* 404, 412, 432, or permission of instructor. Reynolds

**451 Industrial Engineering Systems (II, 3)** Design and analysis of systems of production facilities and materials handling. Compensation, production, and inventory control systems. Applications of and case problems in operations research, probability and statistics, engineering economy, and other foundation areas. Introduction to simulation. *Pre:* permission of instructor. Staff

**491, 492 Special Problems (I and II, 1-6 each)** Advanced work under the supervision of a member of the staff and arranged to suit the individual requirements of the student. (*Lec. or Lab. according to nature of problem.*) *Pre:* permission of chairperson. May be repeated for a maximum of 12 credits. Staff

**500 Network Application in Industrial Engineering (II, 3)**

**513 Statistical Quality Assurance (I, 3)**

**514 Special Topics in Statistical Quality Assurance (II, 3)**

**525 Simulation (II, 3)**

**533 Advanced Statistical Methods for Research and Industry (I, 3)**

**540 Production Control and Inventory Systems (I, 3)**

**541 Materials Processing and Metrology II (I, 3)**

**542 Introduction to Computer-aided Manufacturing (I, 3)**

**543 Fundamentals of Machining (II, 3)**

**544 Automatic Assembly (I, 3)**

**545 Manufacturing Systems: Analysis, Design, Simulation (I, 3)**

**546 Advanced Metal Deformation Processes (II, 3)**

**549 Advanced Product Design for Manufacture (II, 3)**

**550 Design for Producibility (II, 3)**

**555 Engineering Applications of Mathematical Programming I (I, 3)**

**556 Engineering Applications of Mathematical Programming II (II, 3)**

**565 Theory of Scheduling (II, 3)**

**591, 592 Special Problems (I and II, 1-6 each)**

## Information Science (ISC)

*Acting Director:* Associate Professor Tryon

**344 Introduction to Information Science (I or II, 3)** Introduction to the theory and concepts of information science; applications in information systems, information processing, and communication systems; emphasis on interdisciplinary study of information and its social importance. Siitonen

**348 Information Technology (I or II, 3)** Introduction to the theory and operations of information processing, transfer, and storage systems. Computer, photographic, audio, and video technologies will be among those investigated. Carson

## Insurance (INS)

*Chairperson:* Associate Professor Dash  
(Finance and Insurance)

**301 Fundamentals of Risk Management and Insurance (I and II, 3)** Basic course in risk management and insurance. Emphasis on personal risk management and the personal lines coverages: homeowner's insurance, personal automobile insurance, and basic life insurance policies. (Lec. 3) *Proficiency test available.* Staff

**414 Commercial Property and Liability Insurance (I, 3)** Analysis of commercial property and liability risk exposures and their related coverages. Coverages includes general property and liability insurance and specialized topics for marine, fidelity, surety, and professional liability exposure. (Lec. 3) *Not for graduate credit.* Staff

**425 (325) Life Insurance (II, 3)** Analysis of the many types of life insurance and health insurance contracts, computation of premiums and reserves, and contract interpretation. Included is an analysis of the uses of life insurance contracts. (Lec. 3) *Note: This course is preparation for the Rhode Island state licensing examination in life and accident and health insurance and for Part I of the charter life underwriter examination. Not for graduate credit.* Staff

**433 Social Insurance (I, 3)** Analysis of the network of state and federal economic security programs including the OASDHI system, unemployment compensation, temporary disability programs, and the workers' compensation system. (Lec. 3) *Pre: ECN 125 and 126, or permission of instructor.* Staff

**471 Topics in Insurance (II, 3)** Analysis of selected topics and current issues in the insurance marketplace. Topics will vary from semester to semester. (Lec. 3) *Pre: FIN 331, INS 301, 313, and 325, or permission of instructor.* Staff

**491, 492 Directed Study (I and II, 3 each)** Directed readings and research work including insurance problems under the supervision of a staff member. *Pre: permission of instructor and junior or senior standing.* Staff

**493 Internship in Insurance (I or II, 3)** Approved, supervised work experience with participation in management and problem solving related to insurance. Fifteen working days (or 120 hours). *Pre: junior standing and proposal approved by the College of Business Administration. May be repeated for credit. Not for graduate credit in insurance. S/U only.* Staff

## Irish (IRE)

*Chairperson:* Professor Grandin (Modern and Classical Languages and Literatures)

**391 Irish Literature in Translation to 1607 (I, 3)** Reading and analysis in English of Irish Gaelic literature through the Classical Age. (Lec. 3) *Next offered fall 1993.* McNab (F)

**392 Irish Literature in Translation from 1608 (II, 3)** Reading and analysis in English of Irish Gaelic literature from the end of the Classical Age through the Gaelic Revival. (Lec. 3) *Next offered fall 1992.* McNab (F)

## Italian (ITL)

*Section Head:* Professor Trivelli

**101 Beginning Italian I (I and II, 3)** Elements of the language, pronunciation, grammar, inductive reading; exercises in reading, writing, and conversation. (Lec. 3) *Pre: no prior Italian.* Staff (F)

**102 Beginning Italian II (I and II, 3)** Continuation of 101. *Pre: 101 or equivalent.* Staff (F)

**103 Intermediate Italian I (I and II, 3)** Development of facility in reading texts of moderate difficulty, supplemented by further work in grammar, conversation, and composition. (Lec. 3) *Pre: 102 or equivalent.* Staff (F)

**104 Intermediate Italian II (I and II, 3)** Continuation of 103. *Pre: 103 or equivalent.* Staff (F)

**205, 206 Conversation and Composition (I and II, 3)** Intensive course in conversation and composition. Promotes facility in speaking and understanding idiomatic Italian. (Lec. 3) *Pre: 104 or permission of chairperson.* Staff

**301, 302 Civilization of Italy (I and II, 3 each)** The most important aspects of Italian civilization. **301:** From the Middle Ages to the end of the Renaissance. **302:** From the seventeenth century to the present. (Lec. 3) *Pre: 205 or 206 or permission of chairperson.* Staff

**305 Advanced Conversation and Composition (I or II, 3)** Intensive practice in spoken and written Italian. (Lec. 3) *Pre: 205 or 206 or permission of chairperson.* Staff

**309 Techniques of Translation (I or II, 3)** Principles and techniques of translating written Italian into English and vice versa. Text materials of different types used in practical work: scientific, journalistic, business, and literary language. (Lec. 3) *Pre: 205 or 206 or permission of chairperson.* Viglionese

**315 Italian Cinema (I or II, 3)** Representative Italian films and their directors through viewing and discussions of films, lectures, and readings. (Lec. 3) *Pre: 205 or 206 or permission of chairperson.* Viglionese

**325, 326 Introduction to Italian Literature (I and II, 3 each)** Appreciation of literature. Representative texts of Italian narrative, drama, and lyric poetry. Elements of the methods of criticism. (Lec. 3) *Pre: 205 or 206 or permission of chairperson.* Staff (A)

**391, 392 Masterpieces of Italian Literature (I and II, 3 each)** Reading in English translation of selected Italian authors of greatest significance. **391:** Medieval and Renaissance. **392:** Post-Renaissance to twentieth century. (Lec. 3) *Not for major credit in Italian.* Staff (A) (F) for 391; (A) for 392.

**395 Dante's Divine Comedy (I or II, 3)** Reading in English translation of Dante's chief work. (Lec. 3) *Not for major credit in Italian. In alternate years.* Viglionese (A) (F)

**408 The Italian Language (I or II, 3)** Advanced study of the structure of the Italian language. Analysis of linguistic elements as found in representative authors from the thirteenth to twentieth century. (Lec. 3) *Pre: one 300-level course or permission of instructor. In alternate years. Next offered spring 1993.* Trivelli

**455 Selected Italian Authors (I or II, 3)** Works of one or more major authors of Italian literature. Specific author(s) are designated the semester before the course is given. (Lec. 3) *Pre: one 300-level course or permission of instructor. In alternate years. Next offered fall 1992.* Sillanpoa

**465 Topics in Italian Literature (I or II, 3)** Special topics or themes in Italian literature not treated or emphasized in other courses. (Lec. 3) *Pre: one 300-level course or permission of instructor. In alternate years. Next offered spring 1994.* Staff

**480 Business Italian (I or II, 3)** Study of concepts and terminology relating to the Italian business world. (Lec. 3) *Pre: junior standing, credit or concurrent enrollment in at least one 300-level Italian course, or permission of instructor. Next offered spring 1993.* Trivelli

**481 The Works of Dante Alighieri (I and II, 3 each)** Dante's works with special attention given to analysis and interpretation of *The Divine Comedy* from the social, religious, philosophical, and political viewpoints of the Middle Ages. (Lec. 3) *Pre: one 300-level course or permission of instructor. In alternate years. Next offered 1992-93.* Viglionese

**497, 498 Directed Study (I and II, 3 each)** Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Lec. 3) *Pre: acceptance of project by staff member and approval of chairperson.* Staff

## Japanese (JPN)

*Chairperson:* Professor Grandin (Modern and Classical Languages and Literatures)

**101 Beginning Japanese I (I and II, 3)** Fundamentals of grammar and pronunciation, exercises in reading, writing, and conversation. (Lec. 3) *Pre: No prior Japanese is required.* Staff (F)

**102 Beginning Japanese II (I and II, 3)** Continuation of 101. (Lec. 3) *Pre: 101 or equivalent.* Staff (F)

**103 Intermediate Japanese I (I and II, 3)** Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. (Lec. 3) *Pre: 102 or equivalent.* Staff (F)

**104 Intermediate Japanese II (I and II, 3)** Continuation of 103. (Lec. 3) *Pre: 103 or equivalent.* Staff (F)

## Journalism (JOR)

*Chairperson:* Associate Professor Luebke

**110 Introduction to the Mass Media (I or II, 3)** Surveys newspapers, magazines, radio, movies, television, advertising, and emerging technologies. Examines economic and news functions of each. Considers First Amendment, legal and ethical problems, restrictions, and social consequences of media. (*Lec. 3*) *Not for major credit in journalism.* Staff

**115 Foundations of American Journalism (I and II, 3)** Introduction to basic theories and principles of American journalism, and some of the major issues journalists confront. Examines news media audiences, effects, freedom, and responsibility. (*Lec. 3*) *For journalism majors only.* Staff

**210 History of American Journalism (I, 3)** Development of American newspapers, magazines, and broadcast industry with analysis of the ideas that have changed American journalism. Exploration of the journalists' experience at periods in American history; the effects of economic and social changes on the press. (*Lec. 3*) *Pre: 110 or 115 or permission of instructor.* Staff

**220 Introduction to News Reporting and Writing (I and II, 3)** Fundamentals of news gathering and factual writing. Practice in covering events and writing basic news stories. Includes introduction to stylebooks and review of basic grammar. (*Lec. 2, Lab. 2*) *Pre: sophomore standing, WRT course with a grade of C or better, passing a departmentally administered entrance exam, ability to type.* Staff

**230 Introduction to Radio and Television News (I and II, 3)** Beginning course in the principles and techniques of radio and television news gathering and writing. Stress is placed on copy formats, broadcast style, and basic production techniques. Frequent out-of-class and off-campus assignments. (*Lec. 2, Lab. 2*) *Pre: 220 with a grade of C or better.* Staff

**310 Mass Media Law (I or II, 3)** Role of government and the law in the communication of news, including basic laws affecting freedom of the press, journalists' privileges and responsibilities, privacy, and advertising. Case studies. (*Lec. 3*) *Pre: junior standing and 110 or 115 or permission of instructor.* Staff

**311 Media Criticism in America (I or II, 3)** Examines news media performance in the United States by studying the works of media critics, both historical and contemporary. Practice in media monitoring and writing media criticism. (*Lec. 3*) *Pre: 110 or 115 or permission of instructor.* Staff

**320 Public Affairs Reporting and Writing (I and II, 3)** Practice in gathering and writing news of public affairs, including local and state government, courts, law enforcement. Introduces public records, alternatives to straight news story, interviewing techniques, rewriting. Frequent out-of-class and off-campus assignments. (*Lec. 2, Lab. 2*) *Pre: 220 with a grade of C or better.* Staff

**321 Magazine Article and Feature Writing (I or II, 3)** Planning, researching, and writing articles and feature stories for magazines and newspapers. Discussion of markets, freelance and job opportunities. Articles written and submitted to publications. (*Lec. 3*) *Pre: 220 with a grade of C or better, or permission of instructor.* Staff

**325 Copy Editing (I or II, 3)** An introduction to editing stories, writing headlines, and designing pages for newspapers. Extensive use of computers. Includes an examination of news selection and legal and ethical problems faced by editors. (*Lec. 2, Lab. 2*) *Pre: junior standing, 320 with a grade of C or better, or permission of instructor.* Staff

**330 Television News (I and II, 3)** Intermediate course in news gathering and writing for television. Emphasizes reporting, writing, anchoring, and producing. Group work leads to production of one-half hour studio newscast. Frequent out-of-class and off-campus assignments. (*Lec. 2, Lab. 2*) *Pre: 230 with a grade of C or better.* Staff

**331 Electronic News Gathering (I or II, 3)** Skill development in the visual technology of television news. Techniques of single-camera field production are stressed. Introduction to fundamentals of video tape editing; practice in ENG photography and editing. Frequent out-of-class and off-campus assignments. (*Lec. 2, Lab. 2*) *Pre: 230 with a grade of C or better.* Staff

**340 Public Relations (I, 3)** Principles and procedures in public relations: emphasis on role of the public relations practitioner as a specialist in communication; analysis of publications produced as a part of public relations. (*Lec. 3*) *Pre: junior standing and 220 with a grade of C or better.* Staff

**341 Editing for Publication (I or II, 3)** An introduction to writing, editing, designing, and producing publications such as newsletters using desktop publishing technology. Public relations focus. Includes consideration of legal and ethical issues. (*Lec. 2, Lab. 2*) *Pre: 340.* Staff

**345 Journalism Internship (I and II, 3 or 6)** Supervised experience in: (a) reporting and writing; (b) editing; (c) radio news; (d) television news; (e) public relations. Requires a minimum of 120 hours (3 credits) or 240 hours (6 credits). Weekly one-hour class meeting. Maximum of 6 credits allowed toward graduation. *Pre: journalism majors and minors, and public relations minors only. Permission of instructor and application required. S/U only.* Staff

**410 Mass Media Issues (I or II, 3)** Critical analysis of current issues affecting journalists and society in general, based on readings, videotapes, case studies, and discussion. Emphasis on ethics and decision making. (*Lec. 3*) *Pre: 110 or 115 or senior standing or permission of instructor.* Staff

**415 Perspectives on Reporting (I or II, 3)** Critical assessment of reporting through the reading and analysis of various types of reporting, including

literary journalism, muckraking, investigative reporting, and New Journalism. (*Lec. 3*) *Pre: 110 or 115 and junior standing.* Staff

**420 Advanced Reporting and Writing (I or II, 3)** Planning, developing, and writing complex news stories for publication. Emphasizes story-idea generation, information gathering from multiple sources, using public records and documents, and advanced interviewing techniques. Frequent out-of-class and off-campus assignments. (*Lec. 3*) *Pre: junior standing and 320 with a grade of C or better.* Staff

**430 Advanced Television News (I or II, 3)** Practical experience in longer, more specialized news formats. Students write, videotape, and edit television pieces throughout the semester, leading to a project of documentary length. (*Lec. 2, Lab. 2*) *Pre: 330 with a grade of C or better and senior standing.* Staff

**440 Independent Study (I and II, 1-3)** Individual reading programs, research, or project in journalism or mass media. *Pre: junior standing and submission to chairperson of proposal signed by supervising faculty member.* Staff

**441 Public Relations Practices (II, 3)** Practical application of traditional PR methods in solving problems in a variety of vertical markets. Explores fundamental agency operations, client-agency relationships. Combines practical experience with individual projects, programs, and campaigns. (*Lec. 3*) *Pre: 340.* Staff

**445 Special Topics in Journalism (I or II, 3)** Subject, course content, and years offered will vary according to expertise and availability of instructors. *Pre: permission of instructor. May be repeated for credit with different topic.* Staff

## Labor and Industrial Relations (LRS)

*Director:* Professor Schmidt

**432 Industrial Sociology**  
See Sociology 432.

**520 Labor Union Government and Structure (I or II, 3)**

**521 (or PSC 521) International and Comparative Trade Unions and Labor Relations (I or II, 3)**

**526 (or ECN 526) Economics of Labor Markets (I and II, 3)**

**531 Employment Law (I or II, 3)**

**533 Negotiating Pension, Health, and Employee Assistance Programs (I, II, or SS, 3)**

**534 (or ECN 534) Information Sources and Uses in Labor Relations and Labor Economics (II, 3)**

**541 Labor Relations Law (I or II, 3)**

**542 Labor Relations and Collective Bargaining (I or II, 3)**

**543 Labor Relations and Collective Bargaining: Public Sector (I or II, 3)**



- 544 (or HIS 544) Colloquium in Worker History (I or II, 3)
- 545 Labor Dispute Settlement (I or II, 3)
- 546 Alternative Dispute Resolution Processes and Applications (I, II, or SS, 3)
- 579 (or EDC 579) Labor Relations and Collective Bargaining in Education (I, II, or SS, 3)
- 580 Professional Seminar: Labor and Industrial Relations (II, 3)
- 581 Internship: Labor and Industrial Relations (I and II, 3-6)
- 590, 591 Directed Readings and Research in Labor and Industrial Relations (I or II, 3 each)

## Landscape Architecture (LAR)

Chairperson: Professor Hull (Plant Sciences)

- 201 Survey of Landscape Architecture (I, 3) Introduction to landscape design theory and composition as an applied art form. (Lec. 3) Hanson (A)
- 202 Origins of Landscape Development (II, 3) Examines the impact of environment, social history, philosophy, art, and literature on architecture and landscape development from ancient to modern times. Emphasis on European Renaissance through contemporary United States. (Lec. 3) Hanson (L)
- 243 Landscape Architecture Graphics (I, 4) Introduction to landscape graphic communication techniques with emphasis on design and construction drawing and perspective illustration. (Lec. 2, Studio 4) Simeoni
- 244 Basic Landscape Architectural Design (II, 4) Introduction to the development of outdoor space with emphasis on the design process and the manipulation of spatial volumes. (Lec. 2, Studio 4) Pre: 243. Simeoni
- 343 Landscape Architecture Studio I (I, 4) Landscape concepts in graphic form. Emphasis on preparing landscape plans for small- to intermediate-scale properties. Students study in a professional studio environment. (Lec. 2, Studio 4) Pre: 201, 202, and 244. Intended for landscape architecture majors only. Dunnington
- 344 Landscape Architecture Studio II (II, 4) Continuation of landscape concepts and graphics. Emphasis on drawing landscape plans for intermediate- to larger-scale properties. Advanced rendering. (Lec. 2, Studio 4) Pre: 343. Intended for landscape architecture majors only. Dunnington
- 345 Landscape Construction I (I, 3) A comprehensive survey of construction materials and their uses in landscape construction. (Lec. 1, Studio 4) Pre: 244. Intended for landscape architecture majors only. Dunnington
- 346 Landscape Construction II (II, 3) The study of soil adjustment; grading, drainage, cut and fill, reshaping of earth surfaces. (Lec. 1, Studio 4) Pre: 345 and NRS 451. Intended for landscape architecture majors only. Dunnington

353 (or PLS 353) Landscape Plants I (I, 3) Identification and description under fall conditions; classification and adaptation of the important trees and shrubs including broadleaf evergreens and their value in ornamental plantings. (Lec. 1, Lab. 4) Pre: BIO 101 or BOT 111. Simeoni

354 (or PLS 354) Landscape Plants II (II, 3) Identification and description under winter and spring conditions; classification and adaptation of the coniferous evergreens, vines, and groundcovers and their value in ornamental plantings. (Lec. 2, Lab. 2) Pre: 353. Simeoni

### 399 Internship

See Plant Sciences 399.

443 Planting Design (I, 4) The use of plant materials in landscape composition. Combines spatial definition of various land uses with plant selection. Preparation of plans, details, and specifications. (Lec. 2, Studio 4) Pre: 344 and 354. Intended for landscape architecture majors only. Not for graduate credit. Hanson

444 Landscape Architecture Studio III (I, 4) Relationships between principles of landscape design and elements of the environment that contribute to development of ecologically based plans. Client conferences and specifications for woody ornamental plants. (Lec. 2, Studio 4) Pre: 344 and 346. Intended for landscape architecture majors only. Dunnington

445 Landscape Architecture Studio IV (II, 4) Study of comprehensive landscape architectural projects. Coordination of research, preparation of contract documents, and office procedures. (Lec. 2, Studio 4) Pre: 443 and 444. Intended for landscape architecture majors only. Not for graduate credit. Hanson

447 Professional Landscape Architectural Practice (II, 3) Professional practice, ethics, marketing design services, preparation of contract documents, and effective time management. (Lec. 3) Pre: senior standing in landscape architecture. Not for graduate credit. Hanson

### 491, 492 Special Projects and Independent Study

See Plant Sciences 491, 492.

## Languages (LAN)

Chairperson: Professor Grandin (Modern and Classical Languages and Literatures)

191 Beginning Foreign Language I (I and II, 3) Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation in a foreign language not included in regular departmental offerings. (Lec. 3) Pre: no prior experience in specific language. May be repeated for credit for different languages. Choice of specific language to be taught subject to availability of staff and student demand. Staff (F)

192 Beginning Foreign Language II (I and II, 3) Continuation of 191. Pre: 191 or equivalent in same language as 191. May be repeated for credit for different languages. Choice of specific language to be taught subject to availability of staff and student demand. Staff (F)

193 Intermediate Foreign Language I (I and II, 3) Development of facility in speaking, listening, comprehension, writing, and reading texts of moderate difficulty in a language not included in regular departmental offerings. (Lec. 3) Pre: 192 or equivalent in the same language as 193. Choice of specific language to be taught subject to availability of staff and student demand. Staff (F)

194 Intermediate Foreign Language II (I and II, 3) Continuation of 193. Pre: 193 or equivalent in the same language as 194. Choice of specific language to be taught subject to availability of staff and student demand. Staff (F)

## Latin (LAT)

Chairperson: Professor Grandin (Modern and Classical Languages and Literatures)

101 Beginning Latin I (I and II, 3) Latin grammar and syntax. Exercises in reading prose. (Lec. 3) Pre: no previous Latin. Wright (F)

102 Beginning Latin II (I and II, 3) Continuation of 101. Pre: 101 or equivalent. Wright (F)

301 Intermediate Latin (I, 3) Grammar review; readings such as Petronius *Satyricon*. (Lec. 3) Pre: 102 or equivalent. Suter (F)

302 Intermediate-Advanced Latin (II, 3) Study of Latin texts from different time periods and different genres; syllabus changes on a four-year rotational basis. (Lec. 3) Pre: 301 or permission of instructor. May be repeated for a maximum of 12 credits with different topics. Suter (F)

497, 498 Directed Study (I or II, 1-6 each) Individual readings and research. Pre: acceptance of a project by a staff member; approval of chairperson. May be repeated for credit with different topic. Staff

## Latin American Studies (LAS)

Committee Chairperson: Assistant Professor Morin

397 Directed Study for Senior Research Project (I, 3) Research in a particular area of Latin American studies. Project must be approved by the LAS Committee. Pre: approval of LAS Committee and instructor. Staff

The following are related courses offered in the Departments of Art, Economics, History, Languages, Political Science, Sociology and Anthropology, and Speech Communication.

### Anthropology

- 303 New World Prehistory  
315 Cultures and Societies of Latin America  
324 Peasant Societies  
470 Problems in Anthropology

**Economics**

- 338 International Trade and Policy  
363 Economic Growth and Development

**History**

- 180 Introduction to Latin American Civilization  
382 History of Modern Latin America  
391 Directed Study or Research  
580 Colloquium in Latin American History

**Political Science**

- 201 Introduction to Comparative Politics  
431 International Relations  
432 International Government

**Portuguese**

- 335, 336 Topics in the Literature of the Portuguese-Speaking World  
497, 498 Directed Study

**Spanish**

- 305 Early Spanish-American Literature and Culture  
306 Modern Spanish-American Literature and Culture  
393 Modern Hispanic-American Literature in Translation  
487 Modern Spanish-American Narrative  
497, 498 Directed Study  
571 Modern Spanish-American Authors  
572 Evolution of Spanish-American Culture and Thought  
590 The Hispanic Presence in the United States

**Speech Communication**

- 473 Intercultural Communication

**Letters (LET)**

*Coordinator:* Professor Cohen

151 **Topics in Letters** (*I or II, 3*) Study of the history of thought, of the search for values, of the attempt to define the human condition, as reflected in written texts, both in the past and present. (*Lec. 3*) *May be repeated for credit with different topic.* Staff (L)

351 **Topics in Letters** (*I or II, 3*) Study of the history of thought, of the search for values, of the attempt to define the human condition, as reflected in written texts, both in the past and present at an advanced level. (*Lec. 3*) *Pre: junior standing. May be repeated for credit as often as the topic changes.* Staff (L)

**Library and Information Studies (LSC)**

*Acting Director:* Associate Professor Tryon

*Students in good standing may take up to six hours of graduate-level Library and Information Studies courses in their senior year with the permission of the director of the Graduate School of Library and Information Studies.*

501 Foundations of Library and Information Science (*I and II, 3*)

502 Library Administration (*I and II, 3*)

503 Collection Development (*I and II, 3*)

504 Reference and Information Services (*I and II, 3*)

505 Organization of Library Materials (*I and II, 3*)

506 Technical Services (*I or II, 3*)

510 History of Books and Printing (*I or II, 3*)

512 History of Libraries and Librarianship (*I or II, 3*)

513 Intellectual Freedom and Censorship (*I or II, 3*)

516 Librarianship and Public Policy (*I or II, 3*)

520 The School Library Media Center (*I, 3*)

521 Public Library Service (*I or II, 3*)

522 College and University Library Service (*I or II, 3*)

523 Special Library Service (*I or II, 3*)

527 Seminar in Library Administration (*II, 3*)

528 Media in the Library (*I or II, 3*)

529 Theory and Production of Library Media Communications (*I or II, 3*)

530 Reading Interests of Children (*I or II, 3*)

531 Reading Interests of Young Adults (*I or II, 3*)

535 Public Library Services to Children and Young Adults (*II, 3*)

536 Storytelling (*I or II, 3*)

537 Health Sciences Librarianship (*II, 3*)

538 Law Librarianship (*I, 3*)

540 Library Materials in the Humanities (*I or II, 3*)

541 Library Materials in the Social Sciences (*I or II, 3*)

542 Library Materials in Science and Technology (*I or II, 3*)

543 Government Publications (*I or II, 3*)

544 Information Science for Librarians (*I or II, 3*)

546 Computer Systems in Library Automation (*I or II, 3*)

547 Online Searching and Services (*I or II, 3*)

548 Microcomputer Applications in Library and Information Services (*I and II, 3*)

549 Information Storage and Retrieval (*I or II, 3*)

550 Advanced Cataloging (*I or II, 3*)

551 Organization of Nonprint Materials (*I or II, 3*)

561 Library Effectiveness: Research and Evaluation (*I, 3*)

562 Administration of Special Collections, Archives, and Manuscripts (*I, 3*)

564 Introduction to Library Conservation (*I or II, 3*)

565 Rare Book Librarianship (*I or II, 3*)

571 Database Management Systems for Information Services (*I or II, 3*)

591, 592, 593 Independent Work (*By appt., 1-3 each*)

595 Professional Field Experience (*I and II, 1-3*)

596 School Library Media Center Practicum (*II, 3-6*)

597 Selected Topics (*I or II, 3*)

**Linguistics (LIN)**

*Section Head:* Professor Rogers

100 **Language in Society** (*I or II, 3*) Topical approach to the study of language, varying from semester to semester and including, but not restricted to, such topics as the relationship of language to culture, society, behavior, geography, computers, and other languages. (*Lec. 3*) Staff

200 **Language and Culture**  
See Anthropology 200.

202 **Introduction to the Study of Language Evolution** (*II, 3*) The construction of theoretical models; the reconstruction of earlier stages of language, based on the structure of modern languages and their families. *Pre: 200, 220, or ENG 330.* Rogers (S)

220 (or APG 220) **Introduction to the Study of Language** (*I or II, 3*) Introduction to the analysis and description of a language's sounds, forms, syntax, and meaning; the relationship of linguistics to other disciplines; and a survey of major schools of linguistic thought. Rogers and Arakelian (S)

302 **Morphology and Phonology** (*I or II, 3*) Analysis of phonological and morphological systems other than those of English; extensive practical and comparative exercises. *Pre: 220 or ENG 330.* Rogers

320 (or APG 320) **Sociolinguistics** (*I, 3*) Presentation of the major areas of micro- and macro-sociolinguistics: speech acts, registers, repertoires, language attitudes, social correlates of phonological and syntactic features and changes. (*Lec. 3*) *Pre: 200 or 220.* Rogers, Martin, and Pollnac

330 **Dynamics of Language Distribution** (*II, 3*) Geolinguistic survey of present-day distribution of languages and of factors affecting their spread and decline. Minority and colonial languages; language maintenance efforts; language contact phenomena. (*Lec. 3*) *Pre: 220.* Rogers

414 **Romance Linguistics** (*II, 3*) Evolution of the major literary Romance languages from late Latin with emphasis on phonology and morphology. The diffusion and dialectal fragmentation of Romance. (*Lec. 3*) *Pre: 202 or FRN 205, SPA 205, ITL 205, or permission of chairperson. Some knowledge of Latin recommended but not required. Not for graduate credit. Next offered fall 1993.* Rogers

420 **Second Language Acquisition** (*II, 3*) An evaluation of current trends and developments in the understanding of second language learning; analysis of second language acquisition research and its practical implications. (*Sem. 3*) *Pre: 201 or EDC 312 or 3 credits in language courses numbered 300 or above, or permission of chairperson. Next offered spring 1993.* Hammadou

431 **Applied Linguistics in the Language Laboratory** (*I, 1*) Principles of contrastive phonology and syntax and their application to the preparation, use, and evaluation of tape drills. Use of language laboratory equipment monitoring student

exercises. Recommended for prospective teachers of language. (Lec. 1) Pre: 9 credit hours of language courses at the 300 level or above, or permission of chairperson. Staff

497, 498 Directed Study (I and II, 3 each) Individual research and reports on problems of special interest. Pre: 220 and acceptance of project by staff member and approval of chairperson. Staff

The following are related courses offered in the Departments of Anthropology, Communicative Disorders, English, Languages, Philosophy, Psychology, and Speech Communication.

CMD 373 Phonetics  
 CMD 375 Language Development  
 ENG 232 The Evolution of the English Language  
 ENG 337 Varieties of American English  
 ENG 530 History of the English Language  
 ENG 534 Structure of the English Language  
 ENG 536 Problems in Linguistics and Literature  
 FRN 503 History of the French Language  
 ITL 408 The Italian Language  
 PHL 440 Philosophy of Language  
 PSY 388 Psychology of Language

## Literature in English Translation

Coordinator: Associate Professor Kuhn (French)

The following courses are offered in the Department of Languages and may be used for major credit in comparative literature studies. They may not be used for major credit in English or languages.\*

### Comparative Literature Studies

160 Masterpieces of Literature  
 235 Modern Thought: Philosophy and Literature  
 250 Themes and Myths  
 335 Interdisciplinary Studies in Comparative Literature  
 450 Studies in Comparative Literature

### Classics

391 Ancient Laughter: The Comic Tradition in Greece and Rome  
 395 Greek Mythology: Gods, Heroes, and Humans  
 396 Mythology of Rome  
 397 Greek Myth and Tragedy

### French

391 Literature to 1789 in Translation  
 392 Nineteenth-Century Literature in Translation  
 393 Twentieth-Century Literature in Translation  
 394 Literary Topics in Translation

### German

391, 392 Masterpieces of German Literature  
 393 Topics in German Literature

### Italian

391, 392 Masterpieces of Italian Literature  
 395 Dante's *Divine Comedy*

### Russian

391, 392 Masterpieces of Russian Literature

### Spanish

391, 392 Spanish Literature in Translation  
 393 Modern Hispanic-American Literature in Translation

The following courses are offered in the Department of English and may be used for major credit in comparative literature studies and in English. They may not be used for major credit in languages.

### English

160 Masterpieces of Literature  
 366 Greek and Roman Drama  
 367 The Epic  
 468 Traditions of the Continental Novel  
 561 Modern European Novel

Literature in English translation courses and literature courses are offered in the Departments of English and Languages and constitute part of the offerings for a major in comparative literature studies.

## Management (MGT)

Chairperson: Professor Sink

110 Introduction to Business (I and II, 3) Nature, philosophy, objectives, and scope of American business system. Emphasis on the interrelations of the functional areas. (Lec. 3) Not open to juniors and seniors in the College of Business Administration. Staff (S)

300 Introduction to Management and Supervision (I, 3) Functions of human resources management including group behavior, interpersonal relations, recruitment, and justice determination. Emphasis on developing analytical skills applied to personnel-related problems in organizational settings. (Lec. 3) Not open to business administration majors; no credit if 303 has been taken. Staff

301 Organization and Management Theory I (I and II, 3) Management processes, organizational theory and behavior, organizational structure, international business, ethics, and environmental analysis. Emphasis on developing conceptual and analytical skills. (Lec. 3) Staff

302 Organizational Behavior (II, 3) Introduction to organizational behavior; theory of human relations in industry; individual and group dynamics as well as motivational theories applied to current business issues, international business, and technological changes. (Lec. 3) Pre: 301. Staff

303 Personnel Administration (I or II, 3) Role of the personnel department in an organization. Employer-employee problems at various internal levels and their impact on the organization and its environment. Covers such areas as manpower planning, the recruitment process, training, employee relations, pension planning, and occupational safety in the public and private sector. Cases and lectures. (Lec. 3) Pre: 301 recommended. Staff

306 Skills Development in Organizational Behavior (I, 3) Developing the managerial skills and competencies of leadership, motivation, conflict resolution, and interpersonal relations through dynamic cases, experiential exercises, and personal development sessions. (Lec. 3) Pre: 301, 302, or permission of instructor. Staff

321 Labor Problems (I, 3) Historical development of labor unions, changing composition of the labor force. Factors determining wage levels and employment in the firm and market. Analysis of mobility and occupational and regional wage differentials; the power of unions to raise wages; the role of investments in the human agent as a factor in economic growth. (Lec. 3) Pre: ECN 126 or permission of instructor. Staff

326 Office Technology Management (I or II, 3) Planning and using office automation systems, including word processing, office management, and communications. Pre: junior standing or permission of chairperson. Staff

380 Business and Society (I, 3) Contemporary environmental issues confronting domestic and international management—pollution, government regulation, insider trading, equal opportunity, business ethics—are investigated. (Lec. 3) Staff

401 Women in Business and Management (II, 3) Analysis of sex-role behavior in the workplace. The history, current status, and future prospects of women and men in business and the organizational response to the changing work force. (Lec. 3) Pre: 301 recommended. Not for graduate credit. Beauvais or Cooper

402 Leadership and Motivation (I or II, 3) Examination of theory and research in the areas of leadership and motivation in organizational settings. Emphasis on application of theory in developing essential leadership skills within individuals and in creating effective motivational programs within organizations. (Lec. 3) Pre: 301, 302, or permission of instructor. Staff

407 Organization and Management Theory II (I, 3) Analysis of complex organizational situations emphasizing managerial problems dealing with structure, coordination, control, and integration. Conceptual skills for organizational analysis, including model and systems approaches. (Lec. 3) Pre: 301 or permission of instructor. Staff

408 Organization Development and Change (I or II, 3) Behavioral science applications to the planning of systematic organizational change and development. Theory, concepts, techniques, and cases for change agents and managers of change. (Lec. 3) Pre: 301, 407, or permission of instructor. Staff

410 Business Policy (I and II, 3) Case analysis is used to study strategic issues and problems of mission and goal setting, planning, implementing, and controlling in domestic and multinational firms. (Lec. 3) Pre: 301, ACC 202, FIN 301, OMT 309, MKT 301, BSL 333, senior standing in the College of Business Administration, or permission of instructor. Not for graduate credit. Staff

\* CLA 391, 395, 396, 397 may be used for major credit in classics; RUS 391, 392 may be used for major credit in Russian.

**422 Labor Law and Legislation (II, 3)** Federal and state labor relations statutes and court and agency decisions pertaining to private and public employment, regulations of trade unions, equal opportunity, wage and hour laws. (Lec. 3) Pre: 321 or permission of instructor. Staff

**423 Labor Relations (II, 3)** Public interest in labor relations and problems involved in collective bargaining. Major adjustments of public and private management to changes in labor policy of federal and state governments, community, and labor unions. (Lec. 3) Pre: 303. Not for graduate credit. Staff

**426 Training and Development Theory and Practice (I, 3)** Development of education programs in industry. Teaching and learning strategies. Needs assessment. Evaluation. Pre: PSY 113 and senior standing. Not for graduate credit. Staff

**431 Advanced Management Seminar (I or II, 3)** Integrated approach to problems in major areas of business management with emphasis on administrative and executive viewpoint. (Lec. 3) Pre: 301. Staff

**435 Compensation Administration (II, 3)** Concepts, models, theories, and legislation related to the employee compensation process. Discussion and skill acquisition in job analysis, job evaluation, wage surveys, and performance appraisal. (Lec. 3) Pre: 303 or permission of instructor. Not for graduate credit. Staff

**437 Human Resource Planning, Selection, and Placement (I, 3)** Recruitment, selection, and placement of human resources. Integration of human resource plans with organizational strategic plans. Career planning and development. Affirmative action and equal opportunity aspects of selection and placement. (Lec. 3) Pre: ECN 301, MGT 303, or permission of instructor. Not for graduate credit. Staff

**453 International Dimensions of Business (I, 3)** Introduction to the international aspects of business, including the cultural, legal, and political environment faced by the multinational corporation. (Lec. 3) Pre: senior standing or permission of chairperson. Not for graduate credit. Staff

**480 Small Business Management (I, 3)** Investigation and evaluation of the small business enterprise. Current literature studied to enable the student to understand and appreciate the small business. Required project performed with a small organization. (Lec. 3) Pre: senior standing in the College of Business Administration or permission of instructor. Staff

**482 Entrepreneurship (II, 3)** Procedures for starting and operating one's own business including the following topics: the business idea, personality traits, feasibility analysis, business plan, and functional area basics. Intended for nonbusiness majors. (Lec. 3) Pre: senior or graduate standing and permission of chairperson. Not open to students with credit in REN 325. Comerford

**491, 492 Special Problems (I and II, 3 each)** Lectures, seminars, and instruction in research techniques, literature, and other sources of data in organizational management, industrial relations, and law with application to specific individual projects. (Lec. 3) Pre: permission of chairperson. Not for graduate credit. Staff

**493 Internship in Management (I or II, 3)** Approved, supervised work experience with participation in management and problem solving related to management. Fifteen working days (or 120 hours). Pre: junior standing and proposal approved by the College of Business Administration. May be repeated for credit. Not for graduate credit. S/U only. Staff

**530 Management Theory and Practice (I and II, 2)**

## Management Information Systems (MIS)

Chairperson: Professor Ebrahimpour (Management Science and Information Systems)

**306 Applications of Microcomputer Software in Business (I and II, 3)** In-depth study of microcomputer software used in business applications. Emphasis on spreadsheets, data management, presentation graphics, and communication software. Introductory coverage of financial, accounting, and other software packages. Student projects and microcomputer lab assignments required. (Lec. 3) Pre: QBA 207. Staff

**307 Information Systems for Management (I, 3)** An overview of computer information systems. Computer hardware, software, business systems, database concepts, data communications, distributed processing, office automation. (Lec. 3) Pre: QBA 207. Staff

**483 Business Applications Programming (I, 3)** Development of business software using COBOL. Coverage of language syntax; file structures; table processing; sorting; control break reports; editing and validation techniques; maintenance of sequential, direct, and indexed files. (Lec. 3) Pre: QBA 207. Staff

**484 Management Systems Analysis and Design (II, 3)** Concepts, methods, and tools used in the design, development, and operation of computer-based information systems. Pre: 483. Staff

**485 Management of Databases (I, 3)** Concepts and methods in management of data: database objectives, definitions, creations, design and implementation; data structures, data models; integrity security; data dictionaries and administration. Evaluation and use of existing systems. Pre: 483. Staff

**486 Advanced Programming and Information Structures (I, II, or SS, 3)** Survey of advanced programming problems and techniques found in business software applications. Emphasis on file design and advanced I/O handling in a COBOL environment. (Lec. 3) Pre: 483. Staff

**488 Business Software Development Project (II, 3)** Application of computer programming and system development concepts, principles, and practices to a comprehensive business system development project. Use of project management methods, project scheduling and control techniques, formal presentation, and group dynamics in the solution of information systems problems. (Lec. 3) Pre: 483 and 484. Staff

## Management Science (MGS)

Chairperson: Professor Ebrahimpour (Management Science and Information Systems)

**301 Advanced Quantitative Foundations (I, 3)** Mathematical topics and applications useful in analysis of managerial problems, including optimization with constraints, optimization for functions of many variables, multiple integration, differential equations, matrix and linear algebra. (Lec. 3) Pre: QBA 102 or permission of instructor. Staff

**364 Introduction to Management Science (I and II, 3)** Management science techniques including mathematical programming, decision analysis, and simulation with computer applications in areas such as accounting, management, finance, insurance, marketing, and production. (Lec. 3) Pre: QBA 202, 207, or permission of instructor. Staff

**370 Topics in Managerial Statistics (I, 3)** Theory and managerial applications of selected topics in statistics, including forecasting techniques, multiple regression, analysis of variance, and experimental and sample designs. (Lec. 3) Pre: QBA 202 or equivalent. Staff

**445 Managerial Applications of Simulation (II, 3)** Evaluation and design of deterministic and probabilistic computer simulation models for operational and strategic levels of management. (Lec. 3) Pre: QBA 202 and 207. Staff

**450 Forecasting: Computer Applications (I or II, 3)** Forecasting for students of management, finance, accounting, and marketing. Introduction to methods from simple to ARIMA processes. Use of a variety of software systems and languages, including personal software. Pre: QBA 202 and 207, or equivalents, senior or graduate standing. Staff

**465 Advanced Topics in Management Science: Deterministic Models (II, 3)** Topics in deterministic modeling including advanced linear programming, integer programming, multicriteria decision making, and network modeling. Computer applications in functional areas. (Lec. 3) Pre: 364 or permission of instructor. Staff

**466 Advanced Topics in Management Science: Probabilistic Models (II, 3)** Topics in probabilistic modeling including decision theory and analysis, queueing, Markov analysis and dynamic modeling, and simulation with computer applications. (Lec. 3) Pre: 364 or permission of instructor. Staff

**470 Managerial Decision Support Systems (II, 3)** Use of computer technology and quantitative methods to assist in the decision-making process. Emphasis on report preparation, presentations, and computer graphics. (Lec. 3) Pre: QBA 202, 207, or permission of instructor. Staff

**475 Bayesian Statistics in Business (I, 3)** Bayesian decision theory as based on the concept of utility and personalistic interpretation of probability. Application of Bayesian inference to decision making under uncertainty in business. (Lec. 3) Pre: QBA 202 or permission of instructor. Staff

**491, 492 Special Problems (I and II, 1-3 each)** Lectures, seminars, and instruction in operations research techniques, emphasis on student research projects. (Lec. 3) Pre: permission of instructor. Staff

**493 Internship in Management Science (I or II, 3)** Approved supervised work experience with participation in management and problem solving related to management science. Fifteen working days (or 120 hours). Pre: junior standing and proposal approved by the College of Business Administration. May be repeated for credit. Not for graduate credit in management science. S/U only. Staff

**495 Seminar in Management Science (I or II, 3)** Preparation and presentation of papers on selected topics. Pre: 364. Not for graduate credit in management science. Staff

## Marine Affairs (MAF)

Chairperson: Professor Juda

**100 Human Use and Control of the Marine Environment (I, 3)** Introduction to human activities occurring in the marine environment and adjacent land areas. Discussion of marine geography and natural marine processes necessary to understand the controls on human activities. (Lec. 3) Juda

**120 Maritime New England (I or II, 3)** Multidisciplinary analysis of coastal issues in southern New England states. Emphasis on the utilization, impacts, and management of the shore environment from colonial to modern times. (Lec. 3) Krausse

**220 Introduction to Marine and Coastal Law (II, 3)** Basic principles of marine and coastal law in the United States. An integration of coastal zone, outer continental shelf, fisheries, marine pollution, and admiralty laws. (Lec. 3) Nixon

**221 Introductory Cartography (I and II, 3)** Principles and methods of map design and construction for geographic analysis. Emphasis on compilation, generalization, scaling, and symbolizing quantitative and qualitative data. (Lec. 1, Lab. 2) Krausse

**312 The Politics of the Ocean (II, 3)** Survey of decision making with respect to the marine environment at the international, national, and local

levels. Special emphasis on laws and treaties of the United States and the United Nations. (Lec. 3) Pre: 100. Staff

**315 Marine Pollution Policy (II, 3)** An analysis of actual and potential governmental management techniques for pollution reduction and control in ocean and coastal regions. Emphasis on practices in the United States. (Lec. 3) Pre: 100. Burroughs

**320 Shipping and Ports (I, 3)** An introduction to waterborne movement of cargo. An examination of shipping and port operations, innovations in maritime transportation systems, and the interplay of the operators, shipping, and ports. (Lec. 3) Pre: 100. Marti

**330 World Fishing (I, 3)** The role of marine fisheries and aquaculture in world food production. Social, economic, legal, and scientific issues in fisheries management. (Lec. 3) Pre: 100. Nixon

**410 Problems in Marine Affairs (II, 3)** Advanced work in the management of the marine environment, with special emphasis on case studies and student projects. (Lec. 3) Required for seniors in marine affairs. Not for graduate credit in marine affairs. Gordon

**413 Peoples of the Sea**  
See Anthropology 413.

**456 Polar Resources and Policy (I, 3)** Description of Arctic and Antarctic natural resources and examination of current issues associated with their development. Analysis of alternative management regimes with reference to treaties and continuing international negotiations. (Lec. 3) Pre: permission of instructor. Burroughs

**461 Coastal Zone Uses (II, 3)** Activities in the coastal zones of both developed and developing countries, and the impacts of these activities on the environment. Techniques of accommodating conflicting uses. (Lec. 3) Pre: junior or senior standing. West

**471 Island Systems (II, 3)** Human impact on the use, alteration, and control of island ecosystems. Emphasis on sociopolitical and technological developments as they effect changes in the oceanic and coastal island environment. (Lec. 3) In alternate years. Krausse

**472 Marine Recreation Management (I, 3)** Analysis of supply and demand of marine-related recreational activities in an urban and exurban context. Analysis of qualitative and quantitative characteristics of user behavior, socioeconomic and environmental impact. (Lec. 3) West and Gordon

**482 Quantitative Methods in Marine Affairs (II, 3)** Introduction to descriptive and inferential statistics in geography and marine affairs. Emphasis on the spatial application of statistical tests with particular utility to the geographer and marine affairs student. (Lec. 3) Pre: EST 220 or equivalent for undergraduate students. West

**484 Environmental Analysis and Policy in Coastal Management (I, 3)** Analysis of environmental policy strategies as applied in federal and state coastal management programs. Emphasis on coastal environmental assessment and program evaluation techniques, hazards management, regulatory frameworks, and environmental ethics. (Lec. 3) Pre: 461 or permission of instructor. Gordon

**491, 492 Special Problems (I and II, 3 each)** Individual guidance in major readings and methods of research. (Lec. 3) Pre: permission of chairperson. Staff

**499 Directed Study (I and II, 1-3)** Individual research and reports on problems of special interest, including honors thesis research. Pre: permission of instructor. Staff

**502 Research Methods in Marine Affairs (I, 3)**

**511 Ocean Uses and Marine Science (II, 3)**

**512 (or PSC 512) Seminar in Marine Science Policy and Public Law (II, 3)**

**516 (or CPL 516) Seminar on the Urban Waterfront (I, 3)**

**520 Seminar in Coastal Margin Management (II, 3)**

**521 Coastal Zone Law (II, 3)**

**523 Fisheries Law and Management (II, 3)**

**526 LANDSAT Remote Sensing and Analysis (II, 3)**

**530 Coastal Area Management Seminar (SS, 3)**

**562 Admiralty Law (I, 3)**

**563 Maritime Transportation (II, 3)**

**564 Port Operations and Policy (II, 3)**

**571 Marine Geography (I, 3)**

**572 Management of Ocean Regions (II, 3)**

**577 (or PSC 577) International Ocean Law (I, 3)**

**578 International Ocean Organizations (II, 3)**

**579 Marine Jurisdictional Issues (II, 3)**

**582 Estuarine Policy (I, 3)**

**586 Environmental Impact Assessment and Analysis (II, 3)**

**591, 592 Directed Study or Research (I and II, 3 each)**

**595 Problems of Modernization in Developing Nations (II, 3)**

## Marketing (MKT)

Chairperson: Professor Venkatesan

**301 Marketing Principles (I and II, 3)** An introduction to marketing from a managerial viewpoint. Examines social, economic, technological, legal, ethical, and other environmental factors and their impact on product, price, promotion, and distribution decisions in a worldwide market. (Lec. 3) Proficiency test available if course was taken at a non-AACSB program prior to transfer to the University. Staff

**311 Consumer Behavior (I and II, 3)** A review of the decision-making process and factors that influence consumers, including ethical issues. Implications for crosscultural marketing are examined. (Lec. 3) Pre: 301. Staff

**321 Social Issues in Marketing (II, 3)** Functioning of the market in an affluent society. Effect of marketing decisions by firms placed in the perspective of the collective interest of all participants in society. (Lec. 3) Pre: 301 or permission of instructor. Staff

**331 Fundamentals of Advertising (II, 3)** Condensed but comprehensive introduction to advertising. Basic for advanced study of specific phases of advertising. (Lec. 3) Pre: 301 or permission of instructor. Staff

**341 Professional Selling (I, 3)** Fundamentals of the selling process with emphasis on sales theory, selling techniques, ethics of selling, and the salesperson's role in the marketing process. (Lec. 3) Pre: 301 or permission of instructor. Staff

**405 Marketing Communications (I, 3)** The "communications mix" is explored in terms of a total promotional program. Characteristics of advertising media, sales promotion, public relations, and publicity are surveyed. (Lec. 3) Pre: 301 or permission of instructor. Not for M.B.A. graduate credit. Staff

**406 Product Management (I, 3)** Development of product policies and strategies in a competitive environment. Emphasis on organization of the product management function, planning and developing new products, adjusting product strategies, and deleting products. (Lec. 3) Pre: 301 or permission of instructor. Not for M.B.A. graduate credit. Staff

**407 Channels of Distribution (II, 3)** Functions of distribution channels in society with emphasis on forces which shape their configuration and efficiency. Study of channel management with focus on channel development, control, policy, and practice. (Lec. 3) Pre: 301 or permission of instructor. Not for M.B.A. graduate credit. Staff

**408 Pricing Decisions (II, 3)** Analysis of pricing problems and environmental factors influencing pricing decisions. Emphasis on behavioral dimensions of demand and the effects of cost, competition, product characteristics, and the firm's objectives. (Lec. 3) Pre: 301 or permission of instructor. Not for M.B.A. graduate credit. Staff

**409 Marketing Policy and Problems (II, 3)** Summary course, emphasis on decision making in all marketing areas and on use of the case method. (Lec. 3) Pre: 311, 415, and senior standing. Not for graduate credit. Staff

**415 Marketing Research (I and II, 3)** Describes the nature and scope of marketing research activities. Reviews research designs, sampling, measurement, analysis, and other issues with focus on providing marketing information to management. (Lec. 3) Pre: QBA 202 or equivalent, MKT 301. Not for M.B.A. graduate credit. Staff

**416 Marketing Research Applications (II, 3)** Basic concepts reviewed in 415 are augmented and extended to application areas. Research useful in market and sales analysis, product develop-

ment, distribution and advertising decisions, and other areas is addressed. (Lec. 3) Pre: 415. Not for M.B.A. graduate credit. Staff

**434 Advertising Strategy and Management (II, 3)** Analysis and development of advertising strategies and campaigns. Uses skills from advertising, consumer behavior, marketing research, and other marketing courses. (Lec. 3) Pre: 331, 415, or permission of instructor. Not for M.B.A. graduate credit. Staff

**442 Sales Management (II, 3)** Planning, organization, and control of sales operations. Emphasis on the sales manager's functions, problems, and responsibilities. (Lec. 3) Pre: 301, 341, or permission of instructor. Not for M.B.A. graduate credit. Staff

**445 Direct Marketing (I and II, 3)** An introduction to direct marketing strategy and techniques. Topics include databases, electronic media, direct mail, catalogs, direct response advertising, telemarketing, and the role of direct marketing in the marketing mix. (Lec. 3) Pre: 301. Not for M.B.A. graduate credit. Staff

**446 Industrial Marketing (I, 3)** Nature and analysis of industrial markets and their potential. Strategic planning, product policy, channel, price, and promotion-mix decisions by the industrial marketer. Procurement and organization buying behavior. Cases. (Lec. 3) Pre: 301. Not for M.B.A. graduate credit. Staff

**451 International Marketing (II, 3)** Planning and organizing for international marketing operations from a commercial point of view. Differences in market arrangements, legal, cultural, and economic factors in various countries. Strategy of product pricing promotion, channels. (Lec. 3) Pre: 301. Not for M.B.A. graduate credit. Staff

**491, 492 Directed Study (I and II, 1-3 each)** Independent study supervised by department faculty. Seminar meetings concerned with specific marketing topics. Pre: permission of chairperson. Not for M.B.A. graduate credit. Staff

**493 Internship in Marketing (I or II, 3)** Approved, supervised work experience with participation in management and problem solving related to marketing. Fifteen working days (or 120 hours). Pre: junior standing and proposal approved by the College of Business Administration. May be repeated for credit. Not for graduate credit in marketing. S/U only. Staff

**501 Marketing Theory and Practice (I and II, 2)**

## Mathematics (MTH)

Chairperson: Professor Montgomery

**010 Basic Math (I and II, 3)** Real numbers; operation with fractions and decimals. Proportions and related problems. Basic algebra: solving first-degree equations and systems of equations. Applications. (Lec. 3) S/U only. Credits may not be used toward the minimum credits required for graduation or for General Education. Staff

**099 Basic Algebra and Trigonometry (I and II, 3)** Review of basic algebra and trigonometry: operations of real numbers and algebraic expressions, negative and fractional exponents, polynomials and fractional expressions, equations and systems of equations, inequalities, right triangle trigonometry and applications. (Lec. 3) S/U only. For students not sufficiently prepared to take other mathematics courses. Credits may not be used toward the minimum credits required for graduation or for General Education. Staff

**107 Introduction to Finite Mathematics (I and II, 3)** Concepts and processes of modern mathematics concerned with sets, the theory of probability, and statistics. Role of these concepts in today's social and physical sciences. (Lec. 3) Pre: passing a placement test. Not open to mathematics majors. Staff (M)

**108 Topics in Mathematics (I and II, 3)** Introduces the nonmathematics student to the spirit of mathematics and its applications. Presupposes no mathematical background beyond University admission requirements. Emphasis is on development of reasoning ability as well as manipulative techniques. (Lec. 3) Pre: passing a placement test. Not open to mathematics majors. Staff (M)

**111 Precalculus (I and II, 3)** Equations of first and second degree, systems of equations. Inequalities. Functions and graphs. Exponential, logarithmic, and trigonometric functions. Applications. Introduction to analytic geometry. Complex numbers. Designed for students who need to strengthen their background in mathematics below calculus. (Lec. 3) Pre: passing a placement test. Not for credit for mathematics majors. Staff (M)

**131 Applied Calculus I (I and II, 3)** Basic topics in calculus for students who do not need all the topics in 141. Limits, derivatives, and integrals of algebraic, logarithmic, and exponential functions. Applications including graphing, maxima and minima problems, etc. (Lec. 3) Pre: passing a placement test. Not for major credit in mathematics. Not open to students with credit or concurrent enrollment in 141. Staff (M)

**132 Applied Calculus II (I and II, 3)** Continuation of 131. Topics related to trigonometric functions, integration by parts and partial fractions, partial derivatives, infinite series. Applications to problems such as optimization, probability theory, simple differential equations. (Lec. 3) Pre: 131 or 141 or permission of chairperson. Not for major credit in mathematics. Not open to students with credit or concurrent enrollment in 142. Staff (M)

**141 Introductory Calculus with Analytic Geometry (I and II, 4)** Topics in analytic geometry, functions and their graphs, limits, the derivative, applications to finding rates of change and extrema and to graphing, the integral, and applications. (Lec. 4) Pre: passing a placement test. Not open to students with credit or concurrent enrollment in 131. Staff (M)

**142 Intermediate Calculus with Analytic Geometry (I and II, 4)** Continues the study of calculus for the elementary algebraic and transcendental functions of one variable. Topics include the technique of integration, improper integrals, indeterminate forms, and calculus using polar coordinates. (Lec. 4) Pre: 141 or permission of chairperson. Not open to students with credit or concurrent enrollment in 132. Staff (M)

**143 Computer Laboratory in Calculus (I and II, 1)** Illustration of some concepts of elementary calculus using a computer; use of a computer in some applications of calculus. Students will write simple programs. No previous computer or programming experience required. (Lab. 2) Pre: credit or concurrent enrollment in 141. Staff

**208 Mathematics for Elementary School Teachers (I or II, 3)** Selected topics in mathematics central to the elementary school curriculum, including: problem solving; number systems; functions and relations; probability and statistics; geometry. (Lec. 3) Pre: admission to elementary education program and prior completion of General Education mathematics requirement. Not open to mathematics majors or mathematics education majors. Long

**215 Introduction to Linear Algebra (I and II, 3)** Detailed study of finite dimensional vector spaces, linear transformations, matrices, determinants and systems of linear equations. (Lec. 3) Pre: 131, 141, or equivalent. Staff

**243 Calculus for Functions of Several Variables (I and II, 3)** Topics include coordinates for space, vector geometry, partial derivatives, directional derivatives, extrema, Lagrange multipliers, and multiple integrals. (Lec. 3) Pre: 142. Staff

**244 Differential Equations (I and II, 3)** Classification and solution of differential equations involving one independent variable. Applications to the physical sciences. Basic for further study in applied mathematics and for advanced work in physics and engineering. (Lec. 3) Pre: 243. Staff

**307 Introduction to Mathematical Rigor (I, 3)** Introduction to the language of rigorous mathematics: logic, set theory, functions and relations, cardinality, induction, methods of proof. Emphasis on precise written and oral presentation of mathematical arguments. (Lec. 3) Pre: 141. Staff

**316 Algebra (II, 3)** Theory and structure of groups. Topics from ring theory, principal ideal domains, unique factorization domains, polynomial rings, field extensions, and Galois theory. (Lec. 3) Pre: 215 and 307. Staff

**322 Concepts of Geometry (I, 3)** Survey of geometrical systems including non-Euclidean, affine, and projective spaces and finite geometries. A modern view of Euclidean geometry using both synthetic and analytic methods. (Lec. 3) Pre: 307. Staff

**361 Mathematics Methods for Scientists and Engineers (I, 3)** Introduction to differential equations and difference equations including Laplace transform and Z-transform. Functions of several variables, Lagrange multipliers, calculus of variations. (Lec. 3) Pre: 243. Not for major credit in mathematics. Staff

**362 Advanced Engineering Mathematics I (II, 3)** Algebra of complex numbers, matrices, determinants, quadratic forms. Linear differential equations with constant coefficients. Partial differential equations. (Lec. 3) Pre: 243. Not for major credit in mathematics. Staff

**363 Advanced Engineering Mathematics II (I, 3)** Laplace and Fourier transforms. Analytic functions. Cauchy's theorem and integral formula. Power series in the complex domain. Laplace and Fourier inverse integrals. Introduction to probability. (Lec. 3) Pre: 362 or equivalent. Not for major credit in mathematics. Staff

**381 History of Mathematics (I, 3)** General survey course in development and philosophy of mathematics. Provides a cultural background and foundation for advanced study in various branches of the subject. (Lec. 3) Pre: 142 or equivalent. Staff

**382 Number Theory (II, 3)** Some of the arithmetic properties of the integers including number theoretic functions, congruences, diophantine equations, quadratic residues, and classically important problems. (Lec. 3) Pre: 141 or permission of instructor. Staff

**391 Special Problems (I and II, 1-3)** Advanced work, under the supervision of a member of the staff and arranged to suit the individual requirements of the student. Pre: permission of chairperson. Staff

**393 Undergraduate Seminar (I or II, 1)** Preparation and presentation of selected topics in oral and written form. Pre: permission of chairperson. Staff

**418 Matrix Analysis (I, 3)** Canonical forms, functions of matrices, characteristic roots, applications to problems in physics and engineering. (Lec. 3) Pre: 215 or 362 or permission of instructor. Staff

**420 Topics in Foundations (I, 3)** Especially designed for teachers of mathematics. Basic topics of mathematics from an advanced viewpoint, selected from sets, logic, mathematical structures, number theory, geometry. Coordinated with EDC 520 for students taking both concurrently. (Lec. 3) Pre: 142 or permission of instructor. Not for major or minor credit in mathematics. Staff

**425 Topology (I, 3)** Abstract topological spaces and continuous functions. Generalizations of some classical theorems of analysis. (Lec. 3) Pre: 307. Staff

**435 Introduction to Mathematical Analysis I (I, 3)** Sets and functions, real topology, continuity and uniform continuity, derivatives, the Riemann integral, improper integrals. Detailed proofs emphasized. (Lec. 3) Pre: 307. Staff

**436 Introduction to Mathematical Analysis II (II, 3)** Sequences and series of functions, implicit and inverse function theorems, topology of Euclidean space, transformation of multiple integrals. Detailed proofs emphasized. (Lec. 3) Pre: 435. Staff

**437, 438 Advanced Calculus and Application I, II (I and II, 3 each)** Sequences, limits, continuity, differentiability, Riemann integrals, functions of several variables, multiple integrals, space curves, line integrals, surface integrals, Green's theorem, Stokes' theorem, series, improper integrals, uniform convergence, Fourier series, Laplace transforms. Applications to physics and engineering emphasized. (Lec. 3) Pre: 243 for 437, 437 for 438. Staff

**441 Introduction to Partial Differential Equations (I, 3)** One-dimensional wave equation. Linear second order partial differential equations in two variables. Separation of variables and Fourier series. Nonhomogeneous boundary value problems. Green's functions. (Lec. 3) Pre: 244 or 361. Staff

**444 Ordinary Differential Equations (II, 3)** Introduction to fundamental theory of ordinary and functional-differential equations. Series and numerical methods. Topics from stability, periodic solutions, or boundary-value problems. Applications to physics, engineering, biology. (Lec. 3) Pre: 244 or 361 or 362. Staff

**447 (or CSC 447) Discrete Mathematical Structures (I or II, 3)** Concepts and techniques in discrete mathematics. Finite and infinite sets, graphs, techniques of counting, Boolean algebra and applied logic, recursion equations. (Lec. 3) Pre: junior standing or better in physical or mathematical sciences, or in engineering, or permission of instructor. Staff

**451 Introduction to Probability and Statistics (I and II, 3)** Theoretical basis and fundamental tools of probability and statistics. Probability spaces, properties of probability, distributions, expectations, some common distributions and elementary limit theorems. (Lec. 3) Pre: 243 or equivalent. Staff

**452 Mathematical Statistics (II, 3)** Continuation of 451 in the direction of statistics. Basic principles of statistical testing and estimation, linear regression and correlation. (Lec. 3) Pre: 451. Staff

**456 Introduction to Random Processes (II, 3)** Conditional probability and expectation. Mean and covariance functions. Calculus of random processes. Introduction to Gaussian processes, Poisson processes, stationary processes, and Markov chains with applications. (Lec. 3) Pre: 451 or equivalent. Staff

**461 Methods of Applied Mathematics (I, 3)** Topics selected from vector analysis, elementary complex analysis, Fourier series, Laplace transforms, special functions, elementary partial differential equations. Emphasis on development of techniques rather than mathematical theory. (Lec. 3) Pre: 244 or 361 or 362. Staff

**462 Functions of a Complex Variable (II, 3)** First course in the theory of functions of a single complex variable, including analytic functions, power series, residues and poles, complex integration, conformal mapping and applications. (Lec. 3) Pre: 243 or equivalent. Staff

**464 Advanced Engineering Mathematics III (II, 3)** Topics from Fourier series and integrals. Partial differential equations and boundary value problems. Bessel functions and Legendre polynomials. Conformal mappings. (Lec. 3) Pre: 362 and 363 or permission of instructor. Not for graduate credit in mathematics. Staff

**471 Introduction to Numerical Analysis I (I, 3)** Interpolation, solution of nonlinear equations, numerical evaluation of integrals, special topics. (Lec. 3) Pre: 243, CSC 201 or equivalent, or permission of instructor. Staff

**472 Introduction to Numerical Analysis II (II, 3)** Numerical solution of ordinary differential equations, systems of linear equations, least squares, approximation, special topics. (Lec. 3) Pre: 243, CSC 201 or equivalent, or permission of instructor. Staff

**492 Special Problems (I and II, 1-3)** Advanced work under the supervision of a staff member arranged to suit the individual requirements of the student. Pre: permission of chairperson. Staff

**513 Linear Algebra (I, 3)**

**515, 516 Algebra I, II (I and II, 3 each)**

**525 Topology (II, 3)**

**535, 536 Measure Theory and Integration (I and II, 3 each)**

**545, 546 Ordinary Differential Equations I, II (I and II, 3 each)**

**547 (or CSC 547) Combinatorics and Graph Theory (I, 3)**

**548 Topics in Combinatorics (II, 3)**

**550 Probability and Stochastic Processes (I, 3)**

**551 Mathematical Statistics (II, 3)**

**561 Advanced Applied Mathematics (II, 3)**

**562 Complex Function Theory (I, 3)**

**572 Numerical Analysis (II, 3)**

**575 (or ELE 575) Approximation Theory and Applications to Signal Processing (II, 3)**

**591, 592 Special Problems (I and II, 1-3 each)**

## Mechanical Engineering and Applied Mechanics (MCE)

Chairperson: Professor Sadd

**162 Statics (I and II, 3)** Newton's laws of force systems in equilibrium and their effects on particles, systems of particles, and rigid bodies. Both scalar and vector methods of analysis developed. (Lec. 3) Pre: MTH 141. Staff

**220 Computer Graphics in Mechanical Engineering (I, 3)** Introduction to the principles of graphic representation in mechanical design with emphasis on computer-aided drafting using com-

mercially available software. Computer-assisted problem solving, including plotting. (Lec. 2, Lab. 3) Pre: CSC 201 and MTH 142. Palm

**263 Dynamics (I and II, 3)** Kinematic and kinetic study of motion of particles, systems of particles, and rigid bodies, acted upon by unbalanced force systems, using both scalar and vector methods; development of methods of analysis based on the direct application of Newton's laws, work-energy and impulse-momentum principles. (Lec. 3) Pre: 162. Staff

**317, 318 Mechanical Engineering Experimentation I, II (I and II, 3 each)** An integrated laboratory sequence for the junior and senior years; static and dynamic characteristics of instruments, calibration, experimental error propagation, planning of experiments from dimensional and error considerations, and a broad range of laboratory experiments in mechanical engineering. Pre: CSC 201, CVE 220, MCE 341 or equivalent for 317; 317 for 318. Core, Jouaneh, Shukla, and Taggart

**323 Kinematics (I, 3)** Analysis of mechanisms by analytical and related graphical methods; linkages, cams, gears, gear trains, differential mechanisms, escapements, computing, and miscellaneous mechanisms; vector methods including complex exponential representation of a vector in a plane. (Lec. 3) Pre: 263, 220, and CSC 201. Datsis and Olson

**341 Fundamentals of Thermodynamics (I and II, 3)** Basic principles and laws of thermodynamics and their relation to pure substances, ideal gases, and real gases. Use of thermodynamic property tables. Development of concepts of reversibility and availability. Thermodynamic diagrams and processes. (Lec. 3) Pre: 263, MTH 243, credit or concurrent enrollment in PHY 341. Core and Wilson

**342 Mechanical Engineering Thermodynamics (I and II, 3)** Continuation of 341 including mixtures of gases and vapors, topics of gas dynamics and chemical thermodynamics, applications of thermodynamics to power cycles and refrigeration processes. (Lec. 3) Pre: 341 and CSC 201. Wilson and Zhang

**354 Fluid Mechanics (I and II, 3)** Physical properties of fluids, development of continuity, energy, and momentum concepts using vector methods; application to problems involving viscous and nonviscous fluids including boundary layer flows, flows in closed conduits and around immersed bodies. (Lec. 3) Pre: 263, CSC 201, and MTH 244 or 461. Lessmann and White

**366 Introduction to Systems Engineering (II, 3)** Systems analysis emphasizing control and vibration. Time and frequency domain techniques. Modeling of typical mechanical, hydraulic, pneumatic, and thermal systems. Transfer functions and block diagram methods. Elementary control laws. (Lec. 3) Pre: 372, CSC 201, and MTH 244, or permission of instructor. Palm

**372 Engineering Analysis I (I, 3)** Application of advanced mathematical methods to solution of mechanical engineering problems with emphasis on the techniques of engineering analysis. (Lec. 3) Pre: CSC 201, MTH 244, and junior standing. Ferrante and Taggart

**373 Engineering Analysis II (II, 3)** Continuation of 372. (Lec. 3) Pre: 372. Ferrante and Taggart

**391, 392 Honors Work (I and II, 1-3 each)** Independent study under faculty supervision for honors students. Pre: admission to departmental honors program. Staff

**423 Design of Machine Elements (I, 3)** Design of machinery involving strength of materials, adequacy of design, factor of safety, stress concentration, fatigue, creep, power transmission devices, gears, springs, shafts, fasteners, ball bearing reliability, associated computer methods. (Lec. 3) Pre: 317, 323, 372, CHE 333, and CVE 220. Nash

**425 Lubrication and Bearings (I, 3)** Theory of hydrodynamic lubrication and bearing design, chemical aspects of lubricants and additives, bearing metals and their surface properties, friction, and wear. (Lec. 3) Pre: 354. Ghonem and Kim

**426 Advanced Mechanics of Materials (I, 3)** Introduction to continuum mechanics: stress, strain and deformation, constitutive equations. Theories of failure. Shear center and unsymmetrical bending of beam. Curved beams. Energy method. Torsion. Pre: CVE 220. Ghonem, Shukla, and Kim

**429 Comprehensive Design (II, 3)** Creative design of engineering systems including socio-economic and ecological considerations, design, and analysis projects. Advanced topics in design, reliability and probability considerations, optimum design, case studies, associated computer methods. (Lec. 3) Pre: 423. Nash

**430 Computer-Aided Design (I or II, 3)** Constructive solid geometric modeling of 3-D objects, simulation of kinematics and dynamics of mechanisms. Mechanism design for various kinematic and dynamic requirements. Stress analysis and design of mechanical devices. (Lec. 3) Pre: 323, CSC 201, and CVE 220. Datsis, Olson, and Jouaneh

**431 Computer Control of Mechanical Systems (II, 3)** Integrated study of hardware and software aspects of microcomputer-based systems with emphasis on interfacing to external hardware for online measurement, data acquisition, and control of mechanical systems. Pre: 366 and CSC 201. Palm

**434 Thermal Environmental Engineering (II, 3)** Application of the principles of thermodynamics and heat transfer to environmental problems. Topics will include thermal control of living spaces, solar heating and cooling, heat pumps, minimum energy consumption. (Lec. 3) Pre: 342, 354, and 448. Zhang



**437 Turbomachinery Design (I, 3)** Application of the principles of thermodynamics and fluid mechanics to the design of rotating machinery such as turbines, compressors, centrifugal and axial flow pumps. (Lec. 3) Pre: 341 and 354. Lessmann

**438 Internal Combustion Engines (I, 3)** Principles, design, and operation of internal combustion engines, including cycles, combustion, fuels, detonation, carburetion, cooling, supercharging, ignition, friction, and lubrication. Gasoline and diesel, two- and four-stroke cycles, and performance of various engines including the Wankel rotary. (Lec. 3) Pre: 342. Core

**439 Applied Energy Conversion (II, 3)** Modern power systems including steam and gas turbines, nuclear power stations, fuel cells, and thermionic and thermoelectric devices. (Lec. 3) Pre: 342 and 448, or permission of instructor. Staff

**440 Mechanics of Composite Materials (II, 3)** Introduction to the basic concepts of the mechanical behavior of composite materials. Analysis and performance of fiber-reinforced composites. Special design considerations and experimental characterization of composites. (Lec. 3) Pre: 317 and CVE 220, or permission of instructor. Shukla and Taggart

**446 Metal Deformation Processes**  
See Industrial and Manufacturing Engineering 446.

**448 Heat and Mass Transfer (I, 3)** Transfer of heat by conduction, convection, and radiation in steady and unsteady states. Theory and application of dimensional analysis; heat and mass transfer in equipment such as heat exchangers and steam condensers. (Lec. 3) Pre: 341 and 372. White, Faghri, and Wilson

**449 Product Design for Manufacture**  
See Industrial and Manufacturing Engineering 449.

**455 Advanced Fluid Mechanics (I, 3)** Continuation of 354. Selected topics in advanced fluid mechanics including potential flows, compressible flow, fluid machinery, and electric and magnetic field effects. (Lec. 3) Pre: 354. Lessmann and White

**464 Vibrations (II, 3)** Elementary theory of mechanical vibrations, including the one-degree-of-freedom system, multimass systems, vibration isolation, torsional vibration, beam vibration, critical speeds, and vibration instruments. (Lec. 3) Pre: 366 or permission of instructor. Nash

**465 Experimental Mechanics (I, 3)** Theory and application of various experimental techniques used in solid mechanics such as acoustic emission, holography, interferometry, strain gages, brittle coatings, and photoelasticity. (Lec. 2, Lab. 3) Pre: 317 and CVE 220. Shukla

**466 Introduction to Finite Element Method (II, 3)** Application of the finite element method to problems in mechanical engineering including plane elasticity, heat transfer, and fluid mechanics. Basic concepts, matrix formulation, interpolation functions, basic element types, and implementation to problem solution. Pre: 373 and CVE 220. Taggart, Sadd, and Kim

**491, 492 Special Problems (I and II, 1-6)**  
Advanced work under the supervision of a staff member arranged to suit the individual requirements of the student. (Lec. and Lab. according to nature of problem) Pre: permission of chairperson. May be repeated for a maximum of 12 credits. Staff

**503 (or ELE 503) Linear Control Systems (I or II, 3)**

**504 (or ELE 504) Optimal Control Theory (II, 3)**

**505 Optimization in Mechanical Engineering Design (I or II, 3)**

**506 Expert Systems for Mechanical Design and Manufacturing (I, 3)**

**521 Reliability Analysis and Prediction (II, 3)**

**523 Advanced Kinematics (I, 3)**

**540 (or OCE 540) Underwater Life Support (II, 3)**

**541 Advanced Thermodynamics (I, 3)**

**545 Heat Transfer (I, 3)**

**546 Convection Heat Transfer (II, 3)**

**549 Advanced Product Design for Manufacture (I, 3)**

**550 Theory of Continuous Media (I, 3)**

**551 Fluid Mechanics (I, 3)**

**561 Computational Methods in Solid Mechanics (I or II, 3)**

**562 Computational Methods in Fluid Flow and Heat Transfer (I or II, 3)**

**563 Advanced Dynamics (I and II, 3)**

**564 Advanced Vibrations (I, 3)**

**565 Wave Motion and Vibration of Continuous Media (II, 3)**

**566 The Mechanics of Robot Manipulators (I or II, 3)**

**571 Theory of Elasticity (I, 3)**

**576 Fracture Mechanics (II, 3)**

## Medical Technology (MTC)

Coordinator: G. Paquette

**102 Introduction to Medical Technology (I, 1)**  
An introduction to medical technology including specialty areas of medical laboratory sciences, professional organizations, credentialing, the team concept, and professionalism. (Lec. 1) Paquette

**202 Introduction to Clinical Laboratory Methods (II, 3)** Introduction to fundamental methods and concepts used in clinical chemistry, hematology, and immunohematology; clinical training at URI Health Services laboratory. (Lec. 2, Lab. 3) Pre: one semester of biology and chemistry or permission of instructor. Paquette

The clinical courses in Medical Technology (MTC 401-407) require senior standing and are open only to students who have been accepted into an affiliated Hospital School of Medical Technology.

**401 Clinical Microbiology (I, 8)** The relationship of bacteria and bacterial diseases of man with emphasis on the application of procedures to medical diagnosis. Fungi, viruses, the rickettsias, and human parasites are also studied. Hospital Staff

**402 Clinical Chemistry (II, 8)** The chemistry of body constituents and their relationship to diagnosis of human disease. Principles and methods of analysis are emphasized. Hospital Staff

**403 Immunohematology (I, 4)** Instruction in drawing and processing blood and in ascertaining compatibility. Donor-recipient blood and tissue reactions are studied in detail. Hospital Staff

**404 Hematology (II, 6)** Morphology of the blood and blood-forming organs and the study of abnormalities associated with disease. The dynamics and diagnostic tests of hemostasis are also discussed. Hospital Staff

**405 Pathophysiology (I, 2)** An introduction to pathology. The correlation between pathological processes and clinical symptoms and the course of disease is studied. Hospital Staff

**406 Clinical Immunology (II, 2)** Formation, structure, and action of antigens and antibodies. Methods of immunization. The laboratory emphasizes serological procedures in the diagnosis of disease. Hospital Staff

**407 Clinical Microscopy (I, 2)** Lectures and laboratory practice in the analyses of body fluids. Hospital Staff

**483 Introductory Diagnostic Microbiology**  
See Microbiology 483.

**501 (or MIC 501) Advanced Clinical Microbiology I (I or II, 3)**

**502 Advanced Clinical Chemistry I (I or II, 3)**

**510 Clinical Laboratory Management (I or II, 3)**

**512 Special Problems in Clinical Laboratory Science (I or II, 3)**

**513 (or MIC 513) Advanced Clinical Immunology (I or II, 3)**

**520 Advanced Hematology I (I or II, 3)**

**521 Advanced Hematology II (I or II, 3)**

**530 Advanced Immunohematology (I or II, 3)**

**541 (or MIC 541) Advanced Clinical Microbiology II (I or II, 3)**

**543 Advanced Clinical Chemistry II (I, II, or SS, 3)**

**590 Special Problems in Clinical Chemistry (I, II, or SS, 1-6)**

**591 Special Problems in Clinical Microbiology (I, II, or SS, 1-6)**

**592 Special Problems in Hematology (I, II, or SS, 1-6)**

**593 Special Problems in Immunohematology (I, II, or SS, 1-6)**

## Medicinal Chemistry (MCH)

*Chairperson:* Professor Panzica

**342 Pharmaceutical Analysis (I and II, 3)** Principles and techniques of official and nonpharmaceutical necessities, raw natural products, and radiopharmaceuticals. (*Lec. 2, Lab. 3*) *Pre:* CHM 226, 227, 228 or equivalent. Staff

**343 Principles of Medicinal Chemistry (I, 2)** Chemical, physicochemical, and biomolecular principles affecting drug delivery and action including biotransformations and isosteres. (*Lec. 2*) *Pre:* CHM 226, 227, 228, BCP 311 or equivalent. Staff

**443, 444 Organic Medicinal Chemistry (I and II, 3 each)** Selected compounds of medicinal and pharmaceutical importance. Uses, syntheses, incompatibilities, correlation of physical properties, structures, and biological activity. (*Lec. 3*) *Pre:* 342, 344 (or PCL 344), CHM 228, and/or permission of chairperson. Abushanab, Cho, Panzica, and Turcotte

**497, 498 Special Problems (I and II, 1-5 each)** Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (*Lab. 3-15*) *Pre:* permission of chairperson. Staff

**526 (or FSN 526) Lipid Chemistry (I, 3)**

**548 (or PCG 548) Physical Methods of Identification (II, 3)**

**549 Synthesis (I and II, 3)**

## Microbiology (MIC)

*Chairperson:* Professor D.C. Laux

**201 Introductory Medical Microbiology (I and II, 4)** Required of all students in nursing, dental hygiene, and pharmacy. Lecture and laboratory designed to illustrate microbiological principles and techniques. For students in allied health professions. (*Lec. 3, Lab. 3*) *Pre:* one semester of biology and one year of chemistry. Not open to students with credit in 211. Staff

**211 Introductory Microbiology (I or II, 4)** Introduction to microorganisms. Morphology, structure, metabolism, genetics, growth, populations in natural habitats, and their effects on the environment. For biological sciences majors. (*Lec. 3, Lab. 3*) *Pre:* two semesters of biology, one semester of organic chemistry, which can be taken concurrently. Not open to students with credit in 201. Staff

**333 Immunology and Serology (I, 3)** Introduction to the immune response; host resistance to infection; immunopathology; antibodies, antigens, and use of serological techniques. (*Lec. 2, Lab. 3*) *Pre:* 201 or 211. Laux

**401 Quantitative Cell Culture**  
See Biochemistry and Biophysics 401.

**403 Introduction to Electron Microscopy**  
See Biochemistry and Biophysics 403.

**405 (or BCP 405) Electron Microscopy Laboratory (I, 2)** Introduction to the practical aspects of electron microscopy. Emphasis on acquisition of the following skills: tissue preparation, ultramicrotomy, operations of the electron microscope, and darkroom procedures. (*Lab. 6*) *Pre:* credit or concurrent enrollment in 403. Hufnagel

**412 Food Microbiology (II, 3)** Analysis of water and milk; examination of dairy and other food products. (*Lec. 2, Lab. 4*) *Pre:* 201 or 211 and one semester of biochemistry, which may be taken concurrently. Wood

**413 Advanced Microbiology Lecture I (I, 3)** The physiology, genetics, developmental, and molecular biology of microorganisms. (*Lec. 3*) *Pre:* 211, credit or concurrent enrollment in BCP 311 and BOT 352, or permission of instructor. Cohen, Nelson, and Cabelli

**414 Advanced Microbiology Lecture II (II, 3)** The structural, developmental, and physiological diversity of microorganisms; symbiotic relationships, molecular basis of ecology, and the role of microorganisms in the soil and water environment. (*Lec. 3*) *Pre:* 211, credit or concurrent enrollment in BCP 311, or permission of instructor. Nelson and Hufnagel

**415 Advanced Microbiology Laboratory I (I, 2)** Introduction to techniques and methods for advanced study of microbial genetics, physiology, molecular, and developmental biology of microorganisms. (*Lab. 6*) *Pre:* concurrent enrollment in 413 or permission of instructor. Cohen, Nelson, and Cabelli

**416 Advanced Microbiology Laboratory II (II, 2)** Techniques and methods for the advanced study of microorganisms with emphasis on the study of representative groups of microorganisms and the application of these techniques to soil and aquatic environments. (*Lab. 6*) *Pre:* concurrent enrollment in 414 or permission of instructor. Hufnagel and Nelson

**421 Cell Biology and Cancer**  
See Biochemistry and Biophysics 421.

**422 Biotechnology of Industrial Microorganisms**  
See Food Science and Nutrition 422.

**432 Pathogenic Bacteriology (II, 3)** The more important microbial diseases, their etiology, transmission, diagnosis, and control. Laboratory, emphasis on methods of diagnosis. (*Lec. 2, Lab. 3*) *Pre:* 201 or 211 or one semester of organic chemistry. Sperry

**453 Cell Biology**  
See Botany 453.

**483 (or MTC 483) Introductory Diagnostic Microbiology (I, 3)** Supervised practical experience and training in clinical microbiology conducted at URI Health Services (*Lec. 2, Lab. 3*) *Pre:* credit or concurrent enrollment in 432. Paquette

**491, 492 Research in Microbiology (I and II, 1-6 each)** Special problems in microbiology.

Student required to outline a problem, carry on experimental work and present conclusions in a report. (*Lab. 2-12*) Open only to seniors in microbiology. A maximum of 6 credits can be taken for major credit. Staff

**495, 496 Seminar in Microbiology (I and II, 1 each)** Preparation and presentation of papers on selected subject in microbiology. (*Lec. 1*) S/U credit. Staff

**501 (or MTC 501) Advanced Clinical Microbiology I (I or II, 3)**

**502 Techniques in Microbial and Molecular Genetics (II, 2)**

**503 (or BCP 503) Electron Microscopy (I, 2)**

**505 (or BCP 505) Laboratory in Electron Microscopy (I, 3)**

**513 (or MTC 513) Advanced Clinical Immunology (I or II, 3)**

**514 The Electron Microscope in Molecular and Cellular Biology (II, 2)**

**515 (or MTC 515) Infectious Diseases (I or II, 3)**

**521 (or BOT 521 or ZOO 521) Recent Advances in Cell Biology (I, 2)**

**523 (or FSN 523 or NRS 523) Water Pollution Microbiology (I, 3)**

**525 (or FSN 525) Water Pollution Microbiology Laboratory (I, 1)**

**533 Immunology (II, 3)**

**534 (or ASP 534) Animal Virology (I, 3)**

**536 (or ASP 536) Virology Laboratory (I, 2)**

**538 (or ASP 538) Epidemiology of Viral and Rickettsial Diseases (II, 2)**

**541 (or MTC 541) Advanced Clinical Microbiology II (I or II, 3)**

**552 Microbial Genetics (II, 3)**

**561 Recent Advances in Molecular Cloning (I or II, 1)**

**576 (or OCG 576) Marine Microbiology (I, 3)**

**593, 594 The Literature of Bacteriology (I and II, 1 each)**

*Note:* For Mycology, see Botany.

## Military Science (MSC) (Army ROTC)

*Chairperson:* Professor FitzHarris

**000 Leadership Laboratory (I and II, 0)** Hands-on, performance-oriented training such as rappelling, land navigation, and drill and ceremony. Required every semester for all ROTC cadets. Staff

**101 Introduction to ROTC and the U.S. Army I (I, 1)** Organization and role of ROTC and the U.S. Army. Customs and traditions, leadership dimensions, officer traits, and basic military skills. (*Lec. 1*) Concurrent enrollment in 000 required for all ROTC cadets. Staff

**102 Introduction to ROTC and the U.S. Army II (II, 1)** Branches of the Army, leadership, the U.S. Constitution, first aid, and general military skills. Expanding upon skills acquired in 101. *Pre:* 101; concurrent enrollment in 000 required for all ROTC cadets. Perkins or Walsh

**105 Beginner Weight Training and Conditioning (I, 1)** See Physical Education 105. *Concurrent enrollment in 000 required for all ROTC cadets. Required of all cadets enrolled in 301.* Staff

**201 History of Modern Warfare (I, 3)** Study of warfare with emphasis on the period since the introduction of gunpowder. Influence of leaders, economics, and social systems on the outcomes of selected major battles. (Lec. 3) *Concurrent enrollment in 000 required for all ROTC cadets.* Moylan

**202 Land Navigation and Military Skills (II, 3)** Map reading, land navigation, terrain association, communications, first aid, and tactics. (Lec. 3) *Concurrent enrollment in 000 required for all ROTC cadets.* Moylan

**205 Intermediate Weight Training and Conditioning (II, 1)** See Physical Education 205. *Required of all cadets enrolled in 302. Concurrent enrollment in 000 required for all ROTC cadets.* Staff

**301, 302 Leadership and Management I, II (I and II, 3 each)** Advanced courses: application of the principles of war, small unit tactics, leadership development, planning and execution of tactical problems. (Lec. 3) *Concurrent enrollment in 105 for 301; 205 for 302. Concurrent enrollment in 000 required for all ROTC cadets.* Muilenberg

**401, 402 Organizational Management and Law I, II (I and II, 3 each)** Advanced courses: military law, the profession of arms, obligations and responsibilities of an officer, Army readiness program, administrative management, world change and military implications, logistics, the military team, internal defense and development. (Lec. 3) *Pre: 302 for 401; 401 for 402. Concurrent enrollment in 000 required for all ROTC cadets. Not for graduate credit.* FitzHarris

**403 Directed Study (I and II, 3)** Experiential learning through fieldwork in a military-type unit on an individual basis. Written analysis required on a topic selected by the chairperson. *Pre: 301, 302, and permission of chairperson. Not for graduate credit.* FitzHarris

## Music (MUS)

*Acting Chairperson:* Professor Cain

**050 Performance Preparatory (I and II, 0)** Class or private instruction.\* Select appropriate letter and voice or instrument from the list under 251 and add to course number, as 050E Violin. May be repeated for a second semester if work of the first is satisfactory. (Lec. 1) *S/U only.* Staff

**101 Introduction to Music (I and II, 3)** Fosters a better understanding and appreciation of the world's great music. Consideration of musical styles, techniques, and forms from the listener's standpoint. (Lec. 3) Staff (A)

**106 History of Jazz (I and II, 3)** The nature and origin of jazz and its development as an American folk idiom: European and African heritages, blues, ragtime, dixieland, boogie-woogie, swing, bop,

cool, funky, gospel, jazz-rock, free-form, and progressive. (Lec. 3) Parillo and Pollart (A)

**111 Basic Musicianship (I and II, 3)** Use of folk, classical, and popular music to learn essentials of music reading and music theory. (Lec. 3) Staff (A)

**112 Intermediate Musicianship (II, 3)** Continued use of folk, classical, and popular music to learn essentials of music reading and music theory with emphasis on musical analysis, ear training, sight singing, and part writing. (Lec. 3) *Pre: 111 or permission of instructor. Not for major credit in music.* Dempsey

**113, 114 Diatonic Harmony and Ear Training I, II (I and II, 4 each)** 113: Rhythmic, melodic, and harmonic elements of music. Scales, intervals, and the chord structure. Sight-singing, rhythmic articulation, and melodic dictation. Part-writing, analysis, keyboard work, and harmonic dictation involving primary triads. (Lec. 3, Lab. 2) *Pre: concurrent or previous keyboard experience.* 114: Continuation, covering all diatonic triads, dominant and supertonic seventh chords, and modulation to closely related keys. (Lec. 3, Lab. 2) *Pre: 113.* Dempsey and Rankin

**117 Applied Composition (I and II, 1)** Private study in composition for students interested in original work in contemporary idioms. Emphasis on mastery of the basic craft and individual creative expression. May be repeated once for credit. (Lec. 1) *Pre: determined by audition.* Gibbs

**169 Percussion Instruments Class (II, 1)** Basic principles in performance and pedagogy of percussion instruments. (Lab. 2) *Open only to music education majors. In alternate years. Next offered fall 1993.* Pollart

**170 Guitar for the Classroom Music Teacher (I, 1)** Development of the basic principles and pedagogy for use of guitar in the music classroom. (Lec. 1) *Open only to music education majors.* Salazar

**171, 172 Piano Class I, II (I and II, 1 each)** Development of basic techniques and musicianship for effective use of the piano in music classrooms. (Lab. 2) *Pre: credit or concurrent enrollment in 113 for 171; 171 for 172.* Staff

**173, 174 Voice Class I, II (I and II, 1 each)** Basic principles and pedagogy of singing, physiology, breathing, tone production, diction. (Lab. 2) *Pre: 173 for 174. Open only to music education majors. In alternate years. Next offered 1993-94.* Staff

**175, 176 String Instruments I, II (I and II, 1 each)** Basic principles in performance and pedagogy of violin or viola and violoncello or bass viol. (Lab. 2) *Pre: 175 for 176. Open only to music education majors.* Dempsey

**177, 178 Woodwind Instruments Class I, II (I and II, 1 each)** Basic principles in performance and pedagogy of woodwind instruments, with emphasis on clarinet and flute. (Lab. 2) *Pre: 177 for 178. Open only to music education majors. In alternate years. Next offered 1992-93.* Staff

**179, 180 Brass Instruments Class I, II (I and II, 1 each)** Basic principles in performance and pedagogy of trumpet, French horn, baritone, trombone, and tuba. (Lab. 2) *Pre: 179 for 180. Open only to music education majors.* Staff

**181, 182 Intermediate Piano Class I, II (I and II, 1 each)** Further development of basic keyboard performance. Improvised accompaniments to folk songs. Sight transposition. Some score reading. Further development of reading skills using materials on the level of Bartok: *Mikrokosmos*, Books 2 and 3, and Clementi: *Sonatinas*, Op. 36. Registrants must also take any part of the piano proficiency examination not previously passed. (Lab. 2) *Pre: 172 for 181; 181 for 182. Open only to music education majors.* Fuchs

**208 Jazz Improvisation (I, 3)** An intensive study and practice of the formal elements of jazz improvisations. (Lec. 1, Lab. 4) *Pre: 114 and acceptance into a 200-level performance course.* Parillo

**215, 216 Advanced Harmony and Ear Training I, II (I and II, 3 each)** 215: Advanced rhythmic, melodic, and harmonic practice approached through sight singing, dictation, analysis, keyboard work, and part writing including original work. Covers all seventh chords, chromatic alteration, chromatic progression, and foreign modulation. (Lec. 2, Lab. 2) *Pre: 114 or equivalent.* 216: Continuation covering ninth, eleventh, and thirteenth chords; melodic elaboration. Introduction to contrapuntal textures and contemporary idioms. (Lec. 2, Lab. 2) *Pre: 215.* Gibbs

**221, 222 History of Music I, II (I and II, 3 each)** 221: Development of music in Western culture during the Middle Ages, Renaissance, and Baroque eras. 222: Continuation to include the Classical, Romantic, and Modern eras. (Lec. 3) *Pre: 113.* 221 is not a prerequisite for 222. Ladewig

**231 Performance as Elective (I and II, 2)** One 40-minute lesson each week. Concurrent ensemble registration as appropriate. (Studio 40 min.) *Pre: level of competence equivalent to 251. See 251 for areas of study. May be repeated for credit.* Staff

**241 Performance in Piano for Theory: Composition Majors (I and II, 2)** Reading scores at the piano and using the piano as a tool for composing or theoretical study and teaching. Private instruction. Four semesters. (Studio 40 min.) *Pre: 182 or equivalent.* Staff

**242 Performance in Piano for Voice Majors (I and II, 2)** Reading as an adjunct skill for teaching voice, conducting choirs, or familiarizing oneself with the sound of accompaniment. Private instruction. Four semesters. (Studio 40 min.) *Pre: 182 or equivalent. Not open to students with credit in 251B.* Staff

\* See page 23 for the applied music fee associated with this course.

**250 Recital Laboratory (I and II, 0)** Study of repertoire and techniques of concert presentation through attending student recitals and presentations by faculty and visiting artists. Attendance at 75 percent of events required. *May be repeated. S/U credit.* Staff

**251 Performance as Minor (I or II, 2)** Lower division. One private 60-minute lesson each week.\* Two levels; one per year as prescribed in syllabi. Recital performances and master classes as required by chairperson and instructor. (*Studio 60 min.*) *Pre: audition. Requirements for each instrument available from chairperson. May be repeated for credit.* Staff

Select area of instruction from the following and add to course number as 251B, Piano:

A Voice	I Viola d'amore	R Trombone
B Piano	J Flute	S Baritone Horn
C Organ	K Oboe	T Tuba
D Harpsichord	L Clarinet	U Percussion
E Violin	M Bassoon	V Guitar
F Viola	N Saxophone	W Harp
G Violoncello	P Trumpet	Y Recorder
H Bass Viol	Q French Horn	

**261 Performance Major (I and II, 3)** Lower division. One private 60-minute lesson each week.\* Two levels, one per year, as prescribed in syllabi. Recital performances and master classes as required by chairperson and instructor. (*Studio 60 min.*) *Pre: audition. Requirements for each instrument available from chairperson. See 251 for areas of study. May be repeated for credit.* Staff

**283, 284 Foreign Language Diction (I and II, 3)** Acquire skills in the pronunciation of Italian, German, French, and Latin texts; learn to write and apply the Standard International Phonetic Alphabet. (*Lec. 2*) *Pre: previous or concurrent instruction in applied voice for 283; 283 for 284. In alternate years. Next offered 1992-93.* Glaze and Hemenway

**290 University Symphony Orchestra (I and II, 1)** (*Rehearsal 3*) *Pre: audition. May be repeated for credit.* Ceo

**291 University Marching Band (I, 2)** Rehearsal and performance of music, drill, and shows for URI football games. (*Rehearsal 8*) *Only 1 of the 2 credits applies toward the major requirements. May be repeated for credit.* Hemberger

**292 Concert Band (II, 1)** Study and performance of concert band music. Open to all students. (*Rehearsal 2*) *May be repeated for credit.* Hemberger

**293 University Chorus (I and II, 1)** (*Rehearsal 3*) *May be repeated for credit.* Kent

**294 Symphonic Wind Ensemble (I and II, 1)** (*Rehearsal 3*) *Pre: audition required. May be repeated for credit.* Pollart

**295 Concert Choir (I and II, 1)** (*Rehearsal 3*) *Pre: audition. May be repeated for credit.* Kent

**296 Jazz and Studio Ensemble (I and II, 1)** Performance and study of jazz and studio music as re-

lated to professional experiences. (*Rehearsal 3*) *Pre: audition.* Parillo

**297 University Chamber Orchestra (I and II, 1)** An ensemble which offers the study and performance of standard and modern repertoire for the smaller orchestral group. Literature will be selected from the Baroque, Rococo, Classic, and contemporary periods. (*Rehearsal 3*) *Pre: audition. String players must be members of the University Orchestra, while others may qualify with permission of the conductor. Music majors will be given preference for admission. May be repeated for credit.* Ceo

**299 Chamber Music Ensembles (I and II, 1)** Chamber music ensembles are designated as A Keyboard Ensemble, B String Ensemble, C Woodwind Ensemble, D Brass Ensemble, E Percussion Ensemble, G Madrigal Singers, H Guitar Ensemble, J Saxophone Ensemble, M Jazz Combo. Select appropriate letter and small ensemble from list and add to course number, as 299B String Ensemble. Other ensemble combinations may be added. Small instrumental ensembles are normally restricted to one performer per part. (*Rehearsal 2*) *Pre: audition. May be repeated for credit.* Staff

**306 Composing and Arranging for Jazz Ensemble (I, 3)** Modern and traditional jazz arranging and compositional techniques, with emphasis on solo and concerted ensemble writing, voicing techniques, and mechanics of line writing; unique composing styles of recognized jazz composers. (*Lec. 3*) *Pre: 215.* Staff

**311, 312 Conducting I, II (I and II, 2 each)** 311: Choral conducting. Special techniques for direction and rehearsal of choral groups. Problems of tone, diction, and balance; organization of school, church, community, and professional groups. Analysis of major choral works from conductor's standpoint. (*Lec. 2*) *Pre: credit or concurrent enrollment in 215.* Kent. 312: Instrumental conducting. Problems of conductor; score reading, interpretation, techniques of rehearsal and direction. (*Lec. 2*) *Pre: credit or concurrent enrollment in 215.* Pollart

**317 Form and Analysis (I, 3)** Critical study of musical structure. Works of various composers are analyzed with reference to motive and phrase as generative elements in design. (*Lec. 3*) *Pre: 216.* Gibbs

**321 Orchestration (II, 3)** Range, timbre, transpositions, and other characteristics of the instruments of the orchestra, singly and in combination. Exercises in writing for choirs of the orchestra and for full orchestra. Setting of one of small homophonic forms of full orchestra required. (*Lec. 3*) *Pre: credit or concurrent enrollment in 216. In alternate years. Next offered spring 1993.* Gibbs

**329 (or EDC 329) Music for the Elementary School Teacher (I and II, 3)** Fundamentals of music and methods employed in teaching music and making it a more meaningful and integral part of the curriculum in the elementary school. (*Lec. 3*) *Open only to elementary and early childhood education majors.* Livingston

**339 Vocal Methods and Materials (I, 3)** Organization and administration of the vocal and general music programs in the elementary and secondary schools focusing on materials, procedures, policies, and teaching methods. (*Lec. 3*) *Pre: EDC 250 and piano proficiency examination.* Livingston

**340 Instrumental Methods and Materials (II, 3)** Organization and administration of the instrumental music program in the elementary and secondary school focusing on materials, procedures, policies, and teaching methods. (*Lec. 3*) *Pre: EDC 250.* Hemberger

**345, 346 Honors Project (I and II, 1-3 each)** Independent study under faculty supervision for honors students. *Pre: approval of chairperson, admission to Honors Program, and acceptance of project by staff member.* Staff

**390 Piano Accompanying (I and II, 1)** Development of sight reading skills. Preparation and performance of accompaniments. (*Lec. 1*) *Pre: permission of piano faculty. May be repeated.* Fuchs or Rankin

**407 The Symphony (I, 3)** Survey of the development of the symphony from its beginnings in the mid-eighteenth century to the present. Includes a study of the evolution of the orchestra and the sonata form and considers cultural influences exerted upon the composers. (*Lec. 3*) *Pre: 222. Offered every third year. Next offered fall 1992.* Ladewig

**408 The Opera (II, 3)** History of opera from its beginning in Italy in the seventeenth century to the present, including works by such composers as Monteverdi, Purcell, Mozart, Wagner, Verdi, and Puccini. (*Lec. 3*) *Pre: 221 and credit or concurrent enrollment in 222. Offered every third year. Next offered spring 1994.* Ladewig

**418 Composition I (II, 3)** Original work in small binary, ternary, variation, and sonatina forms for various instrumental and vocal groups. (*Lec. 3*) *Pre: credit or concurrent enrollment in 216. In alternate years. Next offered spring 1994.* Gibbs

**419 Composition II (I, 2)** Continuation of 418, stressing original composition in larger forms and study of twentieth-century techniques. (*Lec. 2*) *Pre: 418. In alternate years. Next offered fall 1993.* Gibbs

**420 Eighteenth-Century Counterpoint (II, 3)** Systematic study of motive manipulation with reference to traditional contrapuntal devices. Emphasis on harmonic counterpoint of late Baroque, more recent practices considered. Creative work in canon, invention, fugue, and chorale-prelude. (*Lec. 3*) *Pre: 216 and completion of piano proficiency examination. In alternate years. Next offered spring 1993.* Ladewig

\* See page 23 for the applied music fee associated with this course.

**422 Advanced Orchestration (II, 2)** Continuation of 321, emphasizing score reading and orchestration styles. Transcription for orchestra of a major keyboard work required as a semester project. (Lec. 2) Pre: 321. In alternate years. Next offered spring 1994. Gibbs

**423 Sixteenth-Century Counterpoint (II, 3)** Modal polyphony based on the style of Palestrina and his contemporaries. Includes writing counterpoint in Renaissance style and the study of representative compositions by masters of the era. (Lec. 3) Pre: 216 and completion of piano proficiency examination. In alternate years. Next offered spring 1994. Ladewig

**430 The Renaissance Period (II, 3)** Music at European courts and cathedrals (1400–1600), including vocal Masses, motets, madrigals, and chansons, and instrumental canzonas, ricercars, toccatas, and variations of Dufay, Josquin, Palestrina, Gabrieli, et al. (Lec. 3) Pre: 221. Offered every third year. Next offered spring 1993. Ladewig

**431 The Baroque Era (II, 3)** Music of the so-called thorough-bass period (ca. 1600–1750) includes the emergence of opera and oratorio, autonomous instrumental music, and the concerto style, culminating in works of Bach and Handel. (Lec. 3) Pre: 221. Offered every third year. Next offered spring 1994. Ladewig

**432 The Classic Era (I, 3)** Music of the period (ca. 1725–1815) beginning with the decorative gallant style of the Rococo composers and culminating in the expressive architectonic textures in the works of Haydn, Mozart, and early Beethoven. (Lec. 3) Pre: 221. Offered every third year. Next offered fall 1994. Staff

**433 The Romantic Era (I, 3)** Music of the nineteenth century within the context of the Romantic movement (ca. 1815–1875). Major composers and their works in various media are considered with respect to their historical significance. (Lec. 3) Pre: 222. Offered every third year. Next offered fall 1993. Ladewig

**434 The Modern Era (I, 3)** Music of the twentieth century with emphasis on changing aesthetics as revealed through the analysis of selected composition. (Lec. 3) Pre: 222. In alternate years. Next offered fall 1992. Gibbs

**438 Topics in Music Education (II, 3)** Open-ended course examining significant materials, approaches, and current trends. Topics cover in-depth areas such as aesthetic education, process of musical development, computers in music education, eurhythmics, Orff, or Kodaly. Pre: MUS (EDC) 329 or MUS 339 or permission of the instructor. May be repeated for credit with different topic. In alternate years. Next offered spring 1993. Livingston

**441 Special Projects (I and II, 1–3)** Advanced work in research or of a creative nature in the field of history, literature, theory, composition, and education. Advisory basis. Pre: completion of

the most advanced undergraduate course in the field and permission of chairperson and instructor. May be repeated for credit. Staff

**442 Directed Study in Applied Music Pedagogy (I and II, 2)** Research in materials and approaches for studio teaching. Pre: 4 credits in 251 or 6 credits in 261. Staff

**451 Performance as Minor (I and II, 2)** Upper division. One private 60-minute lesson each week.\* Two levels, one per year, as prescribed in syllabi. Recital performances and master classes as required by the chairperson and instructor. (Studio 60 min.) Pre: completion of performance minor lower division and permission of chairperson. See 251 for areas of study. May be repeated for credit. Staff

**455 Senior Recital (I or II, 0)** Performance of a public program of at least 20 minutes performing time after faculty examination. Pre: concurrent enrollment in 451 and at least 4 credits of 451. Staff

**460 Performance as Voice Major (I or II, 3)** Upper division, one private 60-minute lesson each week.\* Two levels, one per year as prescribed in the syllabus. Recital performances and master class as required by chairperson and instructor. (Studio 60 min.) Pre: completion of performance major lower division (261A) and permission of chairperson. May be repeated for a maximum of 12 credits. Staff

**461 Performance as Instrument Major (I and II, 4)** Upper division. One private 60-minute lesson each week.\* Two levels, one per year as prescribed in syllabi. Recital performances and master classes as required by chairperson and instructor. (Studio 60 min.) Pre: completion of performance major lower division and permission of chairperson. See 251 for areas of study. Staff

**465 Senior Recital for Performance Majors (I or II, 0)** Performance of a public program of at least 50 minutes performing time after faculty examination. Pre: concurrent enrollment in 461 and at least 8 credits in 461. Staff

**481, 482 Piano Literature and Pedagogy I, II (I and II, 2 each)** 481: Intensive study of keyboard literature from 1700–1825. Analysis of styles and forms and their implications for performance. Teaching methods and materials. (Lec. 2) Pre: 216, 222, and 251B or 261B, or permission of chairperson. 482: Continuation involving literature from the nineteenth century to the present. (Lec. 2) Pre: same as for 481. In alternate years. Next offered 1993–94. Fuchs

**483, 484 Vocal Literature and Pedagogy I, II (I and II, 2 each)** 483: Concentrated study of vocal literature of the Baroque and Classic era. Analysis of styles, forms, and texts and their influences in performance. Teaching methods and materials. (Lec. 2) Pre: 216, 222, and 251A or 261A. 484: Continuation encompassing literature from the nineteenth century to the present. (Lec. 2) Pre: 483. In alternate years. Next offered 1993–94. Glaze

**485 Opera Workshop (I and II, 1)** Performing techniques for the operatic singer. Coordination of music and drama with emphasis on body movement as it relates to historical periods and national characteristics. Development of professional standards and attitudes. (Lec. 1, Lab. 2) Pre: 251A Voice or permission of chairperson. May be repeated for credit. In alternate years. Next offered 1992–93. Glaze

**511 Advanced Choral Conducting (II, 3)**

**512 Advanced Instrumental Conducting (I, 3)**

**513 Graduate Conducting Project (I and II, 3)**

**537 Human Response to Music (I, 3)**

**538 Topics for the Elementary School Music Teacher (SS, 3)**

**540 Foundations of Music Education (II, 3)**

**545 Musical Aptitude and Achievement (I, 3)**

**548 Research in Music (II, 3)**

**551 Performance as Minor or Elective (I and II, 2)**

**555 Graduate Recital for Performance Minor (I and II, 0)**

**561 Performance Major (I and II, 3, 4, or 6)**

**565 Graduate Recital for Performance Major (I and II, 0)**

**567 Seminar in Performance and Pedagogy (II, 2)**

**570 Graduate Project (I and II, 3)**

**590 Piano Accompanying (I and II, 1)**

**591 University Symphony Orchestra (I and II, 1)**

**593 University Chorus (I and II, 1)**

**594 Symphonic Wind Ensemble (I and II, 1)**

**595 Concert Choir (I and II, 1)**

**596 Jazz and Studio Ensemble (I and II, 1)**

**597 University Chamber Orchestra (I and II, 1)**

**598 Chamber Music Ensemble (I and II, 1)**

## Natural Resources Science (NRS)

Chairperson: Professor Wright

**100 Natural Resource Conservation (I, 3)** Introduction to man's use and management of natural resources: land, food, forest, wildlife, water, minerals, and air, with a survey of contemporary resource-use problems in environmental pollution. (Lec. 3) Husband (S)

**212 Introduction to Soil Science (II, 3)** Physical, biological, and chemical properties of soils and their practical application to environmental science. Introduction to soil genesis, classification, and land-use and conservation issues. (Lec. 3) Groffman (N)

**300 Seminar in Natural Resources (I, 1)** Review and discussion of research and current topics in natural resources. (Lec. 1) Pre: 100 and 212. S/U credit. Staff

**301 Introduction to Forest Science (I, 3)** Development and importance of forestry; forest regions; tree characteristics and identification with

\* See page 23 for the applied music fee associated with this course.

emphasis on northeastern species; forest environment; tree growth and site productivity. (*Lec. 2, Lab. 2*) *Pre: BOT 111.* Brown

**302 Fundamentals of Forest Management (II, 3)** Wood properties, timber harvesting, measurement and utilization of forest products; establishment, tending, and protection of forest stands; silvicultural systems; forest inventory procedures and management plans. (*Lec. 2, Lab. 2*) *Pre: 301.* Brown

**304 Field Ornithology (II, 3)** Identification, field study techniques, habitats, and basic biology of birds. Emphasis on field identification of local species. (*Lec.1, Lab. 4*) *Pre: ZOO 111. In alternate years. Next offered spring 1994.* Eddleman

**305 Principles of Wildlife Management (I, 3)** Introduction to wildlife management. Typical forest and farm game species. Forest and farm habitats analyzed, management principles emphasized. (*Lec. 2, Lab. 2*) *Pre: BOT 111, ZOO 111, and ZOO (BOT) 262.* Eddleman

**312 Methods in Soil and Water Analysis (I, 4)** Principles and exercises in the collection, analysis, and interpretation of soil and water data. Sampling and experimental design, chemical analysis techniques, data processing, and spatial analysis. (*Lec. 3, Lab. 2*) *Pre: 212 and CHM 101 or 103 or permission of instructor.* Groffman

**322 Power Units (II, 3)** Principles of operation, maintenance, and adjustment of power units including gasoline and diesel engines and electric motors. Emphasis on tractors and other power units important in farm, nursery, greenhouse, and grounds maintenance operations. (*Lec. 2, Lab. 2*) McKiel

**324 Biology of Mammals (II, 3)** Classification, distribution, field study techniques, and basic biology of mammals. Emphasis on New England species. (*Lec. 2, Lab. 3*) *Pre: ZOO 111. In alternate years. Next offered in 1994.* Husband

**351 Soil Morphology Practicum (I, 1)** Six weeks of practical experience in the description of soil profiles under field conditions. Field trips to observe, describe, and interpret morphological properties as utilized in soil judging. (*Lab. 5*) *Pre: 212 or permission of instructor. May be repeated for credit with permission of chairperson.* Staff

**399 Natural Resources Internship (I, II, and SS, 1-6)** Supervised work experience in forestry, wildlife management, soil science, water resources, environmental education, or related areas of natural resources management. *Pre: 100, 212, and approval of chairperson. Open only to natural resources science majors. May be repeated for a maximum of 6 credits. S/U credit.* Gold

**401 Forested Watershed Hydrology (II, 3)** Effects of forest vegetation on the hydrologic cycle; energy and water budgets. Controlling water yield and quality. (*Lec. 2, Lab. 3*) *Pre: EST 408 or 220; BOT 323 recommended. In alternate years. Next offered spring 1993.* Brown and Gold

**402 Wildlife Biometrics (II, 3)** Ecological presentation of characteristics of wildlife populations and mechanisms that regulate their numbers through time. Quantitative measurements and data analyses used in wildlife population research. (*Lec. 2, Lab. 3*) *Pre: ZOO 262.* Husband

**406 Wetland Wildlife Management (II, 3)** Introduction to management of wetland wildlife. Emphasis on biology and habitat management of furbearers, waterfowl, and nongame wildlife. (*Lec. 2, Lab. 2*) *Pre: 305 or permission of instructor.* Eddleman

**410 GIS Methods in Environmental Management (I, 3)** Use of Geographic Information System computer technology to examine patterns and processes in natural systems. Applications will be drawn from conservation biology, wildlife management, geohydrology, soils/land-use relations, and wetland ecology. (*Lec. 1, Lab. 4*) *Pre: ZOO 262 or permission of instructor.* August

**412 Soil-Water Chemistry (II, 3)** Chemodynamics of soil-water interactions. Emphasis on properties and processes which determine the behavior and distribution of chemical contaminants in soils and sediments. (*Lec. 2, Lab. 3*) *Pre: 212 and CHM 124, 126, or permission of instructor.* Gamedinger

**423 Wetland Ecology (I, 4)** Origin, development, and characteristics of inland and tidal wetlands. Topics include geology, hydrology, soils, plant ecology, succession. Wetlands of North America and the world, with emphasis on the glaciated Northeast. (*Lec. 2, Lab. 4*) *Pre: BOT (ZOO) 262 and GEL 103 or 105, or permission of instructor.* Golet

**424 Wetlands and Land Use (II, 4)** Survey of wetland values, exploitation, current status, and legal protection. Emphasis on critical issues including wetland evaluation, impact assessment, mitigation procedures. Field trips provide examples of wetland use conflicts. (*Lec. 2, Lab. 4*) *Pre: 423 or permission of instructor. In alternate years. Next offered spring 1993.* Golet

**444 Current Issues in Natural Resources Policy (I, 3)** An introduction to how policy is formulated and implemented in the context of current issues in natural resource and environmental management. Topics include public lands, wildlife management, agriculture, air, and water. (*Lec. 3*) Cycon

**450 Soil Conservation and Land Use (II, 3)** Application of soil survey interpretation as a tool in soil and water conservation and land use planning. Implications of soil properties and problems for land use considered with emphasis on urbanizing situations. (*Lec. 3*) *Pre: 212 or permission of instructor.* McKiel

**451 Soil Conservation Technology (I, 3)** Principles and practices involved in mechanical protection, improvement, and development of soil and water resources. Design of conservation features and structures. (*Lec. 2, Lab. 3*) *Pre: MTH 111 or equivalent.* McKiel

**461 Hydrology and Water Management (I, 4)** Study of the processes that govern the hydrology and quality of surface runoff and groundwater. Emphasis on watershed management and the impact of land use on water quality. (*Lec. 3, Lab. 2*) *Pre: 212 or permission of instructor.* Gold

**471 Soil Morphology and Mapping (I, 3)** A detailed study of the morphological properties of soils and their distribution on the landscape. Practical experience in describing soil profiles and preparing soil maps. (*Lec. 1, Lab. 4*) *Pre: 212 or permission of instructor.* Wright

**475 Plant Nutrition and Soil Fertility**  
See Plant Science 475.

**484 Structures (II, 3)** Principles of design and construction of structures related to agricultural production. Emphasis on woodframe buildings. Planning, materials, construction components, environmental control, and waste disposal. (*Lec. 3*) *Pre: MTH 111 or equivalent, or permission of instructor. In alternate years. Next offered spring 1993.* McKiel

**491, 492 Special Projects (I and II, 1-3 each)** Special work to meet the needs of individual students in natural resources. (*Lec. and/or lab. according to nature of project*) *Pre: permission of chairperson.* Staff

**500 Graduate Seminar in Natural Resources (II, 1)**

**505 Biology of Management of Migratory Birds (I, 2)**

**510 Soil-Water Relations (II, 3)**

**512 Chemistry of Soils and Sediments (II, 4)**

**514 Fate of Organic Chemicals in Soils and Sediments (II, 3)**

**522 Advanced GIS Analysis of Environmental Data (II, 3)**

**523 (or MIC 523) Water Pollution Microbiology (I, 3)**

**524 Wetland Mapping and Evaluation (II, 3)**

**526 Microbial Ecology of Soils and Sediments (I, 3)**

**532 Conservation Biology (II, 2)**

**534 Ecology of Fragmented Landscapes (II, 2)**

**567 Soil Genesis and Classification (II, 3)**

**568 Recent Advances in Natural Resources Science (I, 3)**

**591, 592 Special Problems (I and II, 1-3 each)**

## New England Studies (NES)

*Coordinator:* Associate Professor Schoonover

**200 New England (I or II, 3)** Introduction to the study and interpretation of New England culture through the social and natural sciences, humanities, and arts. Field work. Staff (L)

**300 The New England Experience (I or II, 3)** Life in New England, past and present, through varying disciplines focusing on a new topic each summer. (*Lec. 3*) *May be repeated for credit with different emphasis.* Staff

**400 Special Topics in New England Studies (I or II, 1-3 each)** Specialized topics in the study of New England offered by specialists in the field. (Lec. 1) May be repeated for credit with different topics. Staff

## Nursing (NUR)

Dean: Professor Jean Miller

**100 Health, Illness, Nursing, and the Ecosystem (I or II, 3)** Analysis of ecosystem influences on health, illness, and health care. Political, socioeconomic, environmental, hereditary, and cultural factors related to health and health care delivery with a global view of nursing. (Lec. 3) Staff

**150 Human Sexuality (I and II, 3)** Interdisciplinary approach to the study of individual and societal determinants in the development, integration, and expression of human sexuality and a code of sexual behavior. Hirsch and Staff (S)

**210 Pathophysiology I (I or II, 3)** Body systems approach to the examination of etiology, pathogenesis, and clinical manifestations underlying alterations in health across the life span. Focus on medical diagnostics and therapy for common health problems. (Lec. 3) Pre: 100, MIC 201, ZOO 242, credit or concurrent enrollment in PCL 225 or 226. Staff

**212 Pathophysiology II (I or II, 3)** Continuation of 210. (Lec. 3) Pre: 210. Staff

**230 General Methods and Strategies in Nursing Practice I (I or II, 3)** Foundation course in studying general nursing strategies applicable to individual nursing care. Emphasis on theoretical and scientific bases of forms of nursing practice, nursing process, and nursing practice strategies. (Lec. 3) Pre: 100, foundation courses in natural and social sciences, credit or concurrent enrollment in 210. Staff

**235 Practicum in General Nursing Strategies I (I or II, 1)** Practicum for developing nursing skills broadly applicable to various individual patient-care situations. Assessment, communication, clinical decision-making skills. Techniques of general strategies in the context of the nursing process. (Lab. 3) Pre: FSN 207, one communications course, credit or concurrent enrollment in 230. Staff

**246 Conceptual Bases of Professional Nursing (I or II, 3)** Overview and synthesis of concepts essential to development of the professional nursing role. Primary emphasis on expanding and refining the theoretical bases for decision making and nursing strategies in client care. For R.N. students only. Evans

**250 Nursing in Health Promotion (I or II, 3)** Examination of health promotion in nursing context. Emphasis on macro- and micro-level health promotion strategies applicable to nursing practice. (Lec. 3) Pre: PSY 232, credit or concurrent enrollment in 230. Staff

**255 Practicum in Health Promotion Nursing (I or II, 1)** Application of health promotion principles and nursing strategies in health promotion

to clients of all ages. Emphasis on utilization of the nursing process in selected clinical situations for health promotion. (Lab. 3) Pre: credit or concurrent enrollment in 250. Staff

**270 Scientific Inquiry in the Practice of Nursing (I or II, 3)** Introduction to principles of scientific inquiry and the research process, including identification of forms of analytical thinking common to problem solving in nursing. Opportunity for evaluating and utilizing research findings. (Lec. 3) Pre: EST 220, credit or concurrent enrollment in 235. Staff

**280 Nursing Practice Seminar (SS, 3)** Seminar in conjunction with and as an integral part of a full-time summer clinical internship in an acute-care setting. Emphasis on application of nursing process to professional practice. (Sem. 3) Pre: 355. May be repeated once for credit. S/U only. Bartlett

**300 Theories and Issues in Professional Role Development (I or II, 3)** Examination of theories, issues, and concepts related to nursing science and professionalism. Emphasis on ethical, moral, and legal conduct, with responsibilities to self, peers, the profession, and society. (Lec. 1.5, Sem. 1.5) Pre: junior standing. Staff

**305 Practicum in Nursing of Children (I or II, 3)** Application of the nursing process to children in short-term and long-term health care settings with an emphasis on developing nursing strategies specifically appropriate for nursing of children. (Lec. 1, Lab. 6) Pre: 260 and 265. Last offered spring 1993. Staff

**310 Family Health Nursing (I or II, 3)** Analysis of the family as the unit of service, with application of the nursing process in a family-centered context. Includes consideration of healthy and troubled families and their nursing care needs. (Lec. 3) Pre: 260 and SOC 212 or equivalent. Concurrent enrollment in 315 allowed. Last offered fall 1992. Staff

**315 Practicum in Family Health Nursing (I or II, 3)** Application of family health nursing concepts with selected families. Experiences with healthy, childbearing, troubled, and high-risk families. (Lec. 1, Lab. 6) Pre: 265 and credit or concurrent enrollment in 310. Last offered fall 1992. Staff

**320 Nursing in Long-Term Health Care (I or II, 3)** Study of nursing care problems associated with chronic illness and nursing management of clients in various long-term health care settings. Emphasis on theoretical analysis of strategies applicable to long-term care. (Lec. 3) Pre: 260 and 310. Concurrent enrollment in 325 and 326 allowed. Last offered spring 1993. Staff

**325 Practicum in Long-Term Care of Adults (I or II, 3)** Application of the nursing process with adult clients in various long-term health care phases and settings. Emphasis on developing nursing care strategies, including case management for chronically ill clients. (Lec. 1, Lab. 6) Pre: 315 and credit or concurrent enrollment in 320. Last offered spring 1993. Staff

**326 Practicum in Mental Health and Psychiatric Nursing (I or II, 3)** Application of the nursing process and the use of self as the therapeutic agent with individuals and groups of clients. Emphasis on developing nursing strategies for mental health care. (Lec. 1, Lab. 6) Pre: 310. Concurrent enrollment in 320 allowed. Last offered fall 1992. Staff

**330 Community Health Nursing (I or II, 3)** Analysis of community as a unit of service for nursing. Application of nursing process to groups, population groups, organizations, and communities. Examination of epidemiological, financial, organizational, and occupational perspectives. (Lec. 3) Pre: 310 and 315. Concurrent enrollment in 335 allowed. Last offered spring 1993. Staff

**335 Practicum in Community Health Nursing (I or II, 3)** Application of the nursing process to communities. Experience(s) with a population group, organization, or group in a selected community. In-depth analysis of a selected community, including utilization of epidemiological process. (Lec. 1, Lab. 6) Pre: 310, 315, and credit or concurrent enrollment in 330. Last offered spring 1993. Staff

**346 Practicum in Care of Clients and Families (I or II, 3)** Application of health promotion and restoration principles and corresponding nursing strategies for clients and families in a variety of clinical settings. (Lec. 1, Lab. 6) Pre: 210, 212, 246, 270, and completion of ACT-PEP tests, 457, 503, 530, and 554 or equivalent courses. For R.N. students only. Staff

**349 Aging and Health (II, 3)** Examines normal age changes, effects on health, health problems, and interventions to achieve optimal wellness. Utilizes a systems perspective emphasizing healthy, positive aging and incorporates an interdisciplinary approach to care. (Lec. 3) Burbank

**350 General Methods and Strategies in Nursing Practice II (I or II, 3)** Continuation of 230 in studying general nursing strategies applicable to individual nursing care. Emphasis on theoretical and scientific bases of nursing strategies for specific patient-care problems. (Lec. 3) Pre: 235, credit or concurrent enrollment in 212. Staff

**355 Practicum in General Nursing Strategies II (I or II, 3)** Continuation of 235 studying general nursing strategies applicable to individual nursing care. Emphasis on theoretical and scientific bases of nursing strategies for individuals with a variety of health problems. (Lab. 9) Pre: 255 and credit or concurrent enrollment in 350. Staff

**360 Impact of Death on Behavior (I and II, 3)** Seminar to explore the human experience of dying and the issue of quality of life. Group discussion focuses on the effect that individual and social values and medical and social structures have on one's grief response and bereavement process. (Lec. 3) Staff (L)

**370 Nursing in Short-Term Health Care (I or II, 3)** Study of health care phenomena frequently associated with short-term illnesses as a

conceptual base for analysis and development of nursing care strategies across the life span. (Lec. 3) Pre: 270 and 355. Staff

**375 Practicum in Short-Term Care of Adults (I or II, 3)** Application of the nursing process to adults of all ages in short-term health care settings with an emphasis on developing nursing strategies specifically devoted to the restoration of health. (Lec. 1, Lab. 6) Pre: PCL 225 and 226 and credit or concurrent enrollment in 370. Staff

**390 Directed Study (I and II, 1-3)** Research study or individual scholarly project relating to the nursing major. Faculty guidance in problem delineation and in development, implementation, and evaluation of the project. Pre: admission to the College of Nursing. S/U credit. Staff

**410 Psychopathology (I or II, 2)** Examination of etiology, pathogenesis, and clinical manifestations underlying alterations in mental health across the life span, focusing on psychiatric diagnostics and therapies for common mental illnesses. (Lec. 2) Pre: 355. Not for graduate credit. McElravy and Staff

**415 Practicum in Mental Health and Psychiatric Nursing (I or II, 3)** Application of the nursing process and the use of self as the therapeutic agent with individuals and groups of clients. Emphasis on developing nursing strategies for mental health care. (Lab. 9) Pre: credit or concurrent enrollment in 410. Not for graduate credit. Staff

**420 Family Health Nursing (I or II, 3)** Analysis of the family as the unit of service, with application of the nursing process in a family-centered context. Includes consideration of healthy and troubled families and their nursing care needs. (Lec. 3) Pre: 375 and 415. Not for graduate credit. Staff

**425 Practicum in Family Health Nursing (I or II, 2)** Clinical practice with the family as the unit of service. Application of family health nursing concepts with selected child-bearing and child-rearing families. (Lab. 6) Pre: credit or concurrent enrollment in 420. Not for graduate credit. Staff

**430 Community Health Nursing (I or II, 3)** Analysis of community as a unit of service for nursing. Application of nursing process to groups, population groups, organizations, and communities. Examination of epidemiological, financial, organizational, and occupational perspectives. (Lec. 3) Pre: 375 and 415. Pre: (for R.N. students only) 210, 212, 246, 270, and completion of ACT-PEP tests, 457, 503, 530, and 554. Not for graduate credit. Staff

**435 Practicum in Community Health Nursing (I or II, 3)** Application of the nursing process to communities. Experience(s) with multi-problem families and groups and/or organizations. In-depth analysis of a selected community, including utilization of epidemiological process. (Lab. 9) Pre: credit or concurrent enrollment in 430. Staff

**445 Practicum in Nursing of Children (I or II, 3)** Application of the nursing process to children in short-term and long-term health care settings with an emphasis on developing nursing strategies specifically appropriate for the nursing of children. (Lab. 9) Pre: 425, credit or concurrent enrollment in 450. Not for graduate credit. Staff

**446 Clinical Directed Study for Registered Nurse Students (I or II, 4)** Clinical study or individual scholarly project related to the nursing major. Faculty guidance in problem delineation and in development, implementation, and evaluation of the project. Pre: 346 and permission of instructor. Not for graduate credit. Staff

**450 Nursing in Long-Term Health Care (I or II, 3)** Study of nursing care problems associated with chronic illness and nursing management of clients in various long-term health care settings. Emphasis on theoretical analysis of strategies applicable to long-term care. (Lec. 3) Pre: 425 and 435. Not for graduate credit. Staff

**455 Practicum in Long-Term Care of Adults (I or II, 4)** Application of the nursing process with adult clients in various long-term health care phases and settings. Emphasis on developing nursing care strategies, including case management for chronically ill clients. (Lab. 12) Pre: credit or concurrent enrollment in 450. Not for graduate credit. Staff

**459 Perspectives on Male and Female Sexuality (I, 3)** Examination of the multifaceted perspectives (somatic, emotional, ethical, cultural) on male and female sexuality. Topics include history and recent developments in sexology research, therapy, role and gender issues. (Lec. 3) Pre: 150 or permission of instructor. Hirsch and Dannenfels

**501 Theoretical Study of Phenomena in Nursing (I, 3)**

**502 Practicum in the Study of Phenomena in Nursing (I, 3)**

**503 Expanded Nursing Assessment Skills (I and II, 3)**

**504 Expanded Nursing Assessment Skills: Pediatrics (I and II, 1)**

**505 Nursing Research (I or II, 3)**

**506 Independent Study in Nursing (I and II, 2-6)**

**507 Theories of Practice for Nursing (I, 3)**

**510 Advanced Leadership and Nursing Role Development (I or II, 3)**

**511 Advanced Mental Health Nursing I (II, 3)**

**512 Practicum in Advanced Mental Health Nursing I (II, 3)**

**513 Advanced Mental Health Nursing II (I, 3)**

**514 Practicum in Advanced Mental Health Nursing II (I, 6)**

**520 Graduate Study Seminar (I or II, 1)**

**521 Theoretical Study of Major Problems in Nursing Practice (II, 3)**

**522 Practicum in the Study of Major Problems in Nursing Practice (II, 3)**

**531 Primary Health Care Nursing I (II, 3)**

**532 Practicum in Primary Health Care Nursing I (II, 3)**

**533 Primary Health Care Nursing II (I, 3)**

**534 Practicum in Primary Health Care Nursing II (I, 6)**

**541 Theoretical Study of Nursing Education (I, 3)**

**542 Practicum in Nursing Education (I, 6)**

**551 Theoretical Study of Nursing Administration (I, 3)**

**552 Practicum in Nursing Administration (I, 6)**

**560 Ethical Theories, Nursing Practice, and Health Care (I or II, 3)**

**561 Theories of Practice for Clinical Nursing (I, 3)**

**562 Advanced Clinical Study of Nursing Practice in Critical Care (I or II, 6)**

**563 Advanced Clinical Study of Nursing Practice in Gerontology (I or II, 6)**

**564 Advanced Clinical Study of Nursing Practice in Parent-Child Health (I or II, 6)**

**569 Theoretical Study of Advanced Nursing (I, 3)**

**590 Directed Advanced Study and Clinical Practice in Primary Health Care (I or II, 3)**

## Ocean Engineering (OCE)

Chairperson: Professor Silva

**101 Introduction to Ocean Engineering (II, 1)** Overview of ocean engineering topics pointing out the common areas with other engineering branches but emphasizing specific ocean applications. Introduction to computer graphics applications in ocean engineering. (Lec. 1) Pre: CSC 201 or permission of instructor. Staff

**215 Ocean Engineering Seminar I (I and II, 1)** Topics in ocean engineering will be covered in a seminar form. New directions and established areas of ocean engineering will be presented. Speakers will be alternated between invited industry representatives, faculty, and students. S/U only. Staff

**307 Coastal Engineering Design (II, 3)** Topics include two-dimensional wave equations and wave characteristics; wave refraction, diffraction, and reflection; wave-structure interaction; and simple coastal structure design. (Lec. 3) Pre: MCE 354 or permission of instructor. Hu, Spaulding, or McEwen

**346 (or PED 346) Skin and Scuba Diving, Beginners (I, 2)** Emphasis on basic physical principles, hazards, selection of equipment, and techniques. (Lec. 1, Lab. 2) Pre: permission of instructor. McAniff

**347 (or PED 347) Skin and Scuba Diving, Advanced (II, 2)** Emphasis on the skill needed for advanced scuba activities as related to deep dives, salvage. (Lec. 1, Lab. 2) Pre: 346. McAniff

**351, 352 Plant Design and Economics**  
See Chemical Engineering 351, 352.

**403, 404 Introduction to Ocean Engineering Processes I, II**  
See Chemical Engineering 403, 404.



**410 Basic Ocean Measurements (I or II, 3)** Four or five basic ocean measuring exercises: current and tide, dissolved oxygen, wave frequency spectra, soil characteristics from cores, water depth, and bottom profiles. (Lec. 1, Lab. 6) *Not for graduate credit.* Staff

**411 Basic Coastal Measurements (I, 3)** Basic coastal measuring exercises from boats, in situ, and on laboratory samples. Included will be measurement of current and tide, sediment transport and erosion, sediment testing, water testing, and bottom profiling. (Lec. 1, Lab. 3) *Pre: advanced standing in civil engineering or permission of instructor.* *Not for graduate credit.* Staff

**416 Ocean Engineering Seminar II (I and II, 1)** Topics in ocean engineering will be covered in a seminar form. New directions and established areas of ocean engineering will be presented. Speakers will be alternated between invited industry representatives, faculty, and students. *Not for graduate credit.* S/U only. Staff

**471 Underwater Acoustics and Data Analysis (I, 3)** Underwater acoustics and time-series analysis. Fourier analysis of continuous discrete and random time processes. Fundamentals of acoustics, including transducers, arrays, propagation in the ocean, and sonar systems. (Lec. 3) *Pre: permission of instructor.* *Not for graduate credit.* Staff

**483 Foundation Engineering**  
See Civil and Environmental Engineering 483.

**495 Ocean Systems Design Project (I, 4)** Design project of an ocean-related system under the supervision of a faculty advisor. The project is to combine a number of different engineering and scientific disciplines. *Pre: permission of instructor.* *Not for graduate credit.* Staff

**510 Engineering Ocean Mechanics (II, 3)**

**512, 513 Hydrodynamics of Floating and Submerged Bodies I, II (I and II, 3 each)**

**522 Dynamics of Waves and Structures (I, 3)**

**523 (or CVE 523) Coastal Structures (II, 3)**

**534 (or CHE 534) Corrosion and Corrosion Control (II, 3)**

**535 (or CHE 535) Advanced Course in Corrosion (I, 3)**

**537 (or CHE 537) Advanced Materials Engineering (II, 3)**

**540 (or MCE 540) Environmental Control in Ocean Engineering (II, 3)**

**555, 556 Ocean Energy Systems I, II (I and II, 3 each)**

**560 Introduction to Data Collection Systems (II, 3)**

**561 Introduction to the Analysis of Oceanographic Data (I, 3)**

**565 Ocean Laboratory I (I or II, 3)**

**566 Ocean Laboratory II (I or II, 3)**

**571 (or ELE 571) Underwater Acoustics (I, 3)**

**581 (or CVE 581) Experimental Geomechanics (I and II, 3)**

**582 (or CVE 582) Seabed Geotechnics (I or II, 3)**

**583 (or CVE 583) Advanced Foundation Engineering (I or II, 3)**

**591, 592 Special Problems (I and II, 1-6 each)**

## Oceanography (OCG)

*Interim Dean:* Professor Leinen

**123 Oceans, Atmospheres, and Global Change (II, 4)** The impact of human activities on the oceans, atmospheric composition, and climate set against a background of natural processes in and history of global changes in climate and ecosystems. (Lec. 3, Rec. 1) Merrill (N)

**401 General Oceanography (I and II, 3)** General survey in the major disciplines including geological, physical, chemical, and biological aspects integrated into a conceptual approach to the ocean sciences. (Lec. 3) *Pre: at least one laboratory course in a physical or biological science and junior standing or above.* Napora (N)

**491 Ocean Studies (I and II, 15)** Full-time intensive work experience with Graduate School of Oceanography research staff at Narragansett Bay Campus. Student expected to participate in research program, seminars, and other activities of Bay Campus. *Pre: junior standing in natural sciences, natural resources, or engineering, and permission of staff.* *Not for graduate credit in oceanography.* S/U only. Jeffries and Staff

**493, 494 Special Problems and Independent Study in Oceanography (I and II, 1-6 each)** Research in oceanography conducted as supervised individual study. (Lab. 2-12) *Pre: junior or senior standing in natural science, natural resources, or engineering and permission of staff.* S/U only. Staff

**501 Physical Oceanography (I, 3)**

**510 Descriptive Physical Oceanography (II, 3)**

**521 Chemical Oceanography (II, 3)**

**523 Organic Chemistry of Natural Waters (I, 3)**

**524 Chemistry of the Marine Atmosphere (II, 3)**

**540 Geological Oceanography (II, 3)**

**541, 542 Principles of Marine Geology and Geophysics (I and II, 4 each)**

**561 Biological Oceanography (I, 3)**

**574 Biology of Marine Mammals (I, 3)**

**576 (or MIC 576z) Marine Microbiology (I, 4)**

**581 (or GEL 581) Topics in Tectonic Geology (I, 3)**

## Operations Management (OMT)

*Chairperson:* Professor Ebrahimpour (Management Science and Information Systems)

**309 Operations Management (I and II, 3)** Operations management problems in global and domestic environments. Forecasting, inventory management, production and materials requirements planning, facilities layout, scheduling. Just-in-Time and quality control systems. (Lec. 3) *Pre: QBA 202 and 207 or permission of instructor.* Staff

**310 Capacity Planning and Operations Scheduling (I, 3)** Intensified coverage of production planning in manufacturing and service industries. Topics include aggregate planning, capacity planning and control, shop-floor-activity planning

and control, and MRP/CPM relationships. (Lec. 3) *Pre: 309.* Staff

**311 Master Planning and Requirement Analysis (I, 3)** Intensified coverage of operations planning in manufacturing and service organizations. Topics include: time series forecasting, multi-item forecasting, material requirements planning, master production scheduling. (Lec. 3) *Pre: 309 or permission of instructor.* Staff

**458 Integrated Production: Logistics Systems (II, 3)** Analysis of integrated logistical support systems within a manufacturing or service firm. Aggregate and multiechelon inventory systems, facility location, material handling, warehousing, and production scheduling. (Lec. 3) *Pre: 309.* Staff

**460 Management of Quality Control: Computer Applications (I, 3)** Management of quality control methods in industry and commerce. Discussion of quality control charts; decision making affecting process control. Use of computer applications to establish quality control programs. (Lec. 3) *Pre: 309.* Staff

## Pharmaceutics (PHC)

*Chairperson:* Professor Needham

**327 Biopharmaceutics (I, 2)** Physicochemical properties of dosage forms as they control drug release; dissolution kinetics. (Lec. 2) *Pre: third-year standing.* Rhodes

**328 Pharmacokinetics (II, 3)** Application of pharmacokinetic principles to the disposition of drugs in the body. Development of drug dosage regimen in disease states. (Lec. 2, Lab. 2) *Pre: 327 or equivalent.* Rosenbaum

**340 Physical Pharmacy (I and II, 3)** Physicochemical properties of pharmaceutical systems. (Lec. 3) *Pre: third-year standing.* Zia

**350 Pharmaceutical Technology (I and II, 3)** Preparation and evaluation of drug delivery systems. (Lec. 3) *Pre: third-year standing.* Kislalioglu

**351 Personal Cosmetics (II, 3)** Formulation and manufacture of various types of personal cosmetics and toilet preparations. Examples of types studied are prepared in laboratory. (Lec. 2, Lab. 3) *Pre: 344.* Lausier

**360 Pharmaceutical Technology Laboratory (I and II, 1)** Formulation, compounding, and evaluation of drug delivery systems. (Lab. 4) *Pre: third-year standing.* Zia

**425 History of Pharmacy (II, 3)** Historical development of pharmacy in this country and abroad emphasizing the background of recent developments in the profession and related health sciences. (Lec. 3) *Pre: fourth- or fifth-year standing.* Staff

**460 (or PHP 460) Nonprescription Drugs and Medical Devices (I and II, 4)** Study and evaluation of nonprescription drugs, health aids, and medical devices. (Lec. 4) *Pre: 330, 331, fourth-year stand-*

ing, and permission of chairperson. Not for graduate credit in pharmaceuticals. Last offered 1993–94.

Danish

**461 Health-Related Supplies (I or II, 1)** Practical training in fitting health supports and using medical devices. (Lab. 2) Pre: 340, 350, 360, fourth-year standing. May be taken concurrently with 462. Not for graduate credit. Danish

**462 Nonprescription Drugs (I or II, 3)** Study and evaluation of nonprescription drugs. (Lec. 3) Pre: 340, 350, 360, fourth-year standing. May be taken concurrently with 461. Not for graduate credit. Danish

**497, 498 Special Problems (I and II, 1–3 each)** Method of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Lab. 3–10) Pre: permission of chairperson. Staff

521, 522 Seminar (I and II, 1 each)

530 Fundamentals of Cosmetic Science (I, 3)

531 Basic Research in Cosmetic Science (I, 2)

532 Cosmetic Product Formulation (I, 2)

535 Pharmacokinetics (II, 3)

## Pharmacognosy (PCG)

Chairperson: Professor Shimizu  
(Pharmacognosy and Environmental Health)

**445, 446 General Pharmacognosy (I and II, 3 each)** Natural products of biological origin as important pharmaceuticals. Sources, process of isolation, and general fundamental properties. (Lec. 3) Pre: CHM 228, MIC 201, or equivalent. Shimizu and Chen

**447 General Pharmacognosy Laboratory (I and II, 1)** Introduction to and application of laboratory methods utilized in the preparation, identification, isolation, and purification of pharmaceuticals from natural sources. (Lab. 3) Pre: CHM 226, BIO 101, 102, or equivalent. Staff

**459 Public Health (I, 3)** Principles of prevention and control of disease and application of this information to current health problems. (Lec. 3) Pre: MIC 201 and PCG 446. Staff

**497, 498 Special Problems (I and II, 1–3 each)** Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Lab. TBA) Pre: for undergraduate students only. Staff

521, 522 Seminar (I and II, 1 each)

533 Medicinal Plants (I, 2)

536 Antibiotics (II, 3)

548 (or MCH 548) Physical Methods of Identification (II, 3)

551, 552 Chemistry of Natural Products (I and II, 3)

597, 598 Special Problems (I and II, 1–3 each)

## Pharmacology and Toxicology (PCL)

Chairperson: Professor Shaikh

**202 Maintaining Health in the Age of Chemicals (II, 2)** Introduction for the general student to the potential hazards posed by drugs, food additives, and pollutants to the maintenance of health. (Lec. 2) Not for program credit for nursing or pharmacy majors in the third year or beyond. Swonger and Staff

**221 Dental Therapeutics (I, 2)** Medicinal agents, their actions and therapeutic uses with special emphasis on substances employed in dental practice. (Lec. 2) Open to dental hygiene majors only. Rodgers

**225 Pharmacology and Therapeutics I (I, 2)** Properties, actions, uses, adverse effects, and interactions of drugs used in treatment of disease. (Lec., Rec. 2) Pre: ZOO 242. Open to students in the College of Nursing only. Swonger

**226 Pharmacology and Therapeutics II (II, 2)** Continuation of 225. Properties, actions, uses, adverse effects, and interactions of drugs used in treatment of disease. (Lec., Rec. 2) Pre: 225. Open to students in the College of Nursing only. Swonger

**327 Introduction to Human Pathophysiology (I, 3)** Systems approach to normal and abnormal human physiology, with selected examples of important and well-defined human diseases. Participating faculty include scientists and clinical practitioners. (Lec. 3) Pre: BCP 311, ZOO 242, and MIC 201. Rodgers and Staff

**436 (or PSY 436) Psychotropic Drugs and Therapy (I and II, 3)** Interaction of drug and nondrug therapy and of physiological and psychological origins of psychopathology. Intended for advanced undergraduate and graduate students interested in clinical psychology. (Lec. 3) Pre: any one of the following—BIO 102, ZOO 111, 121, PSY 381, or permission of instructor. Swonger

**441, 442 General and Clinical Pharmacology (I and II, 4 each)** Action of drugs on physiological function with reference to responses by tissue systems. Toxic effects, mechanism of action, dosage, and pertinent clinical aspects. (Lec. 4) Pre: third-year standing. Last offered 1992–93. Babson, Chichester, Rodgers, Shaikh, and Swonger

**443 General Pharmacology Laboratory (I and II, 1)** Effects of drugs on physiological function with reference to responses by tissue systems. Toxic effects, mechanism of action, and dosage. (Lab. 3) Pre: fourth-year standing or permission of chairperson. Chichester, Shaikh, and Staff

**444 General and Clinical Pharmacology and Toxicology I (II, 3)** Principles of drug action with emphasis on effects of drugs and other chemicals on physiological function of various organ systems. Mechanisms of action, toxic effects, and pertinent clinical aspects will be discussed. (Lec. 3) Pre: ZOO 242, BCP 311, and PCL 327, or permission of instructor. Babson and Staff

**445 General and Clinical Pharmacology and Toxicology II (II, 3)** Principles of drug action with emphasis on effects of drugs and other chemicals on physiological function of various organ systems. Mechanisms of action, toxic effects, and pertinent clinical aspects will be discussed. (Lec. 3) Pre: 327 and 444 or permission of instructor. Swonger and Staff

**446 General and Clinical Pharmacology and Toxicology III (II, 3)** Principles of drug action with emphasis on effects of drugs and other chemicals on physiological function of various organ systems. Mechanisms of action, toxic effects, and pertinent clinical aspects will be discussed. (Lec. 3) Pre: 327, 444, and 445 or permission of instructor. Shaikh and Staff

**497, 498 Special Problems (I and II, 1–3 each)** Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Lab. TBA) Pre: permission of chairperson. Staff

521, 522 Seminar (I and II, 1 each)

544 Forensic Toxicology (I, 3)

546 Advanced Toxicology (I, 3)

572 Neural Bases of Drug Action (I, 3)

## Pharmacy Practice (PHP)

Chairperson: Associate Professor Weber

**349 Pharmacy Administration Principles (I, 3)** Practical solutions to problems encountered in selection, location, and management of pharmacies, their personnel, stock, and equipment. (Lec. 3) Taubman

**351 Pharmaceutical Law and Ethics (II, 3)** Basic principles of law and ethics as applied to federal, state, and local acts, regulation, and practices encountered in professional practice. Specific attention to liabilities of pharmacists in decisions; actions involving sale of medicinals, poisons, narcotics. (Lec. 3) Campbell and Hachadorian

**360 Hospital Pharmacy (II, 3)** Introduction to practice of pharmacy in hospitals, including both professional and administrative activities. Field trips to representative hospital pharmacies. (Lec. 2, Lab. 3) Pre: fourth-year standing. Oliver and Staff

**406 Pharmacy Retailing (II, 3)** Effect of economic trends and marketing changes on the retail distribution of pharmaceuticals and allied products, particularly as they affect the professional practice of pharmacy. (Lec. 3) Pre: permission of chairperson. In alternate years. Campbell and Taubman

**448 Third-Party Prescription Programs (II, 2)** Methods of evaluating third-party prescription programs in relationship to the health-care system, including the relationship of public and private for-profit and nonprofit programs. Evaluation of delivery of pharmaceutical services as applied to patient and drug eligibility, reimbursement, and claims processing. (Lec. 2) Pre: 349 and 351. Not for graduate credit. Taubman and Campbell

**451, 452 Pharmacotherapeutics I, II (I and II, 3 each)** The use of drugs in the treatment of human disease. Application of scientific, social, and economic principles to the development and assessment of drug therapy plans. *Pre:* 349, 351, PHC 328, 330, 331, PLC (or MCH) 344, MCH 342; PCG 446, ASP 401, and BCP 311. *Not for graduate credit. Last offered 1992-93.* Graham and Staff

**453 Drug Marketing Principles (II, 2)** Modern methods of merchandising, agencies involved in marketing drug products; their functions, particularly as they affect the community pharmacy phase of professional practice. *(Lec. 2) Pre:* fifth-year standing, ECN 125, or permission of chairperson. Taubman and Campbell

**455, 456 Pharmacotherapeutics I, II (I and II, 4 each)** The use of drugs in the treatment of human disease. Application of scientific, social, and economic principles to the development and assessment of drug therapy plans. *(Lec. 4) Pre:* successful completion of all required courses in the first 6 semesters of the curriculum. Graham and Staff

**460 Nonprescription Drugs and Medical Devices**  
See Pharmaceutics 460.

**470 Contemporary Pharmacy Practice Laboratory (I and II, 1)** Issues associated with the dispensing of medication, use of patient profiles, and effective interaction with patients and health professionals in simulated practice settings. *Pre:* 451, PCL 441, PCG 445, 447, 459, MCH 442, and concurrent enrollment in 460. *Not for graduate credit. Last offered 1993-94.* Oliver

**471 Contemporary Pharmacy Practice Laboratory (I and II, 2)** Issues associated with the dispensing of medication, use of patient profiles, and effective interaction with patients and health professionals in simulated practice sessions. *(Lec. 1, Lab. 3) Pre:* 455, PCL 445, PCG 445, 459, MCH 443; concurrent enrollment in PHC 462. *Not for graduate credit.* Oliver

**480 Prepaid Drug Plans (I, 3)** Institutional relationships involved in the prescribing, dispensing, and prepayment of drugs. Problems of interference with pharmaceutical or medical practice arising from different types of prepayment plans. Actual experience, laws, and court decisions, abuse and controls. *(Lec. 3) Pre:* 349 and 453, or equivalent. Taubman

**484 Hospital Pharmacy Externship (I and II, 5)** Structured practical experience in selected hospital pharmacies. Participation in drug distribution, inventory control, drug utilization review, and other aspects of contemporary pharmacy practice. *(Lab. 40 hours per week for 6 weeks) Pre:* 452, 460, 470, PCL 442, 443, and MCH 444. *Not for graduate credit.* Larrat, Pedro, and Oliver

**485 Community Pharmacy Externship (I and II, 5)** Structured practical experience in selected community pharmacies. Participation in patient counseling, drug distribution, and other aspects of contemporary pharmacy practice.

*(Lab. 40 hours per week for 6 weeks) Pre:* 452, 460, 470, PCL 442, 443, and MCH 444. *Not for graduate credit.* Larrat, Pedro, and Oliver

**486 Specialty Externship (I and II, 3-6)** Structured practical experience in institutional community, and nontraditional pharmacy settings. *(Lab. 9-18) Pre:* permission of chairperson. *May not be taken concurrently with 485 or 490. May be repeated for a maximum of 12 credits. Not for graduate credit.* Larrat, Pedro, and Oliver

**490 Clinical Pharmacy Clerkship (I and II, 5)** Faculty-supervised clinical pharmacy experience in affiliated hospitals. Development of general clinical problem solving and communications skills. *(Lab. 40 hours per week for 6 weeks) Pre:* 452, 460, 470, PCL 442, 443, MCH 444. *Not for graduate credit.* Weber and Staff

**497, 498 Special Problems (I and II, 1-3 each)** Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. *(Lab. 3-10) Pre:* permission of chairperson. Staff

**499 Specialty Clerkship (I and II, 3-6)** Faculty-supervised clinical pharmacy experience in affiliated institutional and ambulatory health care settings. Development of clinical pharmacy skills in various specialty areas. *(Lab. 9-18) Pre:* permission of chairperson. *May not be taken concurrently with 485 or 490. May be repeated for a maximum of 12 credits. Not for graduate credit.* Staff

**530 Behavioral Skills in Clinical Pharmacy (SS, 3)**

**532 (or PCG 532 or PHC 532) Pharmaceutical Sterile Products (II, 3)**

**544 Physical Assessment (II, 1)**

**570 Case Studies in Pharmacy Law (II, 3)**

## Philosophy (PHL)

*Chairperson:* Professor Johnson

**101 Logic: The Principles of Reasoning (I or II, 3)** Introduction to logic, presentation of evidence in basic valid argument forms. Emphasis on effective communication by considering such topics as definitions and avoidance of fallacies. *(Lec. 3) Staff (C)*

**103 Introduction to Philosophy (I or II, 3)** Pursues such basic questions as: What is a person? What is knowledge? Are we free? What is moral right and wrong? Does God exist? What is the meaning of death? *(Lec. 3) Not open to students with 9 or more credits in philosophy.* Staff (L)

**204 Theories of Human Nature (I or II, 3)** An introduction to philosophical inquiry by critical examination of some major traditional and contemporary views of human nature as expressed in a variety of religious, literary, scientific, and philosophical writings. *(Lec. 3) Johnson (L)*

**210 Women and Moral Rights (I or II, 3)** An introduction to the philosophical problems raised by reproduction, affirmative action, pornography,

gender roles, and sexism in language through a critical examination of these issues. *(Lec. 3) Pasquerella (L)*

**212 Ethics (I or II, 3)** Evaluation of major ethical theories. Application of moral reasoning to topics such as virtue and vices, human dignity, conscience, responsibility, moral dilemmas, and reasons to be moral. *(Lec. 3) Schwarz, Pasquerella, or Staff (L)*

**217 Social Philosophy (I or II, 3)** A systematic introduction to the philosophical problems of contemporary social relations: models of community, sources of alienation, property and ownership, the meaning of work and technology, human rights and freedom. *(Lec. 3) Johnson or Staff (L)*

**235 (135) Modern Thought: Philosophy and Literature**  
See Comparative Literature Studies 235.

**314 Ethical Problems in Society and Medicine (I or II, 3)** Ethical analysis of topics such as war, capital punishment, sexual morality, suicide, animal rights, honesty and deception, world hunger, discrimination, abortion. *(Lec. 3) Pre:* 101 or 103 or one 200-level course or permission of instructor. Schwarz, Pasquerella, or Staff (L)

**318 Recent Philosophers of Socialism (I or II, 3)** Philosophical issues regarding money, property, and the human condition, mainly from the perspective of a spectrum of socialists and their critics, including Thoreau, Marx, Buber, Dewey, Sartre, and Solzhenitsyn. *(Lec. 3) Pre:* 101 or 103 or one 200-level course or permission of instructor. Johnson (L)

**319 Philosophy of History (I, 3)** Examination of central philosophical problems raised by the discipline of history: truth and fact in history, historical explanation and understanding, permanence and change in social time. *(Lec. 3) Pre:* 101 or 103 or one 200-level course or permission of instructor. Johnson (L)

**321 Ancient Philosophy (I and II, 3)** Survey of major thinkers and schools of thought in Ancient Greece, including selected pre-Socratics, Plato, and Aristotle. *(Lec. 3) Zeyl (F) (L)*

**322 Medieval Philosophy (I, 3)** Survey of major thinkers and schools of thought in the Middle Ages, including such thinkers as Augustine, Anselm, Aquinas, and Ockham. *(Lec. 3) Roberts (F) (L)*

**323 Modern Philosophy (I, 3)** Survey of major thinkers and schools in modern times, including Descartes, Locke, Berkeley, Hume, Leibnitz, Spinoza, Kant, and Hegel. *(Lec. 3) Peterson or Staff (F) (L)*

**324 Recent European Philosophy (II, 3)** A study of European philosophy from 1840 to present. British and Continental developments are discussed and analyzed, including such movements as utilitarianism, idealism, logical atomism, positivism, existentialism, and phenomenology. *(Lec. 3) Pre:* 101 or 103 or one 200-level course or permission of instructor. Peterson or Staff (L)

**325 American Philosophy (I or II, 3)** A study of American philosophy including such movements as puritanism, transcendentalism, pragmatism, naturalism, process-philosophy, realism, and philosophical analysis. *Pre: 101 or 103 or one 200-level course or permission of instructor.* Peterson (L)

**328 The Philosophy of Religion (I and II, 3)** A systematic and critical consideration of such topics as the existence and nature of God, the problem of evil, the relation of faith to reason, religious language, miracles, and immortality. *Pre: 101 or 103 or one 200-level course or permission of instructor.* Zeyl or Staff (L)

**331 East Asian Thought (I or II, 3)** A study of the important philosophical and religious systems of China, Korea, and Japan; emphasis on Chinese traditions. *(Lec. 3)* Kim (F) (L)

**341 Introduction to Metaphysics (I or II, 3)** Analyzes topics such as person, mind-body, human action, freedom and determinism, causation, time, space, essence and existence, universals, and types of beings. *(Lec. 3)* *Pre: 101 or 103 or one 200-level course or permission of instructor.* Pasquerella or Staff

**342 Knowledge, Belief, and Truth (I or II, 3)** Analysis of topics such as knowledge, belief, certainty, doubt, skepticism, faith, the ethics of belief, truth, error, perception, *a priori* knowledge, subjectivity and objectivity, and memory. *(Lec. 3)* *Pre: 101 or 103 or one 200-level course or permission of instructor.* Roberts or Staff

**346 Existential Problems in Human Life (I or II, 3)** Discussion of ultimate questions of human existence such as meaning in life, personal commitment, human relations, suffering, despair, hope, freedom, authenticity, self-deception, death, God, and immortality. *(Lec. 3)* *Pre: 101 or 103 or one 200-level course or permission of instructor.* Hanke (L)

**352 Philosophy of Science (I or II, 3)** Analysis of the nature and structure of scientific thought. Consideration of such issues as: structure and types of scientific explanation, verification and falsification, unity of the sciences. *(Lec. 3)* *Pre: 101 or 103 or one 200-level course or permission of instructor.* Kowalski

**355 Philosophy of Art (I or II, 3)** Systematic problems arising from reflection on the creation and perception of works of art. *(Lec. 3)* *Pre: 101 or 103 or one 200-level course or permission of instructor.* Hanke (L)

**401, 402 Special Problems (I and II, 3 each)** Course may vary from year to year, allowing one or more advanced students to pursue problems of special interest with guidance of instructor in conferences. One or more written papers. *(Lec. 3)* *Pre: 3 credits in philosophy and permission of instructor.* May be repeated for credit. Staff

**414 Advanced Studies in Ethics (I or II, 3)** Intensive studies of various issues, theories, and aspects in the field of ethics. Texts of leading moralists will be carefully analyzed. Specific subject may change from year to year. *(Lec. 3)* *Pre: 212 and one 300-level course. In alternate years.* Staff

**440 Philosophy of Language (I or II, 3)** Language in its relation to the world, cognitive and noncognitive functions of language, and philosophical issues in the area of communication. Works of Wittgenstein, the logical positivists, linguistic analysts, and other contemporary thinkers. *(Lec. 3)* *Pre: 101 or 103, and one 300-level PHL course.* Staff

**451 Symbolic Logic (I or II, 3)** Selected topics in modern symbolic logic including calculus of propositions, predicate calculus, and modal logics. Philosophical and mathematical aspects of the subject. *(Lec. 3)* *Pre: 101 or MTH 131 or permission of instructor.* Kowalski

**453 Philosophy of the Social Sciences (II, 3)** Examination of philosophical problems raised by contemporary social sciences: the meaning of scientific knowledge, the nature of understanding of other persons and cultures, the relation of theory and practice. *(Lec. 3)* *Pre: 101 or 103 or 204 or permission of instructor.* Johnson

**502, 503 Tutorial in Philosophy (I and II, 3)**

**513 General Axiology (I or II, 3)**

**530 Philosophy of Plato (I or II, 3)**

**531 Philosophy of Aristotle (I or II, 3)**

**542 Advanced Studies in Patristic and Scholastic Philosophy (I or II, 3)**

**551 Philosophical Logic (I or II, 3)**

**555 Philosophy of the Arts and Literature (I or II, 3)**

**570 Philosophy of Immanuel Kant (I or II, 3)**

**580 Nineteenth-Century Philosophy (I or II, 3)**

**582 Advanced Studies in Contemporary Philosophy (I or II, 3)**

## Physical Education (PED)

*Chairperson:* Associate Professor Crooker (Physical Education, Health and Recreation)

**105 Beginner Elective Activity I: Individual and Dual Sports (I or II, 1)** Beginning level of instruction for students with little or no previous experience in the activities offered. Select appropriate letter for activity desired, e.g., 105A Beginning Archery. *(Practicum 3)* Staff

A Archery

B Badminton

C Biking and Hiking

D Bowling

E Canoeing

F Fencing

G Golf

H Gymnastics

I Sailing

K Skiing

L Slimnastics

M Tennis

N Track and Field

P Marksmanship

S Activities for Children

T Handball

W (or MSC) Weight Training

and Conditioning

Y Modern Gymnastics

Z Paddleball

**106 Activity II: Team Sports and Group Activities (I or II, 1)** Beginning level of instruction for students with little or no previous experience in the activities offered. Select appropriate letter for activity desired. *(Practicum 3)* Staff

A Folk and Square Dance

H Basketball

I Flag Football

J Field Hockey

K Lacrosse

L Soccer

M Softball

N Volleyball

P Campcraft

The above activities may be offered in combination or as a single activity for the entire semester.

**115 Team Sports (I or II, 0.5)** Emphasis on analysis of skills, strategies, class organization, and teaching techniques. Select appropriate letter for activity desired. *(Practicum 3)* *Open to physical education majors only.* Staff

A Basketball

B Field Hockey

C Flag Football

D Recreational Sports

E Lacrosse

F Soccer

G Softball

H Volleyball

**120 Weight Training and Physical Conditioning (I and II, 1)** Principles of weight training and conditioning with emphasis on constructing individual and group exercise programs. *(Lec. 1, Lab. 2)* *Open to physical education majors only.* Staff

**130 Beginning Swimming (I and II, 1)** Beginning-level of instruction for students with little or no previous experience. *(Practicum 3)* Staff

**131 Beginning Ballet (I and II, 1)** Introduction to the classical ballet barre. Practical experiences include center work, adagio, allegro, and simple combinations performed on the diagonal. *(Practicum 3)* Marsden

**133 Intermediate Ballet (I and II, 1)** A continuation of basic skills acquired at beginner level designed to increase strength necessary to execute more complicated variations. Extended sequences, more elaborate in their technique. *(Practicum 3)* Marsden

**135 Senior Citizens Aquatics (I and II, 1)** An aquatic program for individuals, age 60 and older. Activities include exercise, swimming instruction, and endurance swimming. *(Practicum 3)* S/U credit. Seleen

**140 Beginning Modern Dance (I and II, 1)** Introduction to basic modern dance technique and movement fundamentals. The study of dance as an art form emphasizing the development of technical skill and performance sensitivity. *(Practicum 3)* Staff

**153 Beginning Jazz Dance (I and II, 1)** An introduction to the characteristic and stylistic elements of jazz dance. Emphasis on the development of technical skill and performance awareness. *(Practicum 3)* Staff

**160 Beginning Dance Composition (I and II, 1)** Introduction to dance composition through the use of movement improvisation, pattern construction, and creative studies selected to demonstrate various aspects of the craft of choreography. (Practicum 3) Staff

**205 Intermediate Elective, Activity I (I and II, 1)** Intermediate level of instruction for those students who have acquired the basic skills and have performing experience in the activity. All activities listed under 105. (Practicum 3) Staff

**206 Intermediate Elective, Activity II (I and II, 1)** Intermediate level of instruction for those students who have acquired the basic skills and have performing experience in the activity. All activities listed under 106. (Practicum 3) Staff

**215 Individual Sports (I or II, 0.5)** Emphasis on analysis of skills, strategies, class organization, and teaching techniques. Select appropriate letter for activity desired. (Practicum 3) Open to physical education majors only. Staff

A Archery	E Golf
B Badminton	F Tennis
C Bowling	G Wrestling
D Fencing	

**217 Field Experience in Physical Education, Health, and Recreation (I and II, 1)** Students assist in one of the following: community agency, public or private school program, summer camp or recreation program, special education program. May be repeated but with different agency. (Lab. 3) Pre: permission of chairperson. S/U credit. Crooker

**222 Basic Gymnastics and Tumbling (I or II, 1)** Techniques and acquisition of basic skills. Includes theory and analysis of basic through advanced skills of apparatus and tumbling with special emphasis on teaching and safety procedures. (Practicum 3) Open to physical education majors only. Staff

**230 Intermediate Swimming (I and II, 1)** Intermediate level of instruction for those students who have acquired the basic skills and have performing experience in swimming. (Practicum 3) Staff

**233 Classical Ballet: Advanced (I and II, 1)** Advanced level of instruction for students who have acquired intermediate skills and have performing experience in ballet. (Practicum 3) Pre: 131 and 133. Marsden

**234 Ballet: Pointe and Variations (I and II, 1)** Beginner pointe for the advanced student in ballet. Emphasis on barre work and variations in the center. Pre: 233 or permission of instructor. Marsden

**235 Classical Ballet: Pas De Deux (I and II, 1)** Pas De Deux emphasizes the application of the academic rules of classical ballet combined with consideration and respect for the partner. Pre: 234 or permission of instructor. Marsden

**242 Intermediate Modern Dance (I and II, 1)** A progressive development of movement concepts in 140 with emphasis on the qualitative perfor-

mance of modern dance. Pre: 140 or equivalent and permission of instructor. (Practicum 3) Staff

**243 Prevention and Care of Athletic Injuries and First Aid (I, 3)** Conditioning, use of physiotherapy equipment, massaging, taping and bandaging technique. Latest American Red Cross procedures with the opportunity to receive standard certification. (Lec. 2, Lab. 2) Open to physical education majors only. Thompson

**251 Folk and Square Dance (I, 1)** Techniques and acquisition of basic skills. Includes theory and analysis of basic through advanced skills. (Practicum 3) Open to physical education majors only. Staff

**253 Intermediate Jazz Dance (I and II, 1)** A continuation and development of the technical skills and fundamentals in 153. Emphasis on the exploration of various movement styles and extended movement combinations. (Practicum 3) Pre: 153 or equivalent and permission of instructor. Staff

**260 Intermediate Dance Composition (I and II, 1)** Theory and practice of the principles presented in 160. Creative studies will be used to develop compositional skills; focus given to a solo and small group work. (Practicum 3) Pre: 160 or equivalent and permission of instructor. Staff

**263 Principles of Athletic Coaching (I and II, 3)** Principles of exercise physiology, leadership, and psychology applied to athletic coaching. Includes materials on administration of athletics. (Lec. 3) Norris and Staff

**270 Introduction to the History and Philosophy of Physical Education (I and II, 3)** Historical development of physical education as an integral part of education and as a profession from ancient times to the present. Emphasis on development of educational philosophies within physical education and basic to current interpretations of the theory and practice of physical education. (Lec. 3) Nedwitek and Cohen

**275 Physical Fitness Appraisal and Guidance (I and II, 3)** Principles of exercise, components of cardiorespiratory fitness, weight and tension control. Exercise testing, assessment of individual interests and needs. Development of exercise program to achieve individual goals with subsequent re-evaluation. (Lec. 2, Lab. 2) Staff

**285 Principles of Teaching Physical Education (II, 2)** Principles of teaching elementary and secondary school physical education as an integral part of total education. Basic concepts for forming general principles to guide the effective planning of physical education programs. (Lec. 2) Crooker

**295 Physical Education in Elementary Schools (I and II, 3)** Techniques, including the use of audiovisual materials, used in conducting a program of physical education for elementary school children. Types of activities found in the basic program and progressions in planning for various age groups will be stressed. (Lec. 2, Lab. 2) Pre: 285. Crooker

**314 Methods of Teaching Health and Physical Education (I and II, 3)** Comprehensive review of the methods and materials essential in teaching health and physical education with emphasis on the application of interdisciplinary approaches and learning theories. (Lec. 3) Pre: 295. Clegg

**315 Assisting in Physical Education (I and II, 1)** Each student must include one unit of assisting in the department activity program (105, 106, 205, 206). (Lab. 3) Pre: 314 or permission of chairperson. May be repeated for credit in different activity or level. Clegg

**321 Track and Field (I and II, 1)** Techniques and acquisition of basic skills. Includes theory and analysis of basic through advanced skills, strategies, and officiating. (Practicum 3) Open to physical education majors only. Copeland

**324 Rhythmic Analysis and Accompaniment (I, 2)** Special emphasis on rhythmic and kinesthetic factors in movement. Use of various types of instruments for dance accompaniment with practical experience in the accompaniment of dance. (Lec. 1, Lab. 2) Cohen

**325 Physical Fitness and Wellness Assessment (I, 3)** Theory and application of physical fitness and wellness assessments with focus on appropriate test selection and performance. Emphasis on practical skills of test administration. (Lec. 3) Pre: 275. Fernhall and Staff

**330 Life Saving (I and II, 1)** (Practicum 3) Staff

**340 Water Safety Instructor (I and II, 2)** (Lec. 1, Lab. 2) Staff

**341 Techniques of Officiating I (I, 3)** Presentation of current methods and techniques of officiating selected fall team sports. Provides necessary training and practical experience for students. (Lec. 2, Lab. 2) Norris and Staff

**342 Techniques of Officiating II (II, 3)** Presentation of current methods and techniques of officiating selected spring team sports. Provides necessary training and practical experience for students. (Lec. 2, Lab. 2) Norris and Staff

**343 Advanced Athletic Training: Recognition of Athletic Injuries (I, 3)** Development of advanced diagnostic techniques for recognizing and evaluating athletic injuries. Development of advanced techniques for protection of athletic injuries. (Lec. 3) Pre: 243. Staff

**344, 345 Field Experience in Athletic Training I, II (I and II, 3 each)** Laboratory participation under training room conditions involving specific techniques in the prevention, protection, and emergency care of athletes participating in intercollegiate and intramural athletics. Supervised field practicum 150 hours. (Lec. 1, Lab. 10) Pre: 243 or permission of chairperson for 344; 343 and 344 or permission of chairperson for 345. Nedwitek

**346 (or OCE 346) Skin and Scuba Diving, Beginners\* (I and II, 2)** (Lec. 1, Lab. 2) McAniff

**347 (or OCE 347) Skin and Scuba Diving, Advanced\* (I and II, 2)** (Lec. 1, Lab. 2) McAniff

**355 Coaching of Soccer (I or II, 2)** Techniques and acquisition of fundamental skills. Includes advanced tactics and strategy, analysis of individual and team play, officiating, and planning of training schedules. (Lec. 1, Lab. 2) Pre: 263 or permission of instructor. Staff

**362 Coaching of Track and Field (II, 2)** Theory, techniques, and practice in coaching of track and field. (Lec. 2, Lab. 2) Pre: 263 or permission of instructor. Staff

**364 Coaching of Baseball (I, 2)** Theory, techniques, and practice in coaching baseball. (Lec. 2, Lab. 2) Pre: 263 or permission of instructor. Norris

**369 Tests and Measurements (I and II, 3)** The place of testing in the physical education curriculum. Includes analysis of data, marking systems, and overview of existing tests and measures. (Lec. 3) Sonstroem and Clegg

**370 Kinesiology (I and II, 3)** Human motion based on anatomical, physiological, and mechanical principles. Emphasis on application of these principles to fundamental movements and physical education activities. Includes electromyographic analysis of physical skills. (Lec. 3) Pre: ZOO 121. Bloomquist

**380 Organization and Administration of Physical Education (I and II, 3)** Techniques, methods, and systems used in organizing and administering physical education programs in public and private institutions. (Lec. 3) Polidoro and Nedwidek

**384 Coaching of Football (I, 2)** Theory, techniques, and practice in coaching football. (Lec. 2, Lab. 2) Pre: 263 or permission of instructor. Nedwidek

**386 Coaching of Basketball (I, 2)** Theory, techniques, and practice in coaching basketball. (Lec. 2, Lab. 2) Pre: 263 or permission of instructor. Staff

**391 (or HLT 391 or RCR 391) Directed Study (I and II, 1-3)** Independent study. Development of an approved project supervised by a member of the department faculty. Pre: junior standing and permission of chairperson and instructor. Staff

**410 Corrective and Adapted Physical Education (I and II, 3)** Evaluation and planning of programs in physical education adapted to the needs of atypical individuals. Application of anatomical and mechanical principles in detection and correction of faulty development and body mechanics. Emphasis on technological assessment and relationship to the medical field. (Lec. 3) Pre: 370 or permission of chairperson. Bloomquist

**425 Fitness and Wellness Program Development (II, 3)** Practice and principles in the development of fitness and wellness programs. Includes interpretation of fitness and wellness screening, application of exercise and wellness prescriptions,

program leadership, development, and administration. (Lec. 3) Pre: 325 and ZOO 343. Not for graduate credit. Fernhall

**430 Adapted Aquatics (I, 3)** Planning, administering, and teaching adapted aquatics. Specific theory and methods of teaching swimming to the handicapped. American Red Cross Certificate in adapted aquatics, if current Water Safety Instruction (WSI) certificate is held. (Lec. 2, Lab. 2) Pre: WSI certificate or comparable skill as determined by instructor. Bloomquist

**443 Advanced Athletic Training: Rehabilitation of Athletic Injuries (II, 3)** Advanced learning in reconditioning of athletic injuries. Includes learning the use of mechanical, electrical, cryo-, hydro-, and drug therapy. Athletic training administration included. (Lec. 3) Pre: 343 or permission of chairperson. Not for graduate credit in physical education. Staff

**450 Theoretical Aspects of Track and Field Athletics (II, 3)** Analysis of historical and theoretical foundations associated with track and field athletics. Running, jumping, and throwing events will be analyzed regarding historical evolution, form style, rules, and training. (Lec. 3) Pre: senior or graduate standing or permission of instructor. Staff

**475 Women in Sports (I or II, 3)** Historical perspective of women in sports. Exploration of myths and realities relating to the female athlete. Focus on alternatives for the future. (Lec. 3) Pre: senior or graduate standing or permission of instructor. Cohen

**480 Application of Biomechanics to Coaching Athletics (I or II, 3)** Relationship of sound mechanical principles to effective techniques of coaching men, women, and children. Analysis of the fundamental mechanical principles essential to human motion in athletics. (Lec. 3) Pre: 263, senior or graduate standing, or permission of instructor. Staff

**484 (or HLT 484 or RCR 484) Supervised Field Work (I and II, 6-12)** Supervised field work in health, physical education, or recreation in community and/or commercial agencies. Pre: permission of chairperson. Not for teacher certification or graduate credit. Seleen

**486 (or HLT 486 or RCR 486) Field Experience Seminar (I and II, 3)** Seminar for students completing field work in health, physical education, or recreation. Topics include identification of problems, resource materials, and discussions of future career concerns. Pre: concurrent enrollment in 484. Not for graduate credit in physical education. Crooker and Seleen

**495 Directed Study (I and II, 3)** Honors thesis or equivalent project. Student determines problem and develops plan of study with faculty guidance. Project may be completed in one to two semesters, maximum three credits. Pre: admission to the departmental honors program. Staff

Note: Student teaching includes practicum in both elementary and secondary schools under the supervision of the departmental staff. See EDC 485, 486, 487, 488, and 489.

**510 Current Issues in Physical Education, Health, and Recreation (I or II, 3)**

**520 Curriculum Construction in Physical Education (I or II, 3)**

**525 Comparative Physical Education and Sport (I or II, 3)**

**526 Sport and International Relations (I or II, 3)**

**530 Research Methods and Design in Health and Physical Education (I or II, 3)**

**531 Advanced Experimental Techniques in Physical Education (II, 3)**

**550 Administration of Physical Education (I or II, 3)**

**551 Sport and Recreation Operations (I or II, 3)**

**552 Supervision of Physical Education and Health Instruction (I or II, 3)**

**559 Principles of Exercise Testing and Interpretation (I or II, 3)**

**560 (or HLT 560) Seminar in Health, Physical Education, and Recreation (I or II, 3)**

**562 Advanced Exercise Physiology (I or II, 3)**

**563 Fitness Programs for the Middle-Aged and Elderly (I or II, 3)**

**564 Physiology of Aging (I or II, 3)**

**565 Cardiovascular Rehabilitation (I or II, 3)**

**570 (or HLT 570) Major Health Problems and Curriculum Planning in Health Education (I or II, 3)**

**575 Principles of Motor Learning (I or II, 3)**

**578 Sport in American Culture (I or II, 3)**

**580 Physical Education: Mentally Retarded and Learning Disabled (I or II, 3)**

**581 Psychological Aspects of Healthy Lifestyle (I or II, 3)**

**582 Sport Psychology (I or II, 3)**

**585 Adapted Physical Activities for Special Populations (I, 3)**

**591 (or HLT 591) Special Problems (I or II, 3)**

**592 (or HLT 592 or RCR 592) Internship in Physical Education (I, II, or SS, 3)**

**595 (or HLT 595) Independent Study (I or II, 3)**

## Physical Therapy (PHT)

Director: Associate Professor Rowinski

**410 Human Anatomy and Histology (I, 5)** Study of the structure of the human body, supplemented by microscopic anatomy and by dissection laboratories. Emphasis on musculoskeletal, neural, and cardiovascular systems in preparation for physical exam and therapeutic exercise. (Lec. 3, Lab. 6) Pre: ZOO 121, 242, admission to physical therapy program, or permission of instructor. Agostinucci

\* This course requires a physical examination at the student's expense administered by a physician with special expertise in this area. Please contact Health Services for a reference to an approved physician prior to July 1 for enrollment in the fall semester and November 1 for enrollment in the spring semester.

**412 Basic Physical Evaluation, Therapeutic Exercise, and Care (I, 3)** Surface anatomy, range of motion, reflex, and manual muscle testing methods of the physical examination are presented. Soft tissue evaluation and introduction to therapeutic exercise prescription are provided to initiate the student's experience of therapeutic care provision. (Lec. 2, Lab. 3) *Pre: admission to physical therapy program or permission of instructor.* Staff

**413 Applied Anatomy (I, 1)** Location and functional relevance of anatomical structures of the musculoskeletal, neural, and cardiovascular systems are demonstrated on intact, living humans. Palpation and kinesiological analysis skills are developed through laboratory sessions. (Lab. 2) *Pre: admission to physical therapy program or permission of instructor.* Blaupied

**417 Psychosocial Needs of the Disabled (I, 2)** The physical therapist's role in addressing the psychosocial needs of the patient and family resulting from movement disorders. Reaction to illness and disability and the need to consider particular religious, cultural, social, and economic differences. (Lec. 2) *Pre: admission to physical therapy program or permission of instructor.* Roush

**418 Professional and Community Practices in Physical Therapy (I, 1)** Introduction to relations of physical therapy practice to the community health care delivery systems. Organization of hospital departments, private practices, and other specific clinical settings is elucidated to initiate student's professional socialization. (Lec. 1) *Pre: admission to the physical therapy program or permission of instructor.* Roush

**420 Physiological Basis of Physical Therapy (I, 3)** A comprehensive study of the physiological mechanisms, adaptations, and measurement principles which guide therapeutic evaluation and treatment. Laboratory demonstrations and experiences introduce the student to quantification of physiological change in humans. (Lec. 2, Lab. 3) *Pre: ZOO 242, admission to physical therapy program, or permission of instructor.* Blaupied

**422 Pathophysiology and Medical Management of Movement Disorders (II, 3)** Exploration of physiological regulation in disease states, with an emphasis on total medical management of disorders affecting human movement. Role of the therapist in interacting with various other medical and paramedical professionals is presented. (Lec. 3) *Pre: ZOO 242, admission to physical therapy program, or permission of instructor.* Roush

**430 Human Neurosciences and Neurology (II, 4)** Anatomy, physiology, dysfunction, and evaluation of the human nervous system as a basis of therapeutic intervention. Gross and microscopic structure of the nervous system and the neurological examination. (Lec. 3, Lab. 3) *Pre: ZOO 121, 242, admission to physical therapy program, or permission of instructor.* Agostinucci

**510 Biomechanics and Pathokinesiology (II, 3)**  
**513 Directed Study in Physical Therapy (I, II, and SS, 1-3)**

**515 Research Methods in Physical Therapy (I, 3)**

**518 Ethical, Legal, and Interdisciplinary Issues of Clinical Practice (I, 2)**

**525 Research Projects in Physical Therapy I (I, 3)**

**528 Professional Practice and Administration (II, 3)**

**532 Physical Agents and Instrumentation in Physical Therapy (II, 4)**

**535 Research Project in Physical Therapy II (II, 3)**

**538 Professional Problems and Public Relations (I, 2)**

**540 Human Motor Development and Learning (I, 3)**

**542 Clinical Diagnosis (I, 2)**

**550 Orthopaedic Physical Therapy (I, 3)**

**552 Functional Rehabilitation and Advanced Therapeutic Exercise (II, 3)**

**555 Seminar in Physical Therapy (I, II, or SS, 1-3)**

**560 Neurological Physical Therapy (II, 3)**

**570 Cardiopulmonary Physical Therapy (II, 3)**

**574 Sports Physical Therapy (II, 2)**

**575 Physical Therapy Internship I (SS, 5)**

**580 Pediatric and Geriatric Physical Therapy (I, 3)**

**585 Physical Therapy Internship II (II, 5)**

**590 General Practice Physical Therapy (I, 3)**

**595 Physical Therapy Internship III (II, 5)**

## Physics (PHY)

*Chairperson:* Professor Malik

**101 Physics and Physicists (I, 1)** Survey course spotlighting current developments in physics and examining the way scientific research is carried out. (Lec. 1) Letcher

**102 Fundamental Physics (I, 2)** Fundamental principles of physics primarily for students of nursing. Nonmathematical qualitative course. (Lec. 2) *Pre: concurrent enrollment in 103. Required by College of Nursing. Will not serve as a basis for advanced study in physics.* Staff

**103 Laboratory for Fundamental Physics (I, 1)** Laboratory exercises related to topics in 102. (Lab. 2) *Pre: concurrent enrollment in 102.* Staff

**109 Introduction to Physics (I and II, 3)** Appreciation of the physical environment and an introduction to the principles and theories of contemporary physics. (Lec. 3) *Pre: concurrent enrollment in 110. Not open to students with credit in 111, 112, 203, 204, 205, 213, or 214.* Desjardins (N)

**110 Laboratory for Introduction to Physics (I and II, 1)** Demonstrations and laboratory exercises related to 109. (Lab. 2) *Pre: concurrent enrollment in 109.* Staff (N)

**111, 112 General Physics I, II (I and II, 3 each)**  
**111:** Mechanics, heat, and sound. **112:** Optics, electricity, magnetism, and modern physics.

Noncalculus presentation of fundamental physics. Suitable for prospective teachers. (Lec. 3) *Pre: concurrent enrollment in 185 and 186.* Malik (N)

**130 Physics and Climatic Change (I and II, 3)** A qualitative presentation of physical principles used to describe atmospheric climate on global and smaller scales. Examination of the physical basis for climatic change. (Lec. 3) Hartt (N)

**140 The Ideas of Physics (I and II, 3)** A nonmathematical presentation of classical and modern physics illustrated by lecture demonstrations. (Lec. 3) *Of particular interest to liberal arts students.* Staff (N)

**185, 186 Laboratory for General Physics I, II (I and II, 1 each)** Selected laboratory exercises applicable to materials in 111, 112. (Lab. 2) *Pre: concurrent enrollment in 111 and 112.* Staff (N)

**203 Elementary Physics I (I and II, 3)** Introduction to Newtonian Mechanics. Kinematics and dynamics of particles and systems of particles. Motion of rigid bodies and oscillatory motion. Conservation principles. (Lec. 3) *Pre: credit or concurrent enrollment in MTH 141 and concurrent enrollment in 273. Intended for science or engineering majors. Not open to students with credit in 214.* Staff

**204 Elementary Physics II (I and II, 3)** Introduction to electricity and magnetism, leading to Maxwell's equations. Electric fields and Gauss' law; magnetic fields and Ampere's law. Capacitance and inductance, DC and AC circuits. Electromagnetic waves. (Lec. 3) *Pre: 203 or MCE 236, credit or concurrent enrollment in MTH 142, and concurrent enrollment in 274. Intended for science or engineering majors. Not open to students with credit in 214.* Staff

**205 Elementary Physics III (I and II, 3)** Introduction to topics of thermodynamics, kinetic theory, wave motion, acoustics, and optics. (Lec. 3) *Pre: 203 or MCE 263, credit or concurrent enrollment in MTH 243, and concurrent enrollment in 275. Intended for science or engineering majors. Not open to students with credit in 213 and 214.* Staff

**213, 214 Elementary Physics I, II (I and II, 3 each)** 213: Mechanics and elements of thermodynamics. (Lec. 3) *Pre: MTH 141 and 142. 142 may be taken concurrently. For students planning to major in one of the sciences.* 214: Electricity, magnetism, and elements of wave phenomena. (Lec. 3) *Pre: concurrent enrollment in 285 and 286, MTH 142, and credit or concurrent enrollment in MTH 243. Intended for science or engineering majors.* Staff (N)

**223 Introduction to Acoustics and Optics (I and II, 3)** Intended primarily for students in the College of Engineering. Fundamentals of acoustical, optical, and related phenomena. (Lec. 3) *Pre: concurrent enrollment in MCE 162 and 263.* Hartt

**273, 274, 275 Elementary Physics Laboratory I, II, III (I and II, 1 each)** Laboratory exercises and recitation sessions related to topics in 203, 204, and 205. (Lab. 2, Rec. 1) *Pre: concurrent enrollment in 203, 204, and 205.* Staff

**285, 286 Physics Laboratory I, II (I and II, 1 each)** Laboratory exercises and recitation sessions related to topics in 213 and 214. (*Lab. 2, Rec. 1*) *Pre: concurrent enrollment in 213 and 214.* Staff (N)

**306 Elementary Modern Physics (I and II, 3)** Introduction to relativistic and quantum physics. Special relativity theory, structure of atoms, molecules, and nuclei; wave and particle properties of matter, Schrodinger equation in one dimension. (*Lec. 3*) *Pre: 205, 204 or ELE 210. Not open to students with credit in 341.* Staff

**322 Mechanics (I, 3)** Introduction to Newtonian statics and dynamics using vector analysis; particle motion, Lagrange's equations; rigid body motion. Application to various topics in physical mechanics. (*Lec. 3*) *Pre: 204 and MTH 244.* Staff

**331 Electricity and Magnetism (II, 3)** Electrostatic fields and dielectric materials; magnetic fields, magnetic induction and magnetic materials; introduction to Maxwell's equations. (*Lec. 3*) *Pre: 204 and MTH 243.* Staff

**334 (or AST 334) Optics (II, 3)** Geometrical and physical optics; thick lens optics, interference, diffraction, polarization. (*Lec. 3*) *Pre: 112, 214, or 205.* Staff

**341 Introductory Modern Physics (I and II, 3)** The development and current status of major advances in twentieth century physics, such as special relativity, kinetic theory, structure of atoms, molecules and nuclei, wave and particle properties of matter, thermionic and photoelectric effects. (*Lec. 3*) *Pre: 213, 214, and MTH 142. 223 and ELE 210 can be substituted for 214. Not open to graduate students with credit in 306.* Staff

**381, 382 Advanced Laboratory Physics (I and II, 3 each)** Key experiments covering a wide range of disciplines including nuclear physics, properties of the electron, magnetism thermodynamics, and optics. Quantitative analysis is stressed, including statistics and curve fitting. Technical skills are developed. (*Lab. 6*) *Pre: 204 and 205.* Desjardins and Nunes

**401, 402 Seminar in Physics (I and II, 1 each)** Preparation and presentation of papers on selected topics in physics. (*Lec. 1*) *Required of all undergraduate and graduate students in physics; one semester required for all senior physics majors.* Staff

**410 Computational Physics (II, 3)** Development and application of computer techniques to classical and quantum physics problems. Emphasis will be on approximation techniques and numerical methods for solving matrix, integral, and differential equations arising in physics. (*Lec. 3*) *Pre: MTH 215, 244, CSC 202, and PHY 306.* Staff

**420 Introduction to Thermodynamics and Statistical Mechanics (II, 3)** Emphasis on laws of thermodynamics and properties of thermodynamic systems, kinetic theory of gases, molecular velocity distributions, transport phenomena, Maxwell-Boltzmann statistics. (*Lec. 3*) *Pre: 205 and MTH 243.* Northby

**425 Acoustics (I, 3)** Mathematical theory of vibrating systems; harmonic wave motion. Topics include: transmission and absorption of sound waves, microphones, psychoacoustics, underwater acoustics, and ultrasonics. (*Lec. 3*) *Pre: permission of chairperson.* Staff

**451 Introduction to Quantum Mechanics (I, 3)** Photoelectric, Compton effects; spectra, atomic structure, matter waves, duality, uncertainty, Schrodinger equation; 1-D, hydrogen. Postulates: wave functions, dynamical variables, Hermiticity, eigenvalues, commutators, generalized uncertainty. Angular momentum: spherical harmonics, Pauli matrices. Spin-orbit, Zeeman effects; angular momenta addition. *Pre: 306, 322, MTH 215 and 244.* Staff

**452 Quantum Mechanics: Techniques and Applications (II, 3)** Perturbation theory, atomic polarizability, Stark effect, periodic potentials. Variational principles. Sudden approximation: nuclear decay. Time-dependent perturbations: radiation, selection rules. Ehrenfest theorem. Scattering: Born approximation, partial waves. Fermions, Bosons, Helium atom: Hartree (Fock) and Monte Carlo optimization. (*Lec. 3*) *Pre: 451 and MTH 461.* Staff

**455 Introduction to Solid-State Physics (I, 3)** Crystal structure, thermal, electrical, and magnetic properties of solids. Electron gas theory of metals, band theory of solids. Semiconductors. (*Lec. 3*) *Pre: 451 and MTH 243.* Staff

**483, 484 (or AST 484) Laboratory and Research Problems in Physics (I and II, 3 each)** Research in current areas of physics. First semester: experiments drawn from various fields such as spectroscopy, optics, nuclear physics, acoustics, etc., and familiarization with research programs in the department. Second semester: research project, with individual faculty member, related to an active research project. (*Lec. 1, Lab. 6*) *Pre: 381 and 382.* Staff

**491, 492 (or AST 491, 492) Special Problems (I and II, 1-6 each)** Advanced work under the supervision of a staff member arranged to suit the individual requirements of the student. (*Lec. or Lab. according to nature of problem*) Staff

**510 Mathematical Methods of Physics I (I, 3)**

**520 Classical Dynamics (I, 3)**

**525 Statistical Physics I (I, 3)**

**530 Electromagnetism (II, 3)**

**560 Experimental Techniques in Condensed Matter Science (I or II, 3)**

**570 Quantum Mechanics II (II, 3)**

**580 Condensed Matter Physics I (I, 3)**

**590 Faculty Project (I or II, 1-6)**

**591 Special Problems (I and II, 1-6 each)**

## Plant Sciences (PLS)

*Chairperson: Professor Hull*

**200 Introduction to Plant Protection (I, 3)** Basic study of weeds, insects, and disease agents, and the problems they cause. Recognition of important plant pests and application of integrated cultural, chemical, and biological pest management procedures. (*Lec. 3*) *Pre: BIO 101 or BOT 111.* Englander

**204 Agricultural Plant Science (I, 4)** An introduction to the agricultural use, production, and distribution of economic plants. (*Lec. 3, Lab. 2*) *Pre: BOT 111 or permission of instructor.* Englander

**210 Plant Protection Practicum (I, 1)** Introduction to practical aspects of plant protection. Optional recitation for 200. In-depth development of selected topics in 200, primarily through discussion session and field examination of specimens. (*Rec. 2*) *Pre: concurrent enrollment in 200.* Englander

**233 Floral Art (I and II, 3)** Theory and practice in the art of flower and plant arrangement for the home, show, and special occasions. History, elements, and principles of design and color. (*Lec. 1, Studio 4*) Siligato (A)

**306 Arboriculture (I, 3)** Culture of ornamental trees, shrubs, and vines, including understanding of phases of primary and secondary growth and application to practices of protection, transplanting, pruning, staking, and fertilization. (*Lec. 2, Lab. 2*) *Pre: 204.* Staff

**311 Fruit Culture (I, 3)** Principles of fruit production with emphasis on home gardens. Topics include propagation, planting, soils, fertilization, cultural practices, pruning and storage of tree and small fruits and dwarfs or semi-dwarf stocks. (*Lec. 2, Lab. 2*) *Pre: 204. In alternate years. Next offered fall 1993.* Staff

**315 Introduction to Horticulture Therapy (I, 3)** Objectives and techniques of applying horticulture and horticulture-related skills to therapeutic and rehabilitative programs. (*Lec. 3*) *Pre: 204 or permission of instructor.* Shaw

**316 Gardens and Therapy (I, 3)** Identification, culture, and use of garden flowers and herbs. Garden planning and design with emphasis on those appropriate for special populations. (*Lec. 2, Lab. 2*) *Pre: 204 or permission of instructor. In alternate years. Next offered fall 1992.* Shaw

**320 Landscape Design (I, 3)** Examination of landscape design principles and practices including introduction to landscape graphics, preliminary design, and planting design. (*Lec. 3*) *Pre: 201 or permission of instructor. Not open to landscape architecture majors.* Simeoni

**324 Vegetable Science (II, 3)** The origins, culture, cultivars, soil, and fertility management of vegetables for commercial growers and home gardeners. Practical experience in growing vegetables from seed to harvest under greenhouse condi-



tions. (Lec. 2, Lab. 2) Pre: 204. In alternate years. Next offered spring 1994. Staff

**331 Floriculture and Greenhouse Management (I, 3)** The greenhouse environment and its relation to the culture of specific plants. Principles governing the production and culture of plants under controlled temperature, humidity, light, and modified atmospheres. Greenhouse construction and environmental control. (Lec. 3) Pre: 204. Shaw

**332 Plant Pathology: Introduction to Plant Diseases**  
See Botany 332.

**335 Commercial Floral Design and Flower Shop Practices (I, 3)** Advanced floral design including wedding, funeral, church, and holiday arrangements. Flower shop practices, buying, selling, and handling cut flowers and potted plants. (Lec. 1, Studio 4) Pre: 233 or permission of instructor. Mallon

**341 Lawn Management (I, 3)** Fundamental aspects of turfgrass science including identification, propagation, fertilization, pest control, and other soil-plant relationships. (Lec. 2, Lab. 2) Pre: 204 and NRS 212. Duff

**350 Interior Landscaping (II, 3)** Identification, growth characteristics, culture, use, maintenance, and management of plants suitable for interior landscape situations. (Lec. 2, Lab. 2) Pre: 204 or permission of instructor. Shaw

**353 Landscape Plants I**  
See Landscape Architecture 353.

**354 Landscape Plants II**  
See Landscape Architecture 354.

**385 (or ZOO 381) Introductory Entomology (I, 3)** Introduction to the diverse components of entomology emphasizing basic principles of insect morphology, physiology, behavior, and ecology. Current topics in insect evolution and management strategies. (Lec. 3) Pre: BOT 111 or BIO 101 and ZOO 111 or BIO 102, or equivalent. Concurrent enrollment in 386 required for major credit in zoology. LeBrun

**386 (or ZOO 382) Introductory Entomology Laboratory (I, 1)** Insect structure, function and systematics with field studies in the ecology, survey, and collection of insects in their natural environment. (Lab. 3) Pre: 385 or concurrent enrollment in 385. LeBrun

**390 Irrigation Technology (II, 3)** A study of the science and technology of obtaining, applying, and managing water as it relates to the culture of field, forage, vegetable, turf, and ornamental crops. (Lec. 2, Lab. 2) Pre: NRS 212 and MTH 111. In alternate years. Next offered spring 1994. Sullivan

**393, 394 Plant Protection Clinic (I and II, 3 each)** Practical experience in plant pest detection and identification, pest management techniques and equipment. (Lec. 1, Lab. 4) Pre: 381 or 401, 332 or 440, and permission of instructor. Wallace

**399 (or LAR 399) Plant Sciences Internship (I, II, and SS, 1-6)** Directed work experience programs at nurseries, turf farms, greenhouses, plant breeding farms, arboreta, research farms, or laboratories. Pre: 204 and permission of instructor. May be repeated for a maximum of 6 credits. S/U credit. Staff

**401, 402 Plant Sciences Seminar (I and II, 1 each)** Presentations and discussions of current topics of concern to producers and consumers of plants and plant products, including plant protection. (Lec. 1) Pre: permission of instructor. Staff

**405 Propagation of Plant Materials (II, 3)** Theoretical and practical study of propagation including grafting, budding, cuttage, and seedage. (Lec. 2, Lab. 2) Pre: 204 and BOT 245. Staff

**415 Theories and Practices in Therapeutic Horticulture (II, 3)** Concepts and methods of using plant and gardening activities in horticulture therapy programs for exceptional individuals in most types of therapeutic situations. (Lec. 1, Lab. 4) Pre: 315 and 316. Not for graduate credit in plant science. Shaw

**436 Floriculture and Greenhouse Crop Production (II, 4)** Status of floriculture industry and commercial production of greenhouse crops including scheduling, marketing, and postharvest handling. Student project required. (Lec. 3, Lab. 2) Pre: 331. In alternate years. Next offered spring 1994. Shaw

**440 Diseases of Turfgrasses, Trees, Shrubs, and Ornamental Shrubs (I, 3)** Disease diagnosis, epidemiology, and control measures pertinent to these categories of plants. (Lec. 3) Pre: BOT 332 or equivalent or permission of instructor. Jackson

**441 Plant Disease Laboratory (I, 1)** Laboratory and field diagnosis of turf diseases and diseases of trees and ornamental shrubs. (Lab. 2) Pre: concurrent enrollment in 440. Jackson

**442 Professional Turfgrass Management (II, 3)** Establishment and maintenance practices for specialty turfgrass areas such as golf courses, lawn tennis courts, bowling greens, athletic fields, public parks, industrial and institutional grounds, airports, and roadsides. Design and construction specifications, and construction and maintenance budgets. (Lec. 3) Pre: 341 or equivalent. Duff

**461 Weed Science (I, 3)** Ecological and cultural aspects of weed problems, physiology of herbicide action, selected problem areas in weed control and plant identification. (Lec. 2, Lab. 2) Pre: NRS 212, BOT 245, organic chemistry recommended. In alternate years. Next offered fall 1993. Sullivan and Hull

**463 Principles of Plant Disease Control (II, 3)** The extent and impact of plant disease loss. Disease-causing agents, the nature of disease epidemics, disease forecasting, and strategies for plant disease control. (Lec. 3) Pre: 332 or permission of instructor. In alternate years. Next offered spring 1994. Jackson and Wallace

**465 Etiology of Plant Disease (I, 3)** Identification and classification of the agents causing plant disease, and a study of the activities of these causal agents that lead to disease development. (Lec. 3) Pre: BOT or PLS 332. In alternate years. Next offered fall 1993. Mueller and Englander

**471 Plant Improvement I (I, 3)** Plant cell and tissue culture methodologies particularly as they relate to the development and selection of improved plant varieties through the modern approaches of plant biotechnology. (Lec. 3) Pre: ASP 352 or BOT 352 and BOT 245. In alternate years. Next offered fall 1993. Krul

**472 Plant Improvement II (II, 3)** Traditional breeding and contemporary approaches to the improvement of economic crops with a focus on emerging strategies and opportunities utilizing the tools of molecular biology for gene transfer. (Lec. 3) Pre: ASP 352 or BOT 352 and 245. In alternate years. Next offered spring 1994. Chandlee

**475 (or NRS 475) Plant Nutrition and Soil Fertility (II, 4)** The plant-soil system. Availability and mobility of mineral nutrients in soil and their uptake, distribution, and function in plants. Plant energy relations and organic nutrition. Laboratory: hydroponic plant culture, ion interaction, radioisotopes, and deficiency symptoms. (Lec. 3, Lab. 2) Pre: NRS 212, BOT 111, 245, and organic chemistry. In alternate years. Next offered spring 1994. Hull

**491, 492 (or LAR 491, 492) Special Projects and Independent Study (I and II, 1-3 each)** Special work to meet individual needs of students in various fields of plant nutrition, propagation, growth and development, garden design, site planning, plant pathology, entomology, and related subjects. (Lec. and/or Lab. according to nature of project) Pre: permission of chairperson. Staff

**501, 502 Graduate Seminar in Plant Sciences (I and II, 1)**

**511 The Nature of Plant Disease (I, 3)**

**512 Plant Growth and Development (II, 4)**

**513 Laboratory Plant Tissue Culture (II, 1)**

**529 Systems Science for Ecologists (I, 3)**

**553 Graduate Writing in Life Sciences (II, 3)**

**555 Insect Pest Management (II, 3)**

**561 Aquatic Entomology (I, 3)**

**571 Plants, Insects, and Pathogens (II, 3)**

**572 (or BCP 572) Plant Biochemistry (I, 3)**

**576 Physiology of Plant Productivity (I, 3)**

**591, 592 Nonthesis Research in Plant Sciences (I and II, 1-3 each)**

Note: For other related courses see BOT 332, 432, 536, 540, and ZOO 381, 482, 581, 586.

## Prior Learning Assessment (PLA)

**100 Prior Learning Assessment Portfolio Development (I, II, or SS, 1)** Identification through self-assessment of student prior learning and appropriate methods for seeking credit. Analysis and application of the process for developing a prior learning portfolio. (*Workshop*) *Pre: matriculated status. Offered through the College of Continuing Education. Staff*

## Political Science (PSC)

*Chairperson:* Professor Rothstein

**113 American Politics (I or II, 3)** Basic principles of the government of the United States: constitutionalism, separation of powers, federalism, civil liberties; politics; legislative, executive, and judicial organization; functions of government. (*Lec. 3*) Moakley (S)

**116 International Politics (II, 3)** Nature of the state system, foundations of national power, means of exercising power in the interaction of states. Current international problems. (*Lec. 3*) Genest (S)

**201 Introduction to Comparative Politics (I, 3)** Trends in comparison of government systems, and of indices for political development. Illustrations and comparisons from the American, European, and developing nations. (*Lec. 3*) Petro (S)

**221 State and Local Government (I, 3)** Survey of institutional framework of American state and local governments. Consideration of current events and controversies at state and local level. (*Lec. 3*) *Pre: 113.* Leduc (S)

**240 Major Political Ideologies (I or II, 3)** Introduction to and analysis of fascism, communism, socialism, and capitalism. An examination of the contemporary meaning of liberalism, radicalism, and conservatism. (*Lec. 3*) Killilea (L)

**288 The American Legal System (II, 3)** Political and social analysis of the American legal system, particularly at trial court and street levels, and roles of participants in that system with observation of local courts. (*Lec. 3*) *Pre: 113.* Rothstein (S)

**300 Challenge of Nuclear Arms (II, 3)** Nuclear weapons addressed from a range of perspectives. Emphasis on the strategic, political, social, and moral issues and controversies raised by the potential for nuclear war. *Pre: 3 credits in the social sciences recommended or permission of instructor.* Tyler

**304 Introduction to Public Administration (II, 3)** An overview of the field of public administration. Consideration will be given to the relationship of public organizations with society. Examination of major administrative theories and their influence upon contemporary organizational environment. (*Lec. 3*) *Pre: permission of instructor.* Hennessey

**309 Polimetrics (II, 3)** Examination of practical problems of data preparation and analysis in political science using mainframe, mini- and microcomputers. Examples from recent research in politics. (*Lec. 3*) *Pre: EST 308 or equivalent.* Leduc

**321 Politics and Problems of Israel (II, 3)** Analysis of the evolution of political institutions and the dynamics of public policy in Israel. Emphasis on contemporary political problems. (*Lec. 3*) *Pre: 113 or 116 or permission of instructor.* Zucker (F)

**341 Political Theory: Plato to Machiavelli (I, 3)** Major political philosophies from Plato to Machiavelli and their influence on such key concepts as justice, equality, and political obligation. (*Lec. 3*) Killilea (L)

**342 Political Theory: Modern and Contemporary (II, 3)** Continuation of 341. Machiavelli to Marx and Freud. (*Lec. 3*) Killilea (L)

**343 Revolutionary Thought (II, 3)** Analysis of revolutionary thought from Jewish millennialism to Latin American and Asian communism. (*Lec. 3*) *Pre: 113. Offered every third year.* Staff

**365 Political Parties and Practical Politics (I, 3)** Analysis of the American party process with some attention to comparative party systems. History, organization, functions, methods, problems, and prospects for reform. (*Lec. 3*) *Pre: 113.* Zucker

**368 Public Opinion (I, 3)** Examination of public opinion and formative influences upon it. Role and implications of public opinion in governmental process. (*Lec. 3*) *Pre: 113.* Leduc and Tyler

**369 Legislative Process and Public Policy (II, 3)** Analysis of American legislative bodies, particularly Congress, some attention to comparative legislatures. Structure, organization, functions of Congress analyzed in relation to its role in determining public policy. (*Lec. 3*) *Pre: 113.* Zucker

**375, 376 Field Experience in Practical Politics (I or II, 1-3 each)** Supervised experience in local, state, and national units of government, political organizations, private and public community agencies. Students must have placement description, faculty supervisor and outline of academic component of experience prior to registration. *Pre: 12 credits in the social sciences including 6 credits in political science and permission of instructor. S/U credit. May be repeated for a maximum of 6 credits.* Staff

**377 Politics of the People's Republic of China (I, 3)** Institutions of the Chinese system including the Communist Party, the state system, the bureaucracy, and the army. Emphasis on China's economic and social progress and relations with other nations. (*Lec. 3*) *Pre: 116 or equivalent recommended.* Tyler

**401 Comparative European Politics (I or II, 3)** Concepts and methodologies relative to the study of comparative politics. Structural-functional approach to survey of the formal and informal features of the political systems of Great Britain, France, Germany, Soviet Union, and one other country. (*Lec. 3*) Petro (F)

**402 Environmental Policy and Politics (I, 3)** Seminar in the politics and public policy associated with environmental pollution. *Pre: 113 and junior or senior standing.* Hennessey

**405 The Indian Political System: Tradition and Modernity (II, 3)** Analysis of the Indian political system; emphasis on social and cultural influences, Gandhi and Nehru, human rights, rural and urban development, regional and international relations. (*Lec. 3*) *Pre: 116 or permission of instructor.* Stein

**407 The Soviet Union: Politics and Society (II, 3)** Politics and society of the Soviet system including the role of the Communist party, economic planning, ethnic minorities, the intelligentsia, the "new Soviet man." (*Lec. 3*) *Pre: 116 or Russian history course recommended.* Petro (F)

**408 African Governments and Politics (I, 3)** Political developments in the new nations of sub-Saharan Africa. Main stress is functional: role of parties as integrative forces, democratic centralism, one party states, African political thought, and common developmental problems. (*Lec. 3*) *Pre: 113 and 116.* Staff (F)

**410 Issues in African Development**  
See African and Afro-American Studies 410.

**420 Nonviolence and Change in the Nuclear Age (I, 3)** Focuses on the philosophies and political participation of individuals and movements working nonviolently for social change, conflict resolution, and to end the threat of nuclear war. (*Lec. 3*) *Pre: 113 or 116.* Stein

**422 Comparative American State Politics (II, 3)** Comparative study of American state politics and government, focusing on public policy formation and execution. Emphasis on contemporary issues. (*Lec. 3*) *Pre: 221 and EST 308 or equivalents, or permission of instructor.* Leduc

**431 International Relations (I, 3)** Analysis of the various theories of international relations and study of the major forces and events shaping the politics of the Great Powers. (*Lec. 3*) *Pre: 116.* Genest

**432 International Government (II, 3)** General development of international government, with particular attention to structure, methods, and operations of the League of Nations, the United Nations, and related agencies. Problems of security, conflict resolution, and social and economic issues. (*Lec. 3*) *Pre: 116.* Staff

**434 American Foreign Policy (II, 3)** Analysis of the institutions, techniques, and instruments of policy-making and the execution of foreign policy. (*Lec. 3*) *Pre: 116.* Genest

**440 The Politics of Being Mortal (I or II, 3)** Seminar on how attitudes toward death affect political values and priorities, especially in regard to capitalism and the threat of nuclear war. (*Lec. 3*) *Pre: 341, 342, or permission of instructor.* Killilea

**443 Twentieth-Century Political Theory (I, 3)** Important political theorists of this century, particularly as they interpret the basis of political obligation and weigh the question of violent political change. (Lec. 3) Pre: permission of instructor. Offered every third year. Rothstein

**444 Marxist Political Thought (II, 3)** A systematic analysis of the political thought of Marx, Engels, Lenin, later Marxists and revisionists emphasizing the state, revolution, political economy, and social structure. (Lec. 3) Pre: 342, 343, 443, PHL 117, 318, or permission of instructor. Offered every third year. Rothstein

**455, 456 Directed Study or Research (I or II, 3 each)** Special work arranged to meet the needs of individual students who desire advanced work in political science. (Lec. 3) Pre: permission of chairperson. Staff

**461 The American Presidency (I, 3)** Presidential leadership and decision making, with emphasis on growth in power and prestige of the presidency, exercise of presidential influence in conduct of government, and presidential initiative in formulating and developing national policies and priorities. (Lec. 3) Pre: 113. Moakley

**466 Urban Problems (II, 3)** Contemporary and emerging problems of urban affairs. Discussion, reading, and assignments on the interaction among urban change, development of social institutions, and formation of public policy. (Lec. 3) Pre: 113. Zucker

**471 Constitutional Law (I, 3)** The Supreme Court as a political institution in American democracy. Analysis of leading constitutional decisions exploring: adaptation of governmental powers to changed conditions of society, development and function of judicial review, and dynamics of decision making in the Supreme Court. (Lec. 3) Pre: 113. Rothstein

**472 Civil Liberties (II, 3)** The problem of human freedom examined in the context of the fundamental rights guaranteed to individuals by the American Constitution. Emphasis on religious liberty, freedom of expression, racial equality, fair criminal procedures, and the protection of personality and privacy. (Lec. 3) Pre: 113. Rothstein

**474 Criminal Justice System (II, 3)** The American system of criminal justice, general processing of cases, principal actors, study of theories of criminal law, and pretrial detention and sentencing. (Lec. 3) Pre: 113. Offered through the College of Continuing Education. Staff

**481, 482 Political Science Seminar (I or II, 3 each)** Intensive studies in various important fields in political science. Class discussion of assigned readings and student reports. Emphasis on independent research. (Lec. 3) Pre: 6 credits in political science beyond 113 and 116. Staff

**483 Political Process: Policy Formulation and Execution (I or II, 3)** Interrelationships of policy development and administration with particular attention devoted to participants in the process.

Specific activities of the executive branch and government policies that affect the structure, composition, and function of the bureaucracy. (Lec. 3) Pre: permission of instructor. Staff

**486 Cooperative Communities (II, 3)** Alternative ways in which people live, work, and share together in their quest for personal growth and sense of community. Emphasis on smaller units of society. (Lec. 3) Pre: 113, 116, or permission of chairperson. Stein

**491 Principles of Public Administration (I, 3)** Principles of public administration, structure and organization, financial management, administrative responsibility, and the relation between the administration and other branches of government. (Lec. 3) Pre: 113. Staff

**495 Comparative Urban Politics (I, 3)** Analysis of urban processes and policy formation affecting urbanization in the United States, Europe, and selected developing nations. (Lec. 3) Pre: 113 or 116 or permission of chairperson. Staff

**498 Public Administration and Policy Formulation (II, 3)** Identification and analysis of factors which affect formulation of public policy, including roles of the executive, the bureaucracy, the legislature, and special interest groups. Evolution of the policy process, particularly at the state and local levels of government. (Lec. 3) Pre: 491 or permission of chairperson. Hennessey

**501 Administrative Theory (I and II, 3)**

**502 Techniques of Public Management (I and II, 3)**

**503 Problems in Public Personnel Administration (I or II, 3)**

**505 (or SOC 505) Public Program Evaluation (I and II, 3)**

**506 Seminar in Budgetary Politics (I, 3)**

**510 Developing Nation-State: Africa (II, 3)**

**512 (or MAF 512) Seminar in Marine Science Policy and Public Law (II, 3)**

**521 (or LRS 521) International and Comparative Trade Unions and Labor Relations (I or II, 3)**

**522 (or SOC 522) Issues in Corrections (II, 3)**

**523 Seminar in Comparative Public Administration (I, 3)**

**524 Seminar in Public Policy Problems (I and II, 3)**

**531 (or SOC 521) Behavior Systems in Crime (I, 3)**

**544 Democracy and Its Critics (I, 3)**

**546 Alternative Prospects for Humanity (II, 3)**

**553 Scope and Methods of Political Science (I, 3)**

**555, 556 Directed Study or Research (I and II, 3)**

**568 Jurisprudence (II, 3)**

**573 Administrative Law (I, 3)**

**577 (or MAF 577) International Ocean Law (I, 3)**

**581, 582 Special Topics Seminar (II, II, or SS, 3)**

**590 Internship in Public Administration (I and II, 3-6)**

**595 (or REN 595) Problems of Modernization in Developing Nations (II, 3)**

## Portuguese (POR)

*Section Head:* Professor McNab

**101 Beginning Portuguese I (I and II, 3)** Fundamentals of modern European Portuguese. Emphasis on standard pronunciation, development of familiarity with most common grammar structures, and acquisition of working vocabulary. (Lec. 3) Pre: no prior Portuguese. Staff (F)

**102 Beginning Portuguese II (I and II, 3)** Continuation of 101. (Lec. 3) Pre: 101 or equivalent or permission of instructor. Staff (F)

**103 Intermediate Portuguese I (I and II, 3)** Intensive and extensive reading of moderately difficult Portuguese prose, review of grammar structures, idiomatic expressions, conversation practice based on readings. (Lec. 3) Pre: 102 or equivalent or permission of instructor. Staff (F)

**104 Intermediate Portuguese II (I and II, 3)** Continuation of 103. Readings of more difficult texts. Class discussion and reports on supplementary readings. (Lec. 3) Pre: 103 or equivalent or permission of instructor. Staff (F)

**205, 206 Advanced Portuguese (I and II, 3 each)** Practice in speaking and writing standard Portuguese. Understanding varieties of Portuguese. Materials of cultural, intellectual, and professional interest. (Lec. 3) Pre: 104, equivalent or permission of instructor. Staff

**335, 336 Topics in the Literature of the Portuguese-Speaking World (I and II, 3 each)** Selected topics in the literatures of continental Portugal and the adjacent islands, Brazil, Cape Verde, Angola, Mozambique. (Lec. 3) Pre: 206 or equivalent, or permission of instructor. 205 or 206 may be taken concurrently with permission of instructor. May be repeated for credit as often as topic changes. Staff

**497, 498 Directed Study (I and II, 3 each)** For the advanced student. Individual study and reports on problems of special interest. (Lec. 3) Pre: one 300-level course in Portuguese, acceptance of project by staff member, and approval of chairperson. Not for graduate credit. Staff

## Psychology (PSY)

*Chairperson:* Professor A. Lott

**103 Towards Self-Understanding (I and II, 3)** Individual and social problems of normal persons. Personality development, social behavior, and adjustive reactions with emphasis on increasing awareness of personal and interpersonal functioning. (Lec. 3) Grebstein, Prochaska, and Staff (S)

**113 General Psychology (I and II, 3)** Introductory survey course of the major facts and principles of human behavior. Prerequisite for students interested in professional work in psychology or academic fields in which an extended knowledge of psychology is basic. (Lec. 2, Rec. 1) Staff (S)

**232 Developmental Psychology (I and II, 3)**

Comprehensive understanding of human development and growth from birth to senescence. (Lec. 2, Rec. 1) Pre: 113. Brady, Gross, Kulberg, and Staff (S)

**235 Theories of Personality (I and II, 3)** Critical survey of the major theories of personality. Emphasis will be placed on the "normal" personality. (Lec. 3) Pre: 113. Stevenson and Staff (S)

**254 Behavior Problems and Personality Disorders (I and II, 3)** Evaluation of the more serious behavioral disorders as found in the major forms of character disorders, psychoneuroses, and psychoses. Theories of causation, development and effects of anxiety and defense mechanisms, and interpretation of symptoms and methods of treatment. (Lec. 3) Pre: 113. Florin, Vosburgh, and Staff (S)

**261 The Alcohol-Troubled Person: Introductory Concepts (I and II, 3)** Introductory and basic concepts in alcohol trouble: prevention, identification, early intervention, treatment, education. (Lec. 3) Staff

**300 Quantitative Methods in Psychology (I and II, 3)** Basic concepts and techniques of quantification in psychology. Emphasis on application of certain statistical tools in the analysis of psychological measurements of behavior. (Lec. 3) Pre: 113, at least one college-level mathematics course, and sophomore standing. Harlow and Cohen

**301 Introduction to Experimental Psychology (I and II, 3)** Lectures, demonstrations, and laboratory experiments introduce the student to fundamental principles of experimental techniques applied in psychological research. (Lec. 2, Lab. 2) Pre: 300. Collyer, Silverstein, Smith, and Staff

**305 Field Experience in Psychology (I and II, 3)** Direct contact with settings and populations served by psychologists. Emphasis on understanding models and theories in relation to practical problems. Topical sections may include: a) preclinical, b) community, c) laboratory, and d) organizational applications. (Lec. 1, Lab. 4) Pre: 113 and permission of instructor. May be repeated for a maximum of 6 credits. Stevenson, Biller, and Staff

**310 History and Systems of Psychology (I or II, 3)** Origins of psychological inquiry and theories of psychology. Transformations of theories and methods of inquiry through the history of our culture including contemporary systems and models of psychological functioning. (Lec. 3) Pre: 113. Silverstein (L)

**334 Introduction to Clinical Psychology (I, 3)** Emphasis on scope of the field, functions of the clinical psychologist, methods used, and problems encountered, both scientific and professional. (Lec. 2, Lab. 2) Pre: 254, junior standing, and permission of chairperson. Staff

**335 The Psychology of Social Behavior (I and II, 3)** Conceptual and empirical analyses of individual behavior in social contexts; attention to social motivation, attitude development and change, liking, conformity, aggression, altruism. (Lec. 3) Pre: 113 and junior standing or permission of instructor. A. Lott and B. Lott

**361 Learning (II, 3)** Learning process in humans and subhumans, including principles and methods. Course features operant learning and behavior modification principles. Pre: 301 or permission of instructor. Smith

**371 Laboratory in Learning (II, 1)** Laboratory experiments in learning (primarily animal) designed to parallel course materials in 361. (Lab. 2) Pre: 301, credit or concurrent enrollment in 361, or permission of instructor. Smith and Staff

**381 Physiological Psychology (I, 3)** Physiological mechanisms operative in human behavior. Sensory, neural, endocrine, and response systems as related to sensation, perception, attention, emotions, motivations, and learning. (Lec. 3) Pre: junior standing. Valentino

**382 Research Methods in Physiological Psychology (II, 3)** A thorough introduction to the principles and techniques of experimentation in physiological psychology, including brain stimulation and lesions, electrophysiology, and pharmacology. (Lec. 3) Pre: credit or concurrent enrollment in 381 and permission of instructor. Valentino

**384 Cognitive Psychology (I, 3)** An examination of contemporary research and theories on mental activities. Topics will include: perception, pattern recognition, attention, memory, problem solving, language, consciousness, and artificial intelligence. Pre: 113 and 301 or equivalent. In alternate years. Brady

**385 Perception (I or II, 3)** Sensory function, development of perception, perception of space, color, sound, and complex events. (Lec. 3) Pre: 113 and 300, or equivalent. In alternate years. Collyer

**388 The Psychology of Language (I or II, 3)** Study of language processes in light of contemporary theories and research. Topics include speech production, perception, memory, comprehension, language and the brain, language acquisition, reading, language, and thought. (Lec. 3) Pre: junior standing. In alternate years. Brady

**391 Theories of Learning (I or II, 3)** Psychological theories developed for explanation of experimental data in the area of learning, including evaluation of learning theories, their basic concepts, and analysis of various behaviors in terms of the theoretical frameworks. (Lec. 3) Pre: 301 and junior standing. In alternate years. Silverstein

**405 Psychological Anthropology**  
See Anthropology 405.

**430 Intimate Relationships**  
See Sociology 430.

**432 Advanced Developmental Psychology (II, 3)** Major issues in developmental psychology. Emphasis on research in Piaget, Erikson, Bruner, Kagan, and Moss. Includes effects of infant care, sex typing, parental discipline, and developmental aspects of intellectual and perceptual growth. (Lec. 3) Pre: 232. Biller

**434 Psychological Testing (I and II, 3)** Measurement procedures employed in the measurement of intelligence, aptitudes, abilities, attitudes, interests, and personality. Principles of validity and reliability developed and applied to the various tests. (Lec. 3) Pre: 300 or equivalent. Harlow, Velicer, and Staff

**436 Psychotropic Drugs and Therapy**  
See Pharmacology and Toxicology 436.

**442 The Exceptional Individual (I and II, 3)** Issues underlying the classification, institutionalization, and treatment of the physically, psychologically, and mentally disabled. Social psychology of attitudes toward the disabled, current legislation, and needs of the exceptional for integration into community life. (Lec. 3) Pre: permission of chairperson. Gross

**456 Research Methods in Social Psychology (II, 4)** Lecture and laboratory experience will introduce students to current research methods used in social psychology. (Lec. 2, Lab. 4) Pre: 113 and 300, 335 or permission of instructor. Cohen

**460 The Substance-Troubled Person (I, II, and SS, 3)** Presents theoretical and applied material on alcohol and other mood-altering substances of abuse. Relevant for alcohol and substance abuse counselors, personnel administrators, and other social service workers. (Lec. 3) Offered through CCE. Willoughby and Staff

**464 Humanistic Psychology (II, 3)** Discussion of humanistic approaches to the understanding and direction of behavior. Emphasis on contemporary writers such as Rogers, Maslow, May, Moustakas. Discussions of phenomenology and existentialism. (Lec. 3) Pre: 235 and junior standing. In alternate years. Next offered 1993-94. Berman

**465 Introduction to Crisis Intervention (I or II, 3)** Interventions for various types of emergencies including substance abuse and functional or organic disorders. (Lec. 3) Pre: 254 and permission of instructor. Quina, Willoughby, and Staff

**470 Topics in Social Psychology (I, 3)** Empirical and conceptual approaches to a major topic in contemporary social psychology. Topics will vary from semester to semester. (Lec. 3) Pre: 113 and 335. Cohen, A. Lott, B. Lott, and Stevenson

**471 Applied Behavioral Analysis and Remediation (II, 3)** Study and application of behavioral approaches used to analyze and remediate behavioral problems of children and adults in educational and human service settings and everyday life. Pre: 361 or permission of instructor. Offered through CCE only. Smith or Groden

- 473 Practicum in Behavioral Psychology** (I or II, 3) Supervised, on-site field experience in applications of behavioral approaches in an educational or human service setting. *Pre:* 471 or permission of instructor. Smith, Quina, or Groden
- 479 Contemporary Problems for Modern Psychology** (I and II, 3–12) Central issues and recent developments in the field. Topics limited each semester to one of the following: a) personality, b) learning, c) methods and design, d) developmental, e) motivation, f) perception, g) clinical, h) general, and i) humanistic psychology. (Lec. 3) *Pre:* 301 and permission of chairperson. May be repeated for a maximum of 12 credits. Staff
- 480 The Female Experience** (II, 3) Topics ranging from the biological distinctiveness of women to social supports for sexism as they relate to attitudes, motives, and behavior of women. (Lec. 3) *Pre:* 113 and at least one 200-level psychology course. B. Lott and Staff
- 489 Problems in Psychology** (I and II, 3) Advanced work in psychology. Course will be conducted as seminar or as supervised individual project. Students must obtain written approval from proposed faculty supervisor prior to registration. May be repeated once. *Pre:* senior or graduate standing or permission of instructor. Staff
- 499 Psychology Practicum** (I and II, 1–6) Individual and group projects applying psychology in clinical or laboratory settings. (Lab. 3–18) *Pre:* senior standing or permission of instructor. May be repeated for a maximum of 6 credits. Not for major credit in psychology. S/U only. Staff
- 505 Community Psychology** (I, 3)
- 517 (or EST 517) Small N Designs** (II, 3)
- 520 Mental Measurement and Test Theory** (I or II, 3)
- 522 Behavioral Assessment Techniques** (II, 3)
- 532 (or EST 532) Experimental Design** (I or II, 3)
- 534 Structured Personality Assessment** (II, 3)
- 533 Advanced Quantitative Methods In Psychology** (II, 3)
- 540 (or EDC 540) Learning Disabilities: Assessment and Intervention** (SS, 3)
- 544 The Psychological Bases for Reading Disorders** (I or II, 3)
- 550 Operant Analysis of Behavior** (I or II, 3)
- 554 Alternate Therapies** (I or II, 3)

## Quantitative Business Analysis (QBA)

*Chairperson:* Professor Ebrahimpour (Management Science and Information Systems)

- 101, 102 Introduction to Quantitative Analysis for Business and Economics I, II** (I and II, 3 each) Selected mathematical tools and techniques for analysis of business and economic problems and as an aid in the decision-making process. Topics from finite and modern math-

ematics, applied differential and integral calculus. (Lec. 3) *Pre:* 101 for 102. Proficiency test available for 101. Staff (M)

**201, 202 Managerial Statistics I, II** (I and II, 3 each) 201: General statistical methods used in the collection, presentation, analysis, and interpretation of statistical data. Includes frequency distribution, measures of central tendency and dispersion, probability theory, sampling distribution, central limit theorem, law of large numbers, estimation, and tests of hypothesis. *Pre:* 102 or equivalent. 202: Additional data analysis techniques, including tests of independence and goodness of fit, regression, correlation, analysis of variance, time series, and index numbers. (Lec. 3) *Pre:* 201. Staff

**207 Management Information Systems in Business** (I and II, 3) Concepts and applications, including hardware, software, and business systems. Includes the use of spread sheet, database, and word processing packages. (Lec. 3) *Pre:* enrollment in College of Business Administration or permission of chairperson. Staff

**500 Computing for Management** (I and II, 2)

**520 Mathematical Models for Management** (I and II, 3)

**530 Statistical Methods for Management** (I and II, 3)

## Recreation (RCR)

*Chairperson:* Associate Professor Crooker (Physical Education, Health, and Recreation)

**280 Introduction to Recreation and Leisure Studies** (I, 3) Development of recreation from a historical and crosscultural perspective. Emphasis on the role of leisure in a community setting through study of the relationships of play, recreation, and leisure. (Lec. 3) O'Leary

**306 Outdoor Recreational Activities** (I, 3) Lecture topics: back-packing, bicycling, camping, canoeing, horseback riding, mountain climbing, sailing, scuba diving, orienteering; emphasis on skills, equipment, instruction centers, appreciation of natural areas. (Lec. 3) Seleen

**383 Introduction to Outdoor Recreation** (I, 3) Outdoor recreation as a distinct and separate concept, land and water resources, the various activities, and the necessary facilities. Considerable attention to the concern and role of governmental agencies and private enterprise. (Lec. 3) Crooker

**391 Directed Study**  
See Physical Education 391.

**416 Aging and Leisure** (I or II, 3) The aging process and its impact on leisure pursuits and recreation programming for older adults. Researching needs assessments; program adaptation; fitness benefits; and retirement planning. In alternate years. *Pre:* junior or senior standing. Seleen

**484 Supervised Field Work**  
See Physical Education 484.

**485 Planning and Supervision of Recreational and Athletic Facilities** (I, 3) Examination of the factors involved in the construction and/or renovation of facilities for most efficient multipurpose use and maintenance. Course includes field trips. (Lec. 3) *Pre:* junior standing and permission of chairperson. O'Leary

**486 Field Experience Seminar**  
See Physical Education 486.

**592 Internship** (I, II, or SS, 3)

## Religious Studies (RLS)

*Chairperson:* Professor Johnson (Philosophy)

**111 Comparative Religion** (I and II, 3) Teachings of major world religions. Emphasis on Judaism, Christianity, and Islam. Some comparison with Eastern religions, specifically Hinduism and Buddhism. Wenisch (L)

**125 Biblical Thought** (I, 3) Selected portions of the Old and New Testaments with emphasis on their positive contribution to the philosophy of the Jewish and Christian religions. (Lec. 3) Kim (L)

**126 The Development of Christian Thought** (II, 3) History of religious and philosophical ideas, development of the teachings of Christianity. Emphasis to meet needs and interests of students. Historical nature of material suitable for liberal education without regard to student's religious affiliation. (Lec. 3) Wenisch (L)

**131 Introduction to Oriental Philosophies and Religions** (I and II, 3) Introductory study of the main philosophical and religious ideas in the Orient, with emphasis on Hinduism, Buddhism, Confucianism, and Taoism. (Lec. 3) Kim (F) (L)

## Resource Development (RDV)

*Dean:* Professor Miller

**300 Introduction to Global Issues in Resource Development** (I and II, 3) Role of the United States in development assistance to foreign nations. Topics include: foreign aid, resource development, transfer of technology, international career opportunities and requirements. (Lec. 3) McCreight or Abedon

**487 International Development Internship** (I and II, 1–6) Supervised participation in programs related to international development. Minimum of 35 hours of internship per credit. *Pre:* 300 and permission of instructor. Not for graduate credit. McCreight or Abedon

**495 International Development Seminar** (II, 3) Seminar in international development for advanced-level students in the international development minor. (Lec. 3) *Pre:* 300 and permission of instructor. Not for graduate credit. McCreight or Abedon

## Resource Development Education (RDE)

*Interim Coordinator:* D. Abedon

**244 Introduction to Agricultural and Extension Education (II, 3)** Overview of the field covering various types of educational programs and activities for prospective teachers and Cooperative Extension personnel, including FFA, 4-H, and occupational experience. (Lec. 3) Offered in spring of even-numbered years. Mallilo

### 444 Teaching of Agribusiness and Natural Resources

See Education 444.

## Resource Economics (REN)

*Chairperson:* Associate Professor Weaver

**105 Introduction to Resource Economics (II, 3)** Application of microeconomic principles to selected resource problem areas. The market mechanism and its alternatives are examined as methods of resolving contemporary resource use problems. (Lec. 3) Weaver (S)

**310 Regulatory and Market Solutions in Natural Resource Management (II, 3)** Economic interactions among diverse users and natural resources. Valuation of new or unpriced goods; commercial, recreational, or aesthetic use-conflicts. Regulatory versus market-based solutions. (Lec. 3) Pre: 105 or ECN 126. Swallow

**325 Planning and Managing a Small Natural Resources Firm (II, 3)** Directed toward students with an interest in managing a small marine, agricultural, or other natural resources firm. (Lec. 3) Pre: 105 or ECN 125 or 126 or permission of instructor. Anderson

**336 Fisheries Economics (I, 3)** Supply and demand of fisheries products. Cost and returns in harvesting and processing. Market power and price determination, finance, insurance, fisheries policy and management. Pre: 105 or permission of instructor. Staff

**341 Economics of Agricultural and Seafood Marketing (I, 3)** The function, structure, and operation of agricultural and seafood markets; prices, costs, and margins; international trade; channels of distribution; futures markets; market information; regulations and controls; cooperative marketing. Pre: 105 or ECN 126 or permission of instructor. Anderson

**410 Economics of Natural Resource Use (II, 3)** Physical, institutional, and economic factors affecting the use of natural resources. Economics of conservation and scarcity applied to energy, commercial fishing, and pollution problems. Economic dimensions of public policy alternatives. (Lec. 3) Pre: ECN 328 or equivalent. Sutinen

**432 Economics of Land and Water Resources (II, 3)** Examines the relationship between public policies and the allocation of land and water resources. Topics include open space preservation, coastal development, recreation, forest and water management, and water pollution control. (Lec. 3) Pre: 105 or ECN 126 or permission of instructor. G. Wichelns

**435 Aquacultural Economics (I, 4)** Application of production economics and farm management principles to aquacultural production. Selected methods of measurement and analysis illustrated by case studies involving private or public aquacultural production and marketing. (Lec. 3, Lab. 2) Pre: 105 or permission of instructor. In alternate years. Next offered fall 1992. Gates

**440 Benefit-Cost Analysis (I, 3)** Basic concepts in benefit-cost analysis. Measurement, comparison of benefits and costs over time, and criteria for evaluation of projects and public policies. Problems and case studies in evaluation of current natural resources issues. (Lec. 3) Pre: 105 or permission of instructor. Grigalunas

**456 Tourism Economics (II, 3)** Application of economic principles and research methods to tourist and tourism industry behavior. A framework for assessing economic, social, and environmental benefits and costs of tourism development is compared to practical research methods. (Lec. 3) Pre: 105 or ECN 126. Tyrrell

**460 Economics of Ocean Management (II, 3)** The role of marine resources use in the economy. Oceans policy arising from multiple-use conflicts. Current marine resource issues examined such as fisheries, offshore oil, marine mining, and shipping. (Lec. 3) Pre: 410 or permission of instructor. Sutinen

**491, 492 Special Projects (I and II, 1-3 each)** Workshop for advanced students where individuals or small groups are assigned projects requiring the analysis of natural resource and allocation problems with particular emphasis on marine resources. Pre: permission of chairperson. Staff

**514 Economics of Marine Resources (I, 3)**

**520 Production Economics (I, 2)**

**522 Mathematical Programming for Natural Resource Management (I, 2)**

**524 Dynamic Economic Models (I, 3)**

**527 (or ECN 527) Macroeconomic Theory (I, 3)**

**528 (or ECN 528) Microeconomic Theory (I, 3)**

**532 (or CPL 537) Land Resource Economics (II, 3)**

**534 Economics of Natural Resources (II, 3)**

**540 Applied Resource Economics (II, 3)**

**543 Economic Structure of the Fishing Industry (I, 3)**

**576 (or ECN 576) Econometrics (I, 3)**

**591, 592 Special Projects (I and II, 1-3 each)**

**595 (or ECN 595, MAF 595, PSC 595, SOC 595) Problems of Modernization in Developing Nations (II, 3)**

## Russian (RUS)

*Section Head:* Professor Aronian

**101 Beginning Russian I (I and II, 3)** Introduction to fundamentals of grammar; exercises in speaking, reading, and writing. Emphasis on pronunciation, intonation, and aural comprehension of contemporary spoken Russian. Language laboratory required. (Lec. 3) Pre: no prior Russian. Staff (F)

**102 Beginning Russian II (I and II, 3)** Continuation of 101. Pre: 101 or equivalent. Staff (F)

**103 Intermediate Russian I (I and II, 3)** Completion of fundamentals of grammar; exercises in speaking and writing, reading of contemporary texts; emphasis on distinction between spoken and written language. Language laboratory required. (Lec. 3) Pre: 102 or equivalent. Aronian (F)

**104 Intermediate Russian II (I and II, 3)** Continuation of 103. Pre: 103 or equivalent. Staff (F)

**205, 206 Advanced Russian (I and II, 3 each)** Oral reports, written compositions, and classroom discussion based on readings in Russian history and culture, literature, and current Soviet affairs. Listening projects in laboratory. (Lec. 3) Pre: 104 or equivalent. Aronian

**325, 326 Introduction to Literary Studies in Russian (I and II, 3 each)** Techniques of literary criticism applied to Russian literary works in various genres. Listening projects in laboratory emphasizing poetry and drama. (Lec. 3) Pre: credit or concurrent enrollment in 205 and 206. In alternate years. Next offered 1992-93. Aronian (A)

**391, 392 Masterpieces of Russian Literature (I and II, 3 each)** Prose, poetry, and drama from late eighteenth through twentieth century in translation. Emphasis on literary movements through textual analysis. Authors range from Pushkin to Pasternak, including Dostoevsky and Tolstoy. (Lec. 3) C. Driver and Aronian (A) (F)

**460, 461 The Russian Novel (I and II, 3 each)** Major developments in themes and techniques, significant shifts of mode. Influences on the emergence of the novel in Russia. Laboratory required. (Lec. 3) Pre: credit or concurrent enrollment in 205 and 206. In alternate years. Next offered 1993-94. Aronian

**497, 498 Directed Study (I and II, 3 each)** For the advanced student. Individual research and reports on problems of special interest. Pre: acceptance of project by staff member and approval of chairperson. Staff

## Sociology (SOC)

*Chairperson:* Professor Poggie  
(Sociology and Anthropology)

**100 General Sociology (I or II, 3)** Introductory description and analysis of the structure and dynamics of human society. Social norms, groups, intergroup relations, social change, stratification, and institutions. (*Lec. 3*) *Not for major credit in sociology.* Staff (S)

**102 Issues and Problems in Contemporary American Society (I or II, 3)** Theoretical analysis of contemporary issues and societal trends and their impact on social organization. Social developments occurring after World War II analyzed and assessed according to their import and implications for social change. Emphasis on a sociological understanding of current issues. (*Lec. 3*) *Not for major credit in sociology.* Staff (S)

**201 Sociological Perspectives (I or II, 3)** Basic principles, concepts, and methodologies in the study, description, and analysis of society. Historical development of sociology and its basic theoretical perspectives, images, and concerns. (*Lec. 3*) *Intended for sociology majors.* Staff

**204 Social Psychology (I and II, 3)** Examination of the social basis of self and behavior; emphasis on identity, motivation, attitude, social role, and the symbolic in social life. (*Lec. 3*) Staff (S)

**206 Development of Human Societies (I or II, 3)** Sociological perspective in which whole societies are the unit of analysis. Succession of hunting and gathering, horticultural, agrarian, industrial societies. Social change is central to approach, focus on the place of technology in the changing socio-cultural pattern. (*Lec. 3*) Staff (S)

**212 The Family (I or II, 3)** The family as a social institution, its uniformity and variability in historical time and social space. Emphasis on contemporary American family. Variation in institutional patterns by rural-urban residence, region, race, social class. Issues and conflicts in the contemporary family scene. (*Lec. 3*) Staff (S)

**214 Urban Sociology (I or II, 3)** Patterns of urban development, taking into account sociological characteristics of urban life. Problems of urban redevelopment and planning. (*Lec. 3*) Staff (S)

**216 Deviant Behavior (I or II, 3)** Examination and analysis of major theories of deviant behavior. Application of these theories to particular types of deviant behavior. (*Lec. 3*) Staff (S)

**224 Health, Illness, and Medical Care (I or II, 3)** Introduction to social factors in the occurrence, distribution, and treatment of illness in society; critical analysis of the social organization of medicine in contemporary American society. (*Lec. 3*) Staff (S)

**238 Population Problems (I or II, 3)** Problems in the growth, decline, and composition of populations. Effects of fertility, mortality, migration. Special attention to American society. (*Lec. 3*) Shea (S)

**240 Minority and Majority Relations (I or II, 3)** Relations among the various ethnic, religious, racial, and political minorities and majorities, with special reference to the United States. (*Lec. 3*) Staff (S)

**241 Work and Society (I or II, 3)** Work and the organizations of industry, work roles, work groups, and authority structures; labor-management relations; some aspects of industrialization. (*Lec. 3*) Staff (S)

**242 Sex and Gender (I or II, 3)** Current research exploring issues of sex and gender. Socialization, gender role-playing, and personal relationships. Institutional costs of sexism. Prospects for human liberation. (*Lec. 3*) Reilly and Shea (S)

**300 Topics in Sociology (I or II, 1-3)** Critical study of selected topics. Subject will vary according to the expertise and availability of instructors. (*Lec. 1-3*) *Pre: one 100- or 200-level sociology course. May be repeated for credit with different topic.* Staff

**301 Methods of Sociological Research I (I and II, 3)** Scientific method in sociological research. Literature review, research design, measurement, instrument construction, sampling, evaluation research, ethics. Emphasis on logical reasoning and developing a research proposal. (*Lec. 3*) *Pre: 201 and junior standing.* Staff

**302 Methods of Sociological Research II (I or II, 3)** Emphasis on the application of the principles of sociological research presented in 301. Focuses on the implementation of a study designed by the student. (*Lec. 3*) *Pre: 301 and permission of instructor.* Staff

**303 Laboratory for Sociology 301 (I, 1)** Design of individual research projects to be completed in 302; development of data collection instruments; practice in various forms of data gathering (*Lab. 2*) *Pre: 201, junior standing, and concurrent enrollment in 301.* Staff

**304 Laboratory for Sociology 302 (II, 1)** Practice in computerized analysis of sociological data; introduction to common forms of data analysis with focus on individual research projects. (*Lab. 2*) *Pre: 201, 301, junior standing, and concurrent enrollment in 302.* Staff

**314 Juvenile Delinquency (I or II, 3)** Causes of delinquency; juvenile courts and probation; correctional institutions; programs of prevention. (*Lec. 3*) *Pre: one 100- or 200-level sociology course.* Staff

**316 Social Welfare Institutions (I or II, 3)** Development of British and American welfare. Influence of ideology on welfare and poverty. Contemporary American welfare. Social Security, poverty, welfare revolt of the 1960s. Evaluation of present and proposed welfare structure. (*Lec. 3*) *Pre: one 100- or 200-level sociology course.* Reilly (S)

**318 Collective Behavior (I or II, 3)** Analysis of noncustomary social phenomena. Crowds, riots, mobs, crazes, fads, fashions, and social move-

ments considered as product and cause of social change. (*Lec. 3*) *Pre: 6 credits in sociology.* Staff

**320 Formal Organizations (I or II, 3)** Development, description, and analysis of types of formal organizations, from small-scale systems to modern large bureaucratic organizations, postbureaucratic forms such as open, egalitarian systems, and adhocracies. (*Lec. 3*) *Pre: one 100- or 200-level sociology course.* Staff

**322 The Arts and Social Order (I or II, 3)** Consideration of the relationship between the arts and socially established meanings, social structure, and societal myths, with special attention to consonant and dissonant functions of the arts for social cohesion. (*Lec. 3*) *Pre: 6 credits in sociology or permission of instructor.* Travisano

**326 Madness and Society (I or II, 3)** Phenomenon of mental disorder considered in light of recent research findings and developments in sociological theory. Mental disorder discussed as an outgrowth of societal processes. *Pre: 6 credits in sociology or permission of instructor.* Staff

**328 Social Pathology and Social Change (I or II, 3)** Problems and solutions as aspects of social change. Analysis and evaluation of community instability, disorganization or social action, population change, resource depletion, stratification and social mobility, race-minority relationships, and other current issues. (*Lec. 3*) *Pre: 204 and one other sociology or social science course or permission of instructor.* Gelles

**330 Criminology (I or II, 3)** Nature and extent of crime; past and present theories of crime causation; criminal behavior in American society and its relation to personal and cultural conditions. (*Lec. 3*) *Pre: one 100- or 200-level sociology course.* Carroll (S)

**331 Punishment and Corrections (I or II, 3)** An overview and analysis of societal reactions to crime with emphasis on American society. Purposes of criminal sanctions, probation and parole, jails and prisons, capital punishment and its effect. (*Lec. 3*) *Pre: one 100- or 200-level sociology course.* Carroll

**336 Social Inequality (I or II, 3)** Dimensions and dynamics of inequality in society; concepts of class and status; processes of social mobility. (*Lec. 3*) *Pre: one 100- or 200-level sociology course.* Staff (S)

**344 The Sociology of Religion (I or II, 3)** Sociological theory and research in the analysis of interrelationships among religious culture, secular culture, the social structure of religious groups, and general social structure. (*Lec. 3*) *Pre: one 100- or 200-level sociology course.* Peters

**346 Sociology of Knowledge (I or II, 3)** Theories and research on the social bases of ideas. Emphasis on the works of Durkheim, Mannheim, and Marx and their influences on "common sense" interpretations of social life. (*Lec. 3*) *Pre: one 100- or 200-level sociology course.* Staff

**350 Work and Family Life (I, 3)** Linkages between economic and family institutions. Effects of work on family and of family on work. Historical development of the linkages. Contemporary effects due to men's decreasing and women's increasing labor force participation. (Lec. 3) Pre: 100 or 201 or 212 or HCF 330. Mederer

**390 (or APG 390) Human Sociobiology and Ethology (I or II, 3)** An examination of sociobiological theory and the role of sociobiology in explaining human behavior and social organization. (Lec. 3) Pre: junior or senior standing or permission of instructor. Peters and Loy

**401 History of Sociological Thought (I and II, 3)** Development of sociology as reflected in writings of American and European scholars: Plato, Aristotle, Rousseau, Vico, Spencer, Durkheim, Marx, Weber, Veblen, R. Merton, Parson, and others. (Sem. 3) Pre: 201 and 6 credits in sociology. Staff

**402 Sociology in Applied and Community Settings (I and II, 3)** Field experience and research in applying sociological concepts and methods to problems of community agencies and settings. Formulating and developing approaches to ongoing social systems; introduction to program analysis and evaluation. (Sem. 2, Lab. 2) Pre: 301 and 302. Open only to sociology majors. May be repeated for a maximum of 6 credits. Not for graduate credit. Reilly and Staff

**408 Individual Life and Social Order (I or II, 3)** Sociology of the individual as a creative participant in social order. Emphasis on cultural symbolism in the development of personal idiom, social structure, and social change. (Sem. 3) Pre: 9 credits in sociology or permission of instructor. Travisano

**413 Sexual Inequality (I or II, 3)** Development of sexual inequality. Critique of various theories explaining inequality. Sociological interpretation of theories of sexuality. Some effects of inequality: American women; minority women; women's work. Discussion of liberation and androgyny. (Sem. 3) Pre: 242 or permission of instructor. In alternate years. Reilly and Shea

**414 Demography (I or II, 3)** Vital statistics and their consequences for social structure and social change. Analysis of demographic techniques as applied to the measurement of fertility, mortality, morbidity, and migration. Development of methods for estimating population projections. (Sem. 3) Pre: 238 or permission of instructor. Shea

**420 Family Violence (I or II, 3)** Examination and analysis of the incidence, types, and causes of violence between family members, including child abuse, wife abuse, and abuse of the elderly. (Sem. 3) Pre: 100 or 102 or 201 or permission of instructor. Gelles

**424 Health Care Delivery Systems (I or II, 3)** Contemporary issues in health care delivery; dynamics and problems in health care rationing; incentives to demedicalize, and promotion of competition. (Sem. 3) Pre: one 300-level sociology or anthropology course or permission of instructor. Students may not receive credit for both 424 and 524. Staff

**428 Institutional Racism (I, 3)** Consideration of varying models of race and ethnic relations; examination of recent research on issues such as residential segregation, school desegregation, affirmative action, and racial disorders; comparisons of United States with other societies. (Sem.) Pre: one 300-level sociology course or permission of instructor. In alternate years. Carroll and Reilly

**430 (or PSY 430) Intimate Relationships (I or II, 3)** Examination of the effects of cultural, social, and psychological processes in the development, maintenance, and dissolution of intimate relationships. Emphasis on friendship patterns, dating and marital relationships, intimacy in non-traditional relationships. Emphasis on research. (Lec. 3) Pre: any 100- or 200-level course in sociology or PSY 113 and permission of instructor. Not for graduate credit. Albert

**432 (or LRS 432) Industrial Sociology (I or II, 3)** The social structure of industrial organizations; institutional patterns of conflict and cooperation; the impact of the political process; current issues in industry. (Lec. 3) Pre: 100 or permission of instructor. Staff

**437 Law and Families in the United States** See Human Development, Counseling, and Family Studies 437.

**438 Aging in Society (II, 3)** Social theories of growing old in a changing society. Organizational and sociohistorical factors are examined in terms of their consequences for the present status of the aged. (Sem. 3) Pre: one 300-level course in sociology or permission of instructor. Staff

**452 Class and Power (II, 3)** Class structures and patterns of power in advanced societies; comparisons of inequality in capitalist and socialist societies; theories of the relation between class and power; class consciousness, conflict, and accommodation. (Sem. 3) Pre: 336 or permission of instructor. In alternate years. Staff

**470, 471 Independent Study (I and II, 3 each)** Areas of special research not covered in other courses. May be taken as honors courses. (Sem. 3) Pre: one 300-level sociology course and permission of instructor. Staff

**505 (or PSC 505) Public Program Evaluation (I and II, 3)**

**521 (or PSC 531) Behavior Systems in Crime (I, 3)**

**522 (or PSC 522) Issues in Corrections (II, 3)**

**571, 572 Directed Study or Research (I and II, 3 each)**

**595 (or REN 595) Problems of Modernization in Developing Nations (II, 3)**

## Spanish (SPA)

**101 Beginning Spanish I (I and II, 3)** Introduction to Spanish for beginners. (Lec. 3) Pre: no prior Spanish. Staff (F)

**102 Beginning Spanish II (I and II, 3)** Continuation of 101. Pre: 101 or equivalent. Staff (F)

**103 Intermediate Spanish I (I and II, 3)** Reading and discussion of representative authors, grammar review, and continued practice in language skills to broaden understanding of Hispanic culture. (Lec. 3) Pre: 102 or equivalent. Staff (F)

**104 Intermediate Spanish II (I and II, 3)** Continuation of 103. Pre: 103 or equivalent. Staff (F)

**131 Refresher Course in Spanish (I and II, 3)** Rapid one-semester review of beginning Spanish structures and vocabulary. For students with one or two years of high school Spanish who are not ready for 103 or higher level, and who have taken the placement examination. Pre: one or two years of precollege Spanish or permission of section head. Not open to students with credit in 101 or 102. Staff (F)

**201 Oral Expression in Spanish (I or II, 3)** Development of oral skills in Spanish through discussion, interpreting, and reports on topics of personal, practical, or cultural interest. (Lec. 3) Pre: 104. Staff

**205 Spanish Language and Style I (I and II, 3)** Development and refinement of all Spanish language skills, with emphasis on writing, through structured practice using Hispanic cultural and literary materials. (Lec. 3) Pre: 104 or equivalent. Staff

**206 Spanish Language and Style II (I and II, 3)** Continuation of 205. (Lec. 3) Pre: 205 or equivalent. Staff

**305 Early Spanish-American Literature and Culture (II, 3)** Study of the early development of Spanish-American culture through its literature, from Conquest to Independence. (Lec. 3) Pre: 206 or permission of instructor. Staff

**306 Modern Spanish-American Literature and Culture (I or II, 3)** Significant figures and developments in literature, the arts, and society, from Independence to the present. (Lec. 3) Pre: 206 or permission of instructor. Staff (A)

**307 Hispanic Culture Through the Seventeenth Century (II, 3)** Significant contributions in literature and the arts, from the unique period of coexistence of Christians, Jews, and Muslims through the Golden Age of the sixteenth and seventeenth centuries. (Lec. 3) Pre: 206. In alternate years. Staff

**308 Literature and Culture of Modern Spain (II, 3)** Major figures and developments in Spanish literature, the arts, and society from the eighteenth century to the present. (Lec. 3) Pre: 206 or permission of instructor. In alternate years. Staff

**310 Field Workshop (SS, 1-6)** Cultural visit to Spain or Hispanic America. Significant monuments and places of interest to the student of lit-



erature and civilization will be studied. Lectures supplemented by assigned readings. (Lec. 1-6) Pre: 104 or permission of instructor. Staff

**325 Introduction to Literary Genres (I, 3)** Presentation of the novel, poetry, drama, and essay as literary genres. Textual commentary and methods of criticism. (Lec. 3) Pre: 206 or permission of instructor. Staff

**391, 392 Spanish Literature in Translation (I and II, 3 each)** Reading and analysis in English of Spain's most significant contributions to world literature: poetry, novel, drama, essay. Works through the seventeenth century in the first semester; those of the nineteenth and twentieth in the second. (Lec. 3) Not for major credit in Spanish. Staff (A) (F) for 391; (A) for 392.

**393 Modern Hispanic-American Literature in Translation (I or II, 3)** Introduction to the development of Latin-American literature in the twentieth century and an examination of how the literary artifact has reflected the major social and political changes of the region. (Lec. 3) Not for major credit in Spanish. Staff (A) (F)

**401 Oral and Dramatic Presentation of Hispanic Literature (I, 3)** Practice in effective oral communication in Spanish and appreciation of Hispanic literature through analysis and class presentation of drama, poetry, and prose. (Lec. 3) Pre: 325 or permission of instructor. Next offered fall 1993. Navascués

**421 Business Spanish (I or II, 3)** Study of concepts and terminology in the Spanish-speaking business world. (Lec. 3) Pre: credit or concurrent enrollment in a 300-level Spanish course. Not for graduate credit in Spanish. Staff

**430 Castilian Prose of the Sixteenth and Seventeenth Centuries (II, 3)** Literary significance of the Renaissance and Baroque periods and an analysis and critical examination of the prose works of the principal writers of this Golden Age of Castilian Literature. (Lec. 3) Pre: 325 or permission of instructor. Next offered fall 1993. Staff

**431 Drama and Poetry of the Sixteenth and Seventeenth Centuries (II, 3)** Spanish poetry and drama from the early Renaissance through the Baroque. (Lec. 3) Pre: 325 or permission of instructor. Next offered fall 1993. Trubiano

**451 The Spanish Novel of the Nineteenth Century (I, 3)** Development of realism and naturalism in the novel of the second half of the nineteenth century in Spain. (Lec. 3) Pre: 325 or permission of instructor. Next offered spring 1993. Navascués

**470 Topics in Hispanic Literature (I and II, 3)** Special topics or authors not emphasized in other courses. (Lec. 3) Pre: 325 or permission of instructor. Next offered fall 1992. Staff

**481 Don Quijote (I, 3)** Life and times of Miguel de Cervantes Saavedra and the reading and critical interpretation of his work. *El ingenioso hidalgo Don Quijote de la Mancha*. (Lec. 3) Pre: 325 or permission of instructor. Required for Spanish majors. In alternate years. Next offered spring 1994. Staff

**485 Modern Spanish Narrative (II, 3)** Representative narrative works by Spain's major authors from the Generation of 1898 to the present. (Lec. 3) Pre: 325 or permission of instructor. Next offered fall 1992. Manteiga

**486 Modern Spanish Poetry and Drama (II, 3)** Selected poetry and plays from the nineteenth century through the present. (Lec. 3) Pre: 325 or permission of instructor. Next offered spring 1993. Manteiga

**488 Spanish-American Poetry and Drama (I or II, 3)** Traces the development of poetic expression and drama from the seventeenth century to modern times as a reflection of the evolution of Spanish-American identity. (Lec. 3) Pre: 325 or permission of instructor. Next offered fall 1992. Morin or White

**489 The Spanish-American Narrative (I or II, 3)** Traces the development of fictional prose in Spanish America from the colonial period to modern times as a reflection of cultural and societal changes. (Lec. 3) Pre: 325 or permission of instructor. Next offered spring 1993. Morin or White

**497, 498 Directed Study (I and II, 1-3 each)** For the advanced student. Individual research and reports on problems of special interest. Pre: 325, acceptance of project by staff member, and approval of chairperson. Staff

**510 Contemporary Spanish Workshop (SS, 3-6)**

**561 Seminar in Medieval Poetry and Prose (I, 3)**

**570 Topics in Hispanic Literature and Culture (I, II, or SS, 3)**

**572 Evolution of Spanish-American Culture and Thought (II, 3)**

**574 Interpretations of Modern Spanish-American Thought (I or II, 3)**

**580 Seminar in Nineteenth-Century Spanish Literature (I or II, 3)**

**584 Interpretations of Modern Spain (I, 3)**

**585 Seminar in Twentieth-Century Spanish Literature (I, 3)**

**587 Seminar in Renaissance and Baroque Literature (II, 3)**

**588 Seminar in Colonial Spanish-American Literature and Culture (I or II, 3)**

**589 Seminar in Modern Spanish-American Literature and Culture (I or II, 3)**

**590 The Hispanic Presence in the United States (II, 3)**

**597, 598 Directed Study (I and II, 3 each)**

## Speech Communication (SPE)

Chairperson: Professor Wood

**101 Fundamentals of Oral Communication (I and II, 3)** Development and improvement of fundamentals and attitudes essential to effective and ethical communication. Preparation, organization, and presentation of the fundamentals in various speaking environments. Students demonstrating proficiency may petition for advanced placement. (Lec. 3) Not open to students with credit or concurrently enrolled in CMS 101. Staff (C)

**103 Interpersonal Communication (I and II, 3)** Impact of perception, listening, self-acceptance, nonverbal messages, and language on interpersonal communication. Emphasis on improving skills. Staff (C)

**200 The Art of Human Communication (I and II, 3)** Selected communication theories from classical to contemporary times are examined. Focus on the relationship between cultures and communication theories. Emphasis on application of theoretical principles to contemporary communication situations. (Lec. 3) Staff (L)

**205 Great American Speeches (I and II, 3)** The study of historically significant ideas, issues, and causes through the critical analysis of selected American speeches. (Lec. 3) Staff (L)

**206 (304) Speech Communication Survey (I and II, 3)** Survey of the major areas within the field of speech communication. Emphasis on developing the student's ability to identify, define, formulate, investigate, and describe problems and phenomena within the discipline. (Lec. 3) Staff

**210 Persuasion: The Rhetoric of Influence (I and II, 3)** Analysis of communication influencing beliefs, attitudes, and/or behavior. Investigation of rhetorical elements of logical, emotional, and ethical appeals. Study of elements critical for effective producers and consumers of persuasion. (Lec. 3) Staff (L)

**215 Argumentation and Debate (I, 3)** Argumentative speech, with special emphasis on debate. Analysis of the proposition, construction of a case, use of evidence and reasoning, rebuttal, and the technique of brief-drawing. Analysis of important economic and political questions. (Lec. 3) Wood

**216 Intercollegiate Debating (I and II, 1)** Intercollegiate tournament debating. Open to students who are actively engaged in the intercollegiate debate and forensics program. May be repeated for a maximum of 4 credits. Pre: permission of the director of forensics. Wood

**220 Communication in the Small Group (I and II, 3)** The study of communicative functions in the small group setting. Includes group dynamics, leadership, problem solving, and decision making. Emphasis on theory and application. (Lec. 3) Schultz and Staff (S)

**231 Oral Interpretation of Literature (I and II, 3)** Recognition and appreciation of content and communication of thought and emotion through oral reading. Practice in the analysis and interpretation of poetry and prose fiction. (Lec. 3) Quainoo (A)

**301 Systems of Communication (II, 3)** Investigation of communication networks in nonsymbolic and symbolic systems, focusing on general systems theory, cybernetics, the human physiological system, the computer, and animal and human code systems. (Lec. 3) Brownell

**302 Advanced Public Speaking (I and II, 3)**

Advanced study of public speaking and speech writing. Speaking in television and business settings. Speaking with a manuscript, writing speeches for others, and speech criticism. *Pre:* 101. Devlin and Wood

**310 Contemporary Oral Communication (I and II, 3)**

Analysis of contemporary rhetorical theories as they relate to speaking in business, civil rights, education, government, labor, law, and religion. Focus each semester on a critical contemporary issue. *(Lec. 3) May be repeated for credit.* Staff

**314 Nonverbal Communication (I, 3)**

Examines nonverbal communication codes, including their structures, usages, and interrelationships. Stresses student understanding, analysis, and application of nonverbal communication through lecture, discussion, and experiential activities. *(Lec. 3) Pre: junior standing and 101 or 103 or permission of instructor.* Staff

**315 Environmental Dimensions of Communication (I, 3)**

Investigation of the physical properties of the environment and how individuals' perception and design of these properties affect their communication in personal, social, and public situations. Analysis and experimentation with the ways the environment can be used to facilitate communication. *(Lec. 3) Anderson and Brownell*

**317 Advanced Argumentation and Debate (II, 3)**

Analysis of advanced argumentation and debate theory and practice. Examination of debate tournament structure and the responsibilities of debate coaching, in terms of organizing and implementing debate programs. *(Lec. 3) Pre: 215 or permission of instructor.* Wood

**320 Oral Communication for Business and Professions (I or II, 3)**

Examination of business and organizational communication. Emphasis on channels of communication, communication barriers, leadership, and the development of communication skills for business and professions. *(Lec. 3) Ketrow, Doody, and Staff*

**331 Contemporary Approaches to Prose Fiction (II, 3)**

Oral interpretation of the short story and novel. Contemporary approaches to the oral tradition of storytelling through individual and group performances and written analysis. *(Lec. 3) Quainoo*

**332 Oral Interpretation of Poetry (I, 3)**

Practice in the oral interpretation of poetry through oral performance and written analysis. *(Lec. 3) Pre: 231 or permission of instructor. In alternate years. Next offered 1992-93.* Quainoo

**333 Oral Interpretation of Black Literature (II, 3)**

Study and oral presentation of literature by black American authors. Class performances, discussion, reports, and analysis of the literature. *(Lec. 3) Quainoo*

**337 Intercultural Communication (I and II, 3)**

Study of cultural similarities and differences as they affect communication within and across cultural boundaries. *(Lec. 3) Doody and Chen*

**340 Electronic Media Programming (I or II, 3)**

Overview of various aspects of the operation of radio, television, and cable TV, including industry structure, audience measurement (ratings), programming, and promotion. *(Lec. 3) Pre: junior standing.* Mundorf

**391, 392 Honors Work (I and II, 1-3 each)**

Thesis work or an equivalent independent project under faculty supervision for honors students participating in the University honors program. *Pre: admission to departmental honors program.* Staff

**400 Rhetoric (I, 3)**

Inquiry into standards for the evaluation and improvement of instrumental discourse. Detailed considerations of invention, disposition, and style in oral and written communication. *(Lec. 3) Bailey*

**403 Advanced Interpersonal Communication (I, 3)**

Critical study of major issues and theories of interpersonal communication. Focuses on history, models, and research, including conversation, influence, intimacy, language, and relationships. *(Lec. 3) Pre: 103 or permission of instructor.* Schultz or Ketrow

**415 The Ethics of Persuasion (II, 3)**

Relation of persuasion to ethics is examined. Purposes, means, results, and contexts are considered in making rhetorical judgments of interpersonal, political, and institutional communications. *(Lec. 3) In alternate years. Next offered 1992-93.* Bailey

**420 Seminar in American Public Address and Criticism (II, 3)**

Study of selected American speakers, speeches, and/or movements. Rhetorical analysis used to measure the impact of speakers, speeches, and movements studies. *(Lec. 3) Anderson and Doody*

**430 Political Communication (I, 3)**

Analysis of political communication in campaign and nonelection situations. Examination of ghost writing; content analysis, strategies, image making of political speaking; TV and radio presentations; influences on and effects of political communication. *(Lec. 3) Devlin*

**435 Directing Group Performance of Non-dramatic Literature (II, 3)**

Practice in Reader's Theatre and Chamber Theatre. Emphasis on direction as a rhetorical device in group work with nondramatic literature and compilation of scripts for individual and group performance. *Pre: 231. In alternate years.* Quainoo

**440 Telecommunications Processes and Audience Behavior (I and II, 3)**

Surveys theories and research concerning role of electronic mass media in contemporary society. Focuses on interplay between mass media content and audience behavior; provides framework for analyzing current telecommunications issues. *(Lec. 3) Pre: 210 or permission of instructor.* Mundorf

**450 Organizational Communication (I and II, 3)**

Surveys theory and practice of communication in organizations. Examines interface of organizational, management, and communication theories. Explores human interaction, flows and for-

mats in organizations; stresses student analysis of organizational communication. *Pre: 320.* Ketrow, Schultz, and Staff

**460 Communication and Conflict Intervention (II, 3)**

An examination of the role of communication theories in conflict intervention in interpersonal, group, and organizational settings. Emphasis on applying theories through simulations, role plays, case studies, and discussions. *(Lec. 3) Pre: 103 or 220.* Anderson, Doody, or Schultz

**471, 472 Internship in Speech Communication (I and II, 3 each)**

Provides the student with direct supervised participation in a variety of speech communication situations and occupations. *(Lec. 1, Lab. 4) Pre: 18 credits in speech communication and permission of chairperson.* Staff

**491, 492 Special Problems (I and II, 1-3 each)**

Selected areas of study pertinent to oral communication. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. *Pre: permission of chairperson.* Staff

**Statistics****Experimental Statistics**

- 220 Statistics in Modern Society
- 308 Introductory Statistics
- 307 Introductory Biostatistics
- 409 Statistical Methods in Research I
- 412 Statistical Methods in Research II
- 413 Data Analysis
- 415 Introduction to Experimental Design
- 416 Survey of Advanced Statistical Methods
- 491 Directed Study in Experimental Statistics
- 492 Special Topics in Experimental Statistics
- 500 Nonparametric Statistical Methods
- 501 Analysis of Variance and Variance Components
- 502 Applied Regression Analysis
- 517 Small N Designs
- 520 Fundamentals of Sampling and Applications
- 532 Experimental Design
- 541 Multivariate Statistical Methods
- 542 Discrete Multivariate Methods
- 550 Ecological Statistics
- 576 Econometrics
- 584 Pattern Recognition
- 591 Directed Study in Experimental Statistics
- 592 Special Topics in Experimental Statistics

**Industrial and Manufacturing Engineering**

- 411 Engineering Statistics I
- 412 Engineering Statistics II
- 513 Statistical Quality Control
- 553 Advanced Statistical Methods for Research and Industry

**Management Science**

- 370 Topics in Managerial Statistics
- 445 Managerial Applications of Simulation
- 450 Forecasting: Computer Applications
- 470 Managerial Decision Support Systems
- 475 Bayesian Statistics in Business

**Mathematics**

- 451 Introduction to Probability and Statistics  
 452 Mathematical Statistics  
 456 Probability  
 550 Advanced Probability  
 551 Advanced Mathematical Statistics I  
 552 Advanced Mathematical Statistics II

**Psychology**

- 300 Quantitative Methods in Psychology I  
 517 Small N Designs  
 533 Advanced Quantitative Methods in Psychology

**Quantitative Business Analysis**

- 201, 202 Managerial Statistics  
 530 Statistics for Management

**Resource Economics**

- 576 Econometrics

**Textiles, Fashion Merchandising, and Design (TMD)**

*Chairperson:* Associate Professor Welters

**103 Consumer Issues in Textiles and Clothing (I and II, 3)** Effect of fibers, yarns, fabrics, and finishes on appearance, performance, and cost. Impact of environmental and consumer safety, labeling, energy conservation, and fashion on the development of textiles, laundry equipment, and detergents. (*Lec. 3*) *Proficiency test available.* Helms

**205 Introductory Clothing (I, 2)** Aesthetic, economic, and managerial aspects of clothing selection, construction, and fit. Construction principles developed through individualized projects. (*Lec. 2, Lab. 4 for one-half semester*) *Proficiency test available. Concurrent enrollment in 215 recommended.* Perry

**215 Experimental Clothing (I, 2)** Construction techniques for recently developed fabrics, findings, and equipment and the evaluation of these techniques. Emphasis on consumer services and marketing techniques. (*Lec. 2, Lab. 4 for one-half semester*) *Concurrent enrollment in 205 recommended.* Perry

**216 Interior Design I (I and II, 3)** Discussions and problems to develop discrimination and creative ability in selection of adequate and well-designed home furnishings. (*Lec. 3*) Higa

**222 Apparel Production (I and II, 3)** Analysis of apparel construction and production; current industrial and technological developments. Discussion of sizing and quality standards with emphasis on identification of fabrics, garment styles, findings, and trims. (*Lec. 3*) *Pre: 103.* Perry

**224 Clothing and Human Behavior (I and II, 3)** Physical, social, and psychological aspects of dress related to: the individual, cultural and social groups, consumer behavior, clothing needs of special groups, and patterns of change and stability in dress. (*Lec. 3*) *Proficiency test available.* Cerny (S)

**232 Fashion Retailing (I and II, 3)** A comprehensive study of fashion retailing as an operating system. Examination of the strategies and the organizational structure which support the fashion retail system. (*Lec. 3*) Harps-Logan

**238 Surface Design (I, II, or SS, 3)** History, classification, and traditional processes for surface-designed textiles. Introduction to screen printing and block printing. Emphasis on resist dyeing and painting. (*Lec. 2, Lab. 2*) Perry

**240 Development of Contemporary Fashion (I and II, 3)** History of contemporary fashion from the beginning of the twentieth century to the present. Influence of designers, buyers, consumers, and technology on fashion in the marketplace. (*Lec. 3*) *Pre: 103 and sophomore standing.* Welters or Cerny

**303 Textile Science (I, 3)** Current textiles and textile products. Scientific aspects of fibers, yarns, fabrication, and finishes for apparel and home furnishings. Study of existing regulatory controls and policies as they affect the consumer. (*Lec. 3*) *Pre: 103 and CHM 124 or permission of instructor.* Bide

**305 Intermediate Clothing (II, 2)** Flat pattern designing with emphasis on relationships of flat pattern principles to individuals. Laboratory experience in modifying and executing designs. (*Lec. 2, Lab. 4 for one-half semester*). *Concurrent enrollment in 405 suggested. Pre: 205 and 215, or permission of instructor.* Perry

**313 Textile Science Laboratory (I, 1)** Laboratory exercises include fiber identification, fabric analysis, and fabric performance testing. A written project and oral presentation on fabric performance is required. Students furnish their own fabric for performance testing. (*Lab. 2*) *Pre: 103, CHM 124, 126, and concurrent enrollment in 303.* Bide

**316 Housing Space and Function (II, 3)** Fundamental principles of house planning concerning orientation, space relationships, function, flexibility, aesthetic and economic factors. (*Lec. 2, Lab. 2*) *Pre: 216.* Higa

**327 Apparel Design (I and II, 3)** Design principles as applied to contemporary clothing with emphasis on various age groups and special populations. Laboratory experiences concentrate on the creative process and development of illustrative techniques. (*Lec. 2, Lab. 2*) Perry

**332 Fashion Merchandise Buying (I and II, 3)** The theory of fashion merchandising and its application to basic retailing procedures, the responsibility of the buyer, and procedures used to determine consumer demand, merchandise selection and pricing. (*Lec. 3*) *Pre: 103, 224, and 232.* Harps-Logan

**336 Fabrics for Interiors (II, 3)** The design, manufacturing, selection, installation, and performance of interior fabrics. Labeling, warranty programs, testing and safety requirements for both residential and commercial uses. (*Lec. 3*) *Pre: 216, 303, 313, or equivalent course work.* Helms

**340 Historic Costume (II, 3)** Sociological, economic, religious, and political factors affecting the history of costume and resulting fashion changes from antiquity to the early twentieth century. Use of department's historic costume collection. (*Lec. 3*) Ordonez

**342 Fashion Study Tour (II, 1)** Students spend two weeks overseas during intersession studying the apparel and/or interior furnishings market in London and Paris. Lectures and tours by designers, manufacturers, and retailers. Students may register once in apparel and once in interior furnishings. Travel costs are extra. *Pre: junior standing or permission of instructor.* Staff

**358 Weaving (II, 3)** Introduction to hand weaving, including on-loom and off-loom techniques. Designing, drafting, warping, and finishing of various types of weaves. Students complete samplers and projects. (*Lec. 1, Lab. 4*) Staff

**361, 362 Special Problems (I and II, 1-4 each)** Open to qualified juniors and seniors who wish to do advanced work. *Pre: approval of application by instructor and chairperson. May be repeated for a maximum of 6 credits.* Staff

**403 Textile Performance (I, 3)** Analysis of textiles using test methods and standards adopted by government, industry, and buyers to insure consumer satisfaction. Interpretation of test data in relation to consumer expectations and performance claims. (*Lec. 2, Lab. 2*) *Pre: 103 and 303 or permission of instructor.* Bide

**405 Advanced Clothing (II, 2)** Application of design to dress expressed through draping techniques. Designs draped in fabric on half- and full-size dress forms. (*Lec. 2, Lab. 4 for one-half semester*) *Pre: 305 or permission of instructor. Concurrent enrollment in 305 suggested. Not for graduate credit.* Perry

**406 Historic Furniture (I, 3)** Chronological study of the development of furniture, factors which influence style and production, characteristics of style, and influence of historic furniture on later periods. (*Lec. 3*) *Pre: permission of instructor.* Higa

**413 Dyeing and Finishing of Textiles (II, 3)** Study of chemical and physical interactions of dyes and finishes with textile fiber/fabric systems. Evaluation of application techniques. Detection and evaluation of problems resulting from dyeing and finishing. (*Lec. 2, Lab. 2*) *Pre: 303 or permission of instructor.* Bide

**416 Interior Design II (I, 3)** Observation and experience in professional interior design with emphasis on meeting living needs of individuals and groups. Field trips, laboratory applications, and guest lecturers. (*Lec. 2, Lab. 2*) *Pre: 316 or permission of instructor.* Higa

**422 Field Experience in Fashion Merchandising (I, 5)** Field experience in business establishment. Students work (150 hours per semester minimum) under qualified personnel and are placed and supervised by University staff. Seminar (1 hour per week) concerning the merchandising of textile and related products is required. *Pre: 303, 332, permis-*

sion of instructor and advisor. Not for graduate credit in textiles, clothing, and related art. Harps-Logan

**424 Fashion Theory and Analysis (I or II, 3)** Principles, theories, and recent investigations of the fashion process are presented to develop analytical skills for evaluating consumer behavior, as related to clothing and adornment. Application to contemporary trends. (Lec. 3) Pre: senior or graduate standing. Cerny

**432 Fashion Merchandising Operations Control (II, 3)** Analysis of determinants of fashion merchandising profitability below gross margin; expense analysis, classification, allocating expense center accounting, and key operating ratios. Emphasis upon modification and control of selling cost ratios. (Lec. 3) Pre: 232 and 332. Harps-Logan

**433 Textile Markets (I and II, 3)** Study of social, economic, and political issues which affect the development, production, and marketing of textile products. Study of the textile needs of the apparel, home furnishings, industrial, and medical industries. (Lec. 3) Pre: 303 and ECN 125. Helms

**440 Historic Textiles (II, 3)** Chronological study of textiles, emphasizing socioeconomic, religious, and political influences. Contribution of designers, inventors, trade groups, and industrialists. (Lec. 3) Pre: 103 or permission of chairperson. Ordonez

**461, 462 Community Field Work (I and II, 1-4 each)** Field work and seminar open to qualified seniors who wish to work in federal or state agencies, community programs, or industry, under the supervision of a faculty advisor. Pre: approval of application by instructor and chairperson prior to enrollment. Not for graduate credit in textiles, clothing, and related art. Staff

**496 Interior Furnishing and Design Internship (II, 3)** Students intern (120 hours per semester minimum) in the area of interior space planning, furniture, interior textiles, furnishings, or research. A weekly one-hour seminar for presentation of intern experience or research. Pre: permission of instructor. Higa

**500 Ethnic Costume and Textiles (I, 3)**

**502 Seminar in Textiles and Clothing (II, 3)**

**503 Advanced Textiles (I, 3)**

**510 Historical Research Methods: Textiles and Furnishings (II, 3)**

**513 Detergency (I, 3)**

**520 Introduction to Textile Conservation (II, 3)**

**521 Topics in Textile Conservation (I, II, or SS, 1-3)**

**522 Special Problems in Textile Conservation (I, II, or SS, 1-3)**

**524 Social Psychological Aspects of Textiles and Clothing (I, 3)**

**530 Historic Textile Internship (I and II, 2-4)**

**533 Textile and Clothing Economics (I, 3)**

**540 Special Problems in Textiles and Clothing (I and II, 3)**

**550 Prepracticum (I and II, 3)**

**560 Practicum (I and II, 3)**

**596 Interior Furnishing and Design Seminar (II, 3)**

## Theatre (THE)

Chairperson: Professor Swift

*Courses in theatre offer theory, production, design, or performance training in various areas of dramatic arts, and many are open to nonmajors. The Department of Theatre conducts open auditions and makes performance and production work available to all members of the University community.*

**100 Introduction to Theatre (I and II, 3)** Designed to provide students with a theoretical and practical understanding of the theatrical process as well as to develop critical standards and increase the enjoyment of theatre as an art. (Lec. 2, Rec.1) Not open to theatre majors. Staff (A)

**111 Introduction to Acting (I and II, 3)** Designed to initiate students to theatre as a collaborative art through systematic exposure to the principles and techniques of acting, directing, stage design, stagecraft, and playwriting. Participation in productions required. (Studio 6) Staff

**117 Introduction to Voice and Movement (II, 3)** An exploration of the body and voice as instruments with emphasis on the development of physical and vocal awareness, concentration, maintenance, and endurance. (Studio 6) Guest Artist

**161 Introduction to Stagecraft (I and II, 3)** Stage carpentry, rigging, properties, scene painting, and lighting mechanics with practical experience working on productions. (Lec. 2, Lab. 2) Galgoczy

**181 Script Analysis (I and II, 3)** Analysis of plays from varying perspectives of the actor, director, and designer. Course emphasizes theatre terminology and develops a working vocabulary. (Lec. 3) Staff (A)

**211, 212 Basic Acting I, II (I and II, 2 each)** Introduction to the theory and basic techniques of acting. Includes moment-to-moment improvisation, the reality of doing, fantasy work, and voice and movement. (Studio 4) 211: Pre: 111, 117, or permission of instructor; concurrent enrollment in 213. 212: continuation of 211. Pre: 211 and permission of instructor; concurrent enrollment in 214. Wheelock

**213 Acting Workshop (I, 1)** A voice-movement workshop to be taken concurrently with 211. (Studio 2) Pre: concurrent enrollment in 211. Guest Artist

**214 Acting Workshop (II, 1)** A voice-movement workshop to be taken concurrently with 212. (Studio 2) Pre: concurrent enrollment in 212. Guest Artist

**217 The Role of Music in Theatre (II, 3)** Perspectives on music and its relationship and application to the theatre for theatre students. Musical vocabulary, performance techniques, and conventions related to the theatre. Emphasis on relationship of music and musical performance to all aspects of theatrical production. Pre: permission of instructor. May be repeated for a maximum of 6 credits with permission of instructor. Guest Artist

**221 Stage Management (I, 3)** Theoretical and practical study of the basic methods and procedures of the production staff with emphasis on the director/stage manager relationship and the role of each. Participation in productions required. (Lec. 2, Lab. 2) McGlasson

**227 Dance for Musical Theatre (I, 3)** Orientation and instruction in beginning dance for the musical stage. Dance vocabulary in jazz, ballet, tap; performance techniques and conventions related to the American musical. (Lec. 2, Lab. 2) Pre: theatre major or permission of instructor. May be repeated once for credit with permission of instructor. McGlasson

**250 Costume Laboratory (I and II, 3)** Practical experience in the principles of costuming including drafting theatrical patterns, construction and finishing techniques, and experience working on a theatrical production. (Studio 6) Emery

**261 Introduction to Theatre Design (I, 3)** Introduction to theatre production design with emphasis on development of capabilities for expression in conceptual and graphic terms. Projects in stage scenery, costumes, and lighting. (Lec. 2, Lab. 2) Wittwer

**291 Production Laboratory (I and II, 1)** Orientation and instruction in theatre through tutored participation in crews and production assignments or projects for departmental productions. (Lab. 2) May be repeated for credit. Staff

**300 Individual Problems in Theatre Studies (I and II, 1-3)** Individual theatre work on an approved project under supervision of a staff member. Pre: permission of staff. May be repeated for a maximum of 6 credits. Staff

**301 Special Group Studies (I and II, 1-3)** Group theatre work in approved production projects under supervision of staff member. Pre: permission of staff. May be repeated for a maximum of 6 credits. Staff

**311, 312 Intermediate Acting I, II (I and II, 3 each)** 311: Continuation of Basic Acting with emphasis on approaches to characterization through improvisation and through the analysis and performance of assigned scenes. (Studio 6) Pre: 211, 212, and permission of instructor; concurrent enrollment in 313. 312: Continuation of 311. (Studio 6) Pre: 311 and permission of instructor; concurrent enrollment in 314. Wheelock

**313 Acting Workshop (I, 1)** A voice-movement workshop to be taken concurrently with 311. (Studio 2) Pre: concurrent enrollment in 311. Guest Artist

**314 Acting Workshop (II, 1)** A voice-movement workshop to be taken concurrently with 312. (Studio 2) Pre: concurrent enrollment in 312. Guest Artist

**321 Orientation to Play Direction (I, 3)** Director's role in the process of theatre production. Emphasis on development of production concepts and rehearsal techniques. (Lec. 2, Lab. 2) Swift

- 322 Play Direction (II, 3)** Practical course in play direction. Class functions as a production unit and mounts a season of one-act plays. (*Practicum: minimum of 6 hours per week*) Pre: 321 and permission of instructor. Staff
- 331 Playwriting (I or II, 3)** Analysis and evaluation of written material supplemented by play readings and workshop tryouts of students' plays. (*Lec. 3*) Guest Artist
- 341 Theatre Management (II, 3)** Principles, terminology, and practical technique of theatre administration. Emphasis on stage management. Assignments will be made to departmental productions. (*Lec. 3*) McGlasson
- 350 Makeup (I, 1)** Principles and techniques of stage makeup. Practical experiences in application through a number of projects in developing character makeups with chiaroscuro, prosthetics, and facial hair. (*Studio 2*) Emery
- 351, 352 Principles and Theories of Theatrical Costuming I, II (I and II, 3 each)** 351: Analytical study of fashions, modes, and manners in Western civilization as required for modern theatrical production, Greek through the Renaissance. (*Lec. 3*) 352: Continuation of 351, the Renaissance to the present. (*Lec. 3*) Emery (A)
- 355 Stage Costume Design (II, 3)** Costume design theories and techniques for modern and period plays in a wide variety of styles. (*Lec. 2, Lab. 2*) Pre: 351 or 352; 261 or permission of instructor. Emery
- 362 Scene Painting (II, 3)** Problems in scene painting, including use of color, basic techniques in scenic art such as texturing, trompe l'oeil, work from design elevations, carving, and some work in plastics. (*Studio 3*) Wittwer
- 365 Scene Design I (II, 3)** Theories and techniques of scenic design, emphasizing conceptualization and development of stage setting through project designs for various stage forms, production styles, and periods. (*Lec. 2, Lab. 2*) Pre: 261 or permission of instructor. 366: Continuation of 365. (*Lec. 2, Lab. 2*) Pre: 365 or permission of instructor. Wittwer
- 371 Stage Lighting (I, 3)** Theories and techniques of lighting for the stage. A series of design projects introduces students to script analysis and conceptualization for lighting, instrumentation, and the use of color in stage lighting. Wittwer
- 381 History of Theatre to 1642 (I, 3)** General history of the theatre from its origins through the Renaissance. Introduction to non-Western drama of the period. Course focuses on the actor, staging, and the audience as they have influenced the development of the theatre and dramatic literature. (*Lec. 3*) Armstrong (A)
- 382 History of Theatre: Neoclassical Through the Nineteenth Century (II, 3)** Course includes non-Western drama of China, Japan, and Korea. Continuation of 381. (*Lec. 3*) Armstrong (A)
- 383 History of the Modern Theatre (I, 3)** Modern theatre and drama from 1880 to the present. Course includes new European stagecraft and its influence on the development of modernist and post-modernist drama, and contemporary non-Western drama. (*Lec. 3*) Armstrong (A)
- 384 American Theatre History (II, 3)** Origins and development of American theatre from the wilderness to the contemporary Broadway and off-Broadway stage, including the evolution of the musical play. Analysis of special contributions made by the grassroots movement, the university theatres, the Federal Theatre Project, and the regional theatre movement. (*Sem. 3*) Armstrong
- 391 Advanced Production Laboratory (I and II, 1-2)** Advanced instruction in theatre through tutored participation in crews and production assignments or projects for departmental productions. (*Lab. 2-4*) Pre: 291 or permission of staff. May be repeated for credit. Staff
- 400 Advanced Individual Problems in Theatre Studies (I and II, 1-3)** Advanced individual theatre work on an approved project under supervision of a staff member. Pre: permission of staff. May be repeated for a maximum of 6 credits. Not for graduate credit. Staff
- 401 Advanced Special Group Studies (I and II, 1-3)** Advanced group theatre work in approved production projects under supervision of a staff member. Pre: permission of staff. May be repeated for a maximum of 6 credits. Not for graduate credit. Staff
- 411, 412 Scene Study (I or II, 3 each)** Emphasis on the analysis and interpretation of assigned scenes representative of the major theatrical genres and styles. (*Studio 6*) 411: Pre: 311, 312, and permission of instructor; concurrent enrollment in 417. 412: Pre: 411 and permission of instructor; concurrent enrollment in 418. Not for graduate credit. Swift
- 413 Special Workshop in Acting (I or II, 3)** Techniques related to a specific aspect or style of performance: e.g., masks, puppetry, verse-speaking, and improvisation. The study is normally related to a departmental production or special project. (*Studio 4*) May be repeated for a maximum of 6 credits. Not for graduate credit. Guest Artist
- 415 Professional Internship (I or II, 12)** Designed for junior and first semester senior theatre majors who desire a professional experience. This program provides instruction and practical experience in cooperation with a faculty advisor and a professional theatre. (*Lec. 3, Practicum 9*) Pre: permission of chairperson. Not for graduate credit. Staff
- 417 Acting Workshop (I, 1)** A voice-movement workshop to be taken concurrently with 411. (*Studio 2*) Pre: concurrent enrollment in 411. Not for graduate credit. Guest Artist
- 418 Acting Workshop (II, 1)** A voice-movement workshop to be taken concurrently with 412. (*Studio 2*) Pre: concurrent enrollment in 412. Not for graduate credit. Guest Artist
- 420 Advanced Directing Practice (I and II, 1-3)** Special projects for the advanced directing student. Student directors will assume production responsibilities for all aspects of their projects, including a critical analysis upon completion. (*Studio 2-6*) Pre: 321, 322, or equivalent and permission of instructor. Not for graduate credit. Staff
- 441 Advanced Theatre Management (I and II, 3)** Individual projects of theatre management in a major departmental production or project. (*Lec. 3*) Pre: 341. Not for graduate credit. McGlasson
- 451 Stage Costume Technology (I, 3)** Construction methods and techniques appropriate to stage costuming with emphasis on major theatrical periods and productions. (*Lec. 1, Lab. 2*) Pre: 351 or 352 or permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit. Emery
- 455 Advanced Costuming (I or II, 1-3)** Individual projects in costume design for studio or major productions. Styles and theory related to projects; costume sketches and construction. (*Studio 2-6*) Pre: 355 and permission of instructor. Not for graduate credit. Emery
- 463 Special Workshop in Design and Technical Theatre (I and II, 3)** Techniques related to a specific aspect or style of production: e.g., masks, puppetry, wig-making, sound effects, projections, properties. Normally related to a departmental production or special project. (*Lab. 6*) May be repeated for a maximum of 6 credits. Not for graduate credit. Staff
- 465 Advanced Scene Design (I or II, 1-3)** Individual projects in designing scenery for studio and major productions. (*Studio 2-6*) Pre: 365 and permission of instructor. Not for graduate credit. Wittwer
- 475 Advanced Stage Lighting (I or II, 1-3)** Individual projects in lighting design and control for studio and major productions. (*Studio 2-6*) Pre: 371 and permission of chairperson. Not for graduate credit. Wittwer
- 481 Topics in Theatre (I or II, 3)** Selected topics in theatre. Pre: upper-division standing and permission of instructor. May be repeated for credit with different topic. Staff
- 482 Theatre Architecture in Western and Non-Western Drama (I, 3)** Examines staging practices of Western and non-Western drama from Egyptian staging of passion plays through the theatre practice of China, Japan, and Korea. (*Sem. 3*) Pre: upper-division standing and permission of instructor. In alternate years. Armstrong
- 483 Aesthetics and Criticism of the Theatre (II, 3)** Study of dramatic theory and criticism. (*Sem. 3*) Pre: upper-division standing and permission of instructor. In alternate years. Armstrong
- 484 Special Research Project (I and II, 3)** An in-depth study of a single critical or historical aspect of theatre. The subject is normally related to a departmental production. (*Lec. 2, Lab. 2*) Pre: permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit. Staff

## University Year for Action Internship Program (UYA)

*Director:* Associate Professor Schaffran

**301, 302 Field Experience I, II (I and II, 3–12 each)** Field experience gained at placement site through participation in the UYA program. The experience will be defined by a job description and learning contract arranged by the UYA director between the student intern, the intern's faculty advisor, and the relevant agency supervisor. *Pre:* junior or senior standing, a minimum quality point average of 2.50, participation in the UYA program, and permission of faculty advisor. *May be repeated for a maximum of 24 credits. S/U credit. Staff*

**303, 304 Colloquium I, II (I and II, 3 each)** Seminar format. Discussions of issues and problems raised by internship experiences in public service agencies. *Pre:* concurrent enrollment in 301 for 303, and in 302 for 304. *Required for and open only to students enrolled in the UYA program. S/U credit. Staff*

## Urban Affairs (URB)

*Director:* Professor Feld

**210 Introduction to Urban Affairs (I or II, 3)** Introductory course for students planning to concentrate in the urban affairs program. Investigation of the interdisciplinary approach in analyzing urban issues, potentials, and problems. (Lec. 3) Noring

**391, 392 Directed Study (I and II, 1–3 each)** Independent work in urban affairs for individual students or groups. *Pre:* 210. Staff

**397 Field Work in Urban Affairs (I and II, 0–12)** Field work as arranged. The student works as a part- or full-time worker in an urban affairs agency, under the supervision of a faculty advisor. *Pre:* 210 and two common-core courses or equivalent. Staff

**498, 499 Urban Affairs Senior Seminar (I and II, 3 each)** The study of a particular urban issue from an interdisciplinary perspective. Required of all urban affairs majors. *Pre:* 210 or permission of instructor, and junior or senior standing. *Not for graduate credit. Staff*

## Women's Studies (WMS)

*Coordinator:* Professor Reilly

**200 Introduction to Women's Studies (I or II, 3)** Images of women in American culture, the theories and processes of socialization, historical perspectives, and implications for social change. (Lec. 2, Rec. 1) Staff (S)

**300 Field Experience in Women's Studies (I and II, 3)** Supervised field work allowing students to learn through direct personal experience about the background, problems, and concerns of particular populations of women. (Lec. 1, Lab. 4) *Pre:* 200 and approval of advisor. Staff

**333 Women in Irish Society (I or II, 3)** Roles of Irish women will be examined through historical and contemporary writings. The decline of women's power will be investigated and their current status will be assessed, especially in the Republic. (Lec. 3) Reilly (F) (L)

**350 Special Topics in Women's Studies (I and II, 3)** Selected areas of study pertinent to women's studies. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. *May be repeated with different topic. A maximum of 6 credits may be taken for credit in women's studies. Staff*

**400 Critical Issues and Feminist Scholarship (I or II, 3)** Theoretical and value questions in women's studies; impact of feminist scholarship on traditional disciplines; feminist theory and research methods in selected fields; the future of feminism. (Sem. 3) *Pre:* 200 or permission of instructor. Staff

**450 Independent Study (I and II, 3)** Advanced work in women's studies under the direction of a faculty member affiliated with the women's studies program. *Pre:* junior or senior standing. *May be repeated for a maximum of 6 credits. Staff*

## Writing (WRT)

*Director:* Associate Professor Shamoon

**002 Writing Lab (I and II, 0)** Intensive study of grammar, punctuation, sentence formation, and paragraph skills. Operates on individual tutorial basis. Students may be referred. Staff

**101 Composition (I, II, and SS, 3)** Practice in the organization of ideas and language skills. Emphasizes steps in the writing process and responses to readings to develop ability, confidence, and clarity in writing. (Lec. 3) *Not open to students who have completed CMS 101. Not for major credit in English. Staff (Cw)*

**103 (or ENG 103) Introduction to Literature (I and II, 3)** The experience of literature through reading and discussion of fiction, poetry, and drama. Writing of six to eight essays on literary topics. (Lec. 3) *Requires writing skills beyond the elementary level. Staff (Cw)*

**112 English as a Second Language I (I and II, 3)** Equivalent to 101, but restricted to students whose mother tongue is not English who need special assistance in expressing themselves in English. Intermediate level. R.H. Tutt and Staff (Cw)

**122 English as a Second Language II (I and II, 3)** Continuation of 112 for foreign students demonstrating need. Advanced level. R.H. Tutt and Staff (Cw)

**123 College Writing for Returning Students (I and II, 3)** College-level readings and discussions as a basis for instruction and practice in specific types of written work required in college courses. *Offered through CCE. For students who are beginning*

*degree study after an interruption in formal education of at least three years. Not open to students with credit in BGS 100. Staff (Cw)*

**201 Intermediate Writing (I and II, 3)** Instruction in expository writing on various subjects of interest to students. Exploration of various styles in research writing. Staff (Cw)

**227 Business Communications (I and II, 3)** Basic business communications forms, group reports and presentations, effective use of electronic mail systems, and design of graphic aids for successful visual communication. (Lec. 3) *Open to business majors only. Martin and Staff (Cw)*

**301 Advanced Writing (I and II, 3)** Instruction in writing for diverse audiences and situations. Emphasizes language, voice, tone, and the development of a personal style. Development of a portfolio of essays and longer papers. *Competence in basic skills required. Staff (Cw)*

**333 Scientific and Technical Writing (I and II, 3)** Practice in specific forms of writing in the scientific and technical fields. *Competence in basic skills required. Vaughn (Cw)*

**435 (or EDC 435) The Teaching of Composition (I and II, 3)** Philosophy, materials, and methods underlying the teaching of writing with emphasis on current approaches including the application of linguistics. Offers practice in writing workshop techniques, marking, constructing assignment sequences, and individualized instruction. (Sem. 3) *Pre:* junior standing or permission of instructor. Schweigler and Martin

**512 Modern Rhetorical Theory (I, 3)**  
**535 Theories and Strategies in the Teaching of Writing (II, 3)**

## Zoology (ZOO)

*Chairperson:* Associate Professor Bibb

**101 Animal Diversity (I, 3)** Survey of animal groups with emphasis on invertebrate forms, laboratory dissections, observations, and experiments. Occasional field trips. Lectures stress progressive specialization of structures and their functions. (Lec. 2, Lab. 2) Bullock

**102 Chordate Anatomy (II, 3)** Functional anatomy of chordates, including a consideration of the genesis of principal organ systems. Laboratory consists of detailed, integrated study of selected chordate forms. (Lec. 2, Lab. 3) Goertemiller

**104 Population and Community Dynamics (II, 3)** Principles of population and community dynamics from empirical and mathematical perspectives. Topics include population growth; species interactions; optimal foraging strategy; niche theory; natural selection. Laboratory sessions incorporate use of natural selection, use of computers, problem solving, and population growth in *Tribolium* and *Daphnia*, competition and predation. (Lec. 2, Lab. 3) Costantino and Staff

**111 General Zoology (I and II, 4)** Physiology, development, genetics, ecology, and study of types of animals, with emphasis on evolution. Introduction to further studies in zoology for both potential professional and nonprofessional students. (Lec. 3, Lab. 2) *Not open to students with credit in BIO 102.* Heppner (N)

**121 Human Anatomy (I and II, 4)** Elementary anatomy of the organ systems, studied with the aid of charts, models, and dissection of the cat. (Lec. 3, Lab. 3) *Open to physical education, dental hygiene, nursing, pharmacy, and respiratory therapy majors only.* Bibb and Shoop

**141 Introduction to the Biology of Marine Animals (I, 3)** Environmental adaptations, physiology, and behavior of marine animals. Description of methods of study of marine animals. (Lec. 2, Rec. 1) *Offered in alternate years. Next offered fall 1993.* Hill

**201 General Animal Physiology (I, 3)** Basic principles of physiology with emphasis on cellular and membrane mechanisms. Topics include bioenergetics and metabolism, enzymes, respiratory functions of blood cells, osmoregulation, bioelectricity and motility, cellular responses to humoral stimuli. (Lec. 2, Lab. 3) *Pre: two semesters of biology and one semester of chemistry recommended.* Kass-Simon

**202 Animal Development (II, 3)** Descriptions and analyses of developmental changes in animals based on experimentally derived principles. (Lec. 2, Lab. 3) *Pre: two semesters of zoology.* Bibb

**203 Introduction to Evolutionary Genetics (I, 3)** The genetic basis of evolutionary change. Topics of the origin, maintenance, and significance of genetic variation. The Darwinian revolution. (Lec. 2, Lab. 3) *Pre: two semesters of biological science.* Costantino

**242 Introductory Human Physiology (I and II, 3)** Functions of the organ systems of the human body and their coordination in the whole human organism. Attention is given to the needs of students preparing for health-related professions. (Lec. 3) *Pre: 111 or 121 or BIO 102. Not for major credit in zoology.* Hammen and Specker

**244 Introductory Human Physiology Laboratory (I and II, 1)** Mechanisms of physiological processes are illustrated by experiments on vertebrate animals. (Lab. 3) *Pre: credit or concurrent enrollment in 242. Not open to students with credit in 442.* Hammen or Specker

**262 (or BOT 262) Introductory Ecology (I, 3)** Structure and function of ecosystems, limiting factors, population dynamics, population interactions, and community relationships. Selected habitats and general ecological effects of humans. (Lec. 3) *Pre: BIO 101, 102, or BOT 111 and ZOO 111 or equivalent.* Harlin, Killingbeck, Shoop, and Staff

**286 Humans, Insects, and Disease (I, 3)** Role of insects, ticks, and mites as vectors and as direct agents of diseases in humans; factors affecting the

spread of these diseases and their role in our cultural development. (Lec. 3) *Not for major credit in zoology.* Hyland (N)

**301 Physiological Experiments (II, 3)** Methods of investigating physiological problems in the laboratory. Topics and techniques will be presented briefly, then employed in an individual laboratory project. (Conf. 1, Lab. 4) *Pre: any four of 101, 102, 104, 201, 202, 203.* Hammen

**327 Vertebrate Histology (I, 3)** A study of the normal microscopic organization of the cells and tissues that compose the organ systems of vertebrates. An introduction to histochemical and cytochemical methods is included. (Lec. 3) *Pre: one year of biological sciences and one semester of organic chemistry.* Goertemiller

**329 Vertebrate Histology Laboratory (I, 1)** A detailed study in the laboratory of prepared microscope slides of cells and tissues of vertebrates. (Lab. 3) *Pre: credit or concurrent enrollment in 327.* Goertemiller

**331 Parasitology (II, 3)** Structure, life cycles, ecology, and economic relationships of the parasitic protozoa, helminths, and arthropods. Origin and biological significance of parasitism and host-parasite relationships. Encompasses experimental laboratory work on life cycles of selected species and collection and identification of local parasitic forms including those from the marine fauna. (Lec. 2, Lab. 3) *Pre: two semesters of biology.* Hyland

**341 Basic Cellular Physiology (II, 3)** Cellular processes are examined with respect to chemical composition of cells and media, membranes and organelles, exchange of materials and energy with environment, cellular replication, activities such as movement, conduction. (Lec. 2, Lab. 3) *Pre: one semester of chemistry and one semester of either zoology or biology.* Hammen

**343 Physiology of Exercise (I, 3)** Applied human physiology, with applications to work, health, physical education, and athletic sports. Particular attention to adjustments of the circulatory and respiratory systems during physical activity. Application of latest technology in the field of fitness and health. (Lec. 2, Lab. 3) *Pre: 201 or 242.* Staff

**355 Marine Invertebrates of Southern New England (SS, 3)** Collection, identification, and preparation of marine invertebrates of southern New England. Emphasis on fieldwork and preparation of specimens for scientific study. (Lab. 6) *Pre: 101 or permission of instructor.* Bullock

**373 History of Biology**  
See History 373.

**381 Introductory Entomology**  
See Plant Sciences 385.

**382 Introductory Entomology Lab**  
See Plant Sciences 386.

**391, 392, 393, 394 Assigned Work (I and II, 1-3 each)** Advanced undergraduate work in anatomy, endocrinology, physiology, histology, embryol-

ogy, entomology, taxonomy, ecology, marine biology, and related subjects. Individual or group work by prior written arrangement with a staff member and with permission of chairperson. Staff

**395 Seminar in Zoology (I and II, 1)** Introduction to sources of zoological literature. Presentation of reports of scientific papers by students, with discussion by the class. (Lec. 1) *Pre: junior standing and three courses in zoology.* S/U credit. Kass-Simon

**397, 398 Colloquium in Zoology (I and II, 0 each)** Introduction to modern scholarly work in zoology. Lectures by visiting and resident scholars, with questions from the audience. Expected of students enrolled in the zoology honors program. *Pre: Open to biology and zoology majors only.* Twombly

**437 Fundamentals of Molecular Biology**  
See Botany 437.

**441 (443) Environmental Physiology of Animals (I, 3)** The dynamics of the interaction of animal functions with the environment. Emphasis on quantitative study of physiological adaptations to environmental fluctuations. (Lec. 3) *Pre: 201 or 341. In alternate years. Next offered in 1993.* Hill

**442 Mammalian Physiology (II and SS, 3)** Intensive study of the physiological mechanisms that regulate the animal body and its organ systems. Emphasis on knowledge obtained from experimental physiology. Class discussion of applied physiology. (Lec. 2, Rec. 1) *Pre: one semester each of anatomy and physiology.* Hill

**444 Experimental Physiology (II, 1)** Introduction to noninvasive research methods in physiology. Emphasis on experimental design, recording and analyzing data, and use of laboratory notebooks in writing for publication. (Lab. 3) *Pre: 201 or three semesters of biological science.* Hill

**445 Endocrinology I (I, 3)** Comparative approach to the endocrine regulation of the organism and to the molecular basis for hormone action. (Lec. 3) *Pre: BCP 311 or equivalent and ZOO 201 or 442 or equivalent. In alternate years. Next offered fall 1993.* Specker

**446 Introduction to Cellular and Behavioral Neurobiology (II, 3)** Basic principles of excitable cell function. Emphasis will be on cellular and membrane mechanisms as they relate to behavior. (Lec. 3) *Pre: an animal physiology course; one semester of calculus, physics, or biochemistry is strongly recommended or permission of instructor. Next offered spring 1994. Not for graduate credit.* Kass-Simon

**455 (or BOT 455) Marine Ecology (I, 3)** Investigation of the structure and dynamics of various marine ecosystems. Includes mineral cycling, energy flow, community and population organization, and behavioral ecology in selected marine environments. (Lec. 3) *Pre: 262 or permission of instructors. In alternate years. Next offered 1992-93.* Cobb and Harlin.

**457 (or BOT 457) Marine Ecology Laboratory (I, 1)** Field and laboratory work on community relationships of dominant organisms in Rhode Island marine environments. (Lab. 3) *Pre: concurrent enrollment in 455 and permission of instructors. Limited to 15 students. In alternate years. Next offered 1992-93.* Cobb and Harlin

**460 Advanced Population Biology (II, 3)** An extension of the seminal views of Fisher, Wright, Haldane, Volterra, and Lotka on the biology of populations, especially in the areas of genetics, ecology, and demography. (Lec. 3) *Pre: MTH 131 and 132 or 141 and 142.* Costantino

**465 Limnology (I, 4)** The study of continental waters. Emphasis on ponds and lakes, including uptake kinetics, population biology and community structure of lacustrine organisms, as well as physical and chemical properties of fresh water. (Lec. 3, Lab. 3) *Pre: 104 or 262 and one semester of chemistry.* Twombly

**466 Vertebrate Biology (II, 3)** Life histories, adaptations, ecology, classifications, and distribution of vertebrate animals. Laboratory and extensive field work on local vertebrates. (Lec. 2, Lab. 3) *Pre: 104 or 262 recommended.* Krueger

**467 Animal Behavior (II, 3)** Ethology and socio-biology of animals. Topics in the control and development of behavior patterns, orientation in time and space, social behavior, and behavioral ecology. (Lec. 2, Lab. 3) *Pre: two semesters of zoology; 104 or 262 recommended.* Cobb

**491, 492 Research in Animal Biology (I, II, or SS, 1-3 each)** Undergraduate research in an area of animal biology. Individual or group guided research. A proposal must be approved by a faculty member and the chairperson. *Not for graduate credit.* Staff

**501 Systematic Zoology (I, 3)**

**505 Biological Photography (I, 2)**

**508 Seminar in Zoological Literature (I, 1)**

**521 (or MIC 521) Recent Advances in Cell Biology (I, 1)**

**531 Advanced Parasitology Seminar (II, 2)**

**541 Comparative Physiology (I, 3)**

**545 Endocrinology II (I, 3)**

**546 Introduction to Neurobiology (II, 2)**

**547 Laboratory in Electrophysiological Techniques (II, 2)**

**549, 550, 551 Advanced Topics in Neurophysiology (II, 3 each)**

**561 Behavioral Ecology (I, 3)**

**562 Seminar in Behavioral Ecology (I, 1)**

**563 Ichthyology (I, 3)**

**566 Herpetology (II, 3)**

**567 Natural Selection (II, 3)**

**568 Ornithology (II, 2)**

**570 Field Biology of Fishes (II, 3)**

**573 Developmental Genetics (I, 3)**

**579 (or BOT 579) Advanced Genetics Seminar (I and II, 1)**

**581 General Acarology (I, 3)**

**586 Medical and Veterinary Entomology (II, 3)**

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- Smith, Lewis T., Ph.D., *Professor of Fisheries, Aquaculture, and Pathology*
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- Stone, Leslie R., M.S., *Professor of Physics*
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 Yates, Vance J., Ph.D., *Professor of Animal and Veterinary Science*  
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- Albert, Alexa, *Associate Professor of Sociology and Anthropology*, 1987, 1982. B.A., Cedar Crest College; M.A., 1971, Lehigh University; Ph.D., 1978, Bryn Mawr College.
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- Miller, Robert H., *Dean of the College of Resource Development, Director of the Cooperative Extension Service, and Professor of Natural Resources Science*, 1989. B.S., 1958, University of Wisconsin at River Falls; M.S., 1961, Ph.D., 1964, University of Minnesota.
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- Nelson, James H., *Adjunct Assistant Professor of Physics*, 1985. M.S., 1968, Clarkson College of Technology.
- Nirenberg, Ted D., *Adjunct Assistant Professor of Psychology*, 1987. Ph.D., 1980, University of North Carolina.
- Oliver, Ernest J., *Adjunct Instructor of Pharmacy Practice and Coordinator of Pharmacy Experiential Programs*, 1990. M.B.A., 1985, Bryant College.
- Olsen, Stephen, *Adjunct Associate Professor of Natural Resources Science*, 1987. M.S., 1970, University of Rhode Island.
- Olson, David G., *Adjunct Associate Professor of Industrial Engineering*, 1980. Ph.D., 1971, Northwestern University.
- Omar, Mostafa M.M., *Adjunct Assistant Professor of Pharmacognosy and Environmental Health Sciences*, 1985. Ph.D., 1982, University of Rhode Island.
- Opal, Steven M., *Adjunct Associate Professor of Medical Technology*, 1988. M.D., 1976, Albany Medical College of Union University.
- Ortiz, Carlos R., *Adjunct Instructor of Pharmacy Practice*, 1990. B.S., 1966, Wayne State University.
- Osborne, Elaine M., *Adjunct Assistant Professor of Nursing*, 1985. M.S., 1977, Boston College.
- Osgood, Charles F., *Adjunct Professor of Mathematics*, 1980. Ph.D., 1964, University of California, Berkeley.
- Owen, Patricia M., *Adjunct Instructor of Nursing*, 1991. M.S., 1980, Boston University.
- Pallonen, Unto E., *Adjunct Associate Professor of Psychology*, 1992, 1990. Ph.D., 1986, University of Minnesota.
- Palmer, Judy A., *Adjunct Instructor of Nursing*, 1988. M.S.N., 1982, Boston College.
- Pancierera, Toni M., *Adjunct Assistant Professor of Nursing*, 1986. M.S., 1981, University of Rhode Island.
- Paolino, Ronald M., *Adjunct Associate Professor of Psychology*, 1981. Ph.D., 1963, Purdue University.
- Patton, Alexander J., *Adjunct Professor of Mechanical Engineering and Applied Mechanics*, 1989. Ph.D., 1972, University of Rhode Island.
- Paxson, MaryAnn Araujo, *Adjunct Assistant Professor of Psychology*, 1991. Ph.D., 1988, University of Rhode Island.
- Pechennik, Jan A., *Adjunct Associate Professor of Fisheries, Animal, and Veterinary Science*, 1991. Ph.D., 1978, University of Rhode Island.
- Pedro, Henrique T., *Adjunct Instructor of Pharmacy Practice and Coordinator of Ambulatory Care Programs*, 1990. B.S., 1977, University of Rhode Island.
- Pell, Claiborne D., *Adjunct Professor of Marine Affairs*, 1982. M.A., 1946, Columbia University.
- Pesch, Gerald G., *Adjunct Professor of Oceanography*, 1992. Ph.D., 1972, University of Rhode Island.
- Phelps, Donald K., *Adjunct Professor of Oceanography*, 1969. Ph.D., 1964, University of Rhode Island.
- Pires, Abilio, *Adjunct Assistant Professor of Pharmacy Practice*, 1992. B.S., 1976, University of Rhode Island.
- Pivarnik, Philip E., *Adjunct Assistant Professor of Pharmacy Practice*, 1992. Ph.D., 1990, University of Rhode Island.
- Plummer, Barry A., *Adjunct Assistant Professor of Psychology*, 1991. Ph.D., 1981, University of Rhode Island.
- Plummer, Kevin, *Adjunct Assistant Professor of Psychology*, 1985. Ph.D., 1983, University of Rhode Island.
- Powell, Holly, *Adjunct Assistant Professor of Nursing*, 1986. M.S., 1978, Medical College of Georgia.
- Powell, Kenneth A., *Adjunct Instructor of Pharmacy Practice*, 1990. B.S., 1972, University of Rhode Island.
- Prager, Jan C., *Adjunct Professor of Microbiology*, 1988. Ph.D., 1961, New York University.
- Profughi, Victor L., *Adjunct Professor of Political Science*, 1991. Ph.D., 1967, University of Pittsburgh.
- Pruell, Richard J., *Adjunct Professor of Oceanography*, 1990. Ph.D., 1984, University of Rhode Island.
- Rapport, Mark D., *Adjunct Associate Professor of Psychology*, 1987. Ph.D., 1980, Florida State University.
- Raymond, Patricia M., *Adjunct Assistant Professor of Gerontology*, 1982, and *Adjunct Assistant Professor of Psychology*, 1986. Ph.D., 1981, University of Rhode Island.
- Rettig, Harold, *Adjunct Assistant Professor of Pharmaceutics*, 1986. Ph.D., 1973, University of Minnesota.

- Reynolds, Charles C., *Adjunct Professor of Industrial Engineering*, 1982. Ph.D., 1963, Massachusetts Institute of Technology.
- Richardson, Roger, *Adjunct Associate Professor of Psychology*, 1979. Ph.D., 1967, Louisiana State University.
- Riggs, Suzanne G., *Adjunct Assistant Professor of Nursing*, 1987. M.D., 1972, Harvard University.
- Riley, Jeanne, *Adjunct Clinical Instructor of Medical Technology*, 1983. B.S., 1979, University of Rhode Island.
- Rippey, Scott R., *Adjunct Assistant Professor of Microbiology*, 1984. Ph.D., 1979, University of Rhode Island.
- Rivet, Susan, *Adjunct Instructor of Pharmacy Practice*, 1990. B.S., 1980, Rhode Island College.
- Roberti, Ann Marie, *Adjunct Clinical Assistant Professor of Medical Technology*, 1986. M.S., 1980, Southeastern Massachusetts University.
- Roberts, Eric M., *Adjunct Assistant Professor of Botany and Plant Sciences*, 1991. Ph.D., 1991, University of Texas, Austin.
- Robinson, Ann, *Adjunct Assistant Professor of Medical Technology*, 1988. Ph.D., 1980, University of Chicago.
- Rodd, Noreen, *Adjunct Instructor of Library and Information Studies*, 1992. Ph.D., 1977, University of Pittsburgh.
- Rodman, Clarke A., *Adjunct Research Professor of Mechanical Engineering and Applied Mechanics*, 1991. A.B., 1946, Harvard University.
- Rogers, Beverly B., *Adjunct Assistant Professor of Microbiology*, 1990. M.D., 1982, University of Texas, Austin.
- Roman, Charles T., *Adjunct Professor of Oceanography*, 1990. Ph.D., 1981, University of Delaware.
- Rosenzweig, Susan, *Adjunct Instructor of Library and Information Studies*, 1991. M.L.S., 1975, Drexel University.
- Ross, Richard, *Adjunct Instructor of Library Science and Information Studies*, 1990. Ph.D., 1991, Boston College.
- Ross, William, *Adjunct Instructor of Library Science and Information Studies*, 1991. M.L.S., 1980, University of Maryland.
- Roy, Louis G., *Adjunct Instructor in Pharmacy Administration*, 1983. M.S., 1968, University of Rhode Island.
- Rubano, Gregory, *Adjunct Instructor of English*, 1991. M.A.T., 1973, Brown University.
- Rubin, Alvin F., *Adjunct Assistant Professor of Gerontology*, 1980. M.S., 1958, Yeshiva University.
- Rubin, Robert V., *Adjunct Assistant Professor of Computer Science and Statistics*, 1989. Ph.D., 1988, Brown University.
- Rudnic, Edward M., *Adjunct Assistant Professor of Pharmaceutics*, 1988. Ph.D., 1982, University of Rhode Island.
- Rumowicz, Edmund S., *Adjunct Associate Professor of Textiles, Fashion Merchandising, and Design*, 1987. B.S., 1957, University of Rhode Island.
- Ryan, Thomas M., *Adjunct Instructor of Pharmacy Practice*, 1990. B.S., 1975, University of Rhode Island.
- Sado, Pierre A., *Adjunct Professor of Pharmaceutics*, 1992.
- Sameroff, Arnold J., *Adjunct Professor of Psychology*, 1990. Ph.D., 1965, Yale University.
- Sampson, Alfred, *Adjunct Clinical Instructor of Medical Technology*, 1986. B.S., 1976, University of Rhode Island.
- Schatz, Daniel J., *Adjunct Assistant Professor of Community Planning and Area Development*, 1982. J.D., 1978, University of Maine.
- Schatz, Natalie, *Adjunct Instructor of Library and Information Studies*, 1991. M.S., 1967, Simmons College; M.A., 1971, Harvard University.
- Schock, Steven G., *Adjunct Assistant Professor of Ocean Engineering*, 1990. Ph.D., 1989, University of Rhode Island.
- Schoman, Lynne, *Adjunct Assistant Professor of Nursing*, 1992. M.S., 1982, Adelphi University.
- Schoman, Lynne, *Adjunct Assistant Professor of Nursing*, 1992. M.S., 1982, Adelphi University.
- Schwartz, Stanley, *Adjunct Clinical Associate Professor of Medical Technology*, 1986. M.D., 1974, University of Connecticut School of Medicine.
- Scott, H. Denman, *Adjunct Professor of Public Health*, 1987. M.D., 1966, Columbia University.
- Sebelia, Linda, *Adjunct Associate Professor of Food Science and Nutrition*, 1989. M.S., 1974, Ohio State University.
- Seidler, Susan S., *Adjunct Instructor of Nursing*, 1989. M.S., 1986, University of Rhode Island.
- Seifer, Ronald, *Adjunct Assistant Professor of Psychology*, 1990. Ph.D., 1981, University of Rochester.
- Seifert, Gerald, *Adjunct Professor of Marine Affairs*, 1982. J.D., 1964, Indiana University.
- Serabian, Beverly, *Adjunct Assistant Professor of Gerontology*, 1983. Ph.D., 1981, California School of Professional Psychology.
- Seymour, Charles, *Adjunct Assistant Professor of Medical Technology*, 1988. Ph.D., 1975, Cornell University.
- Shankweiler, Donald P., *Adjunct Professor of Psychology*, 1984. Ph.D., 1960, University of Iowa.
- Sharma, Surendra, *Adjunct Associate Professor of Zoology*, 1989. Ph.D., 1974, Indian Institute of Technology, India.
- Shaw, Robert B., *Adjunct Associate Professor of Community Planning and Area Development*, 1982, and *Adjunct Associate Professor of Civil and Environmental Engineering*, 1985. M.S., 1966, Purdue University.
- Sheff, Michael, *Adjunct Professor of Medical Technology*, 1988. Ph.D., 1957, University of Sheffield, England.
- Shepp, Bryan E., *Adjunct Professor of Communicative Disorders*, 1985. Ph.D., 1959, University of Maryland.
- Sherman, Kenneth, *Adjunct Professor of Oceanography*, 1977. D.Sc., 1978, Marski Instytut Rybacki, Gdynia, Poland.
- Shonting, David H., *Adjunct Professor of Ocean Engineering*, 1987. Sc.D., 1966, Massachusetts Institute of Technology.
- Silva, Barbara, *Adjunct Instructor of Nursing*, 1992. M.S., 1990, University of Rhode Island.
- Silverman, Gerald, *Adjunct Professor of Food Science and Nutrition*, 1969. Ph.D., 1954, Cornell University.
- Simeoni, Michael L., *Adjunct Assistant Professor of Pharmacy Practice*, 1990. M.B.A., 1987, Bryant College.
- Sindermann, Carl J., *Adjunct Professor of Oceanography*, 1981. Ph.D., 1953, Harvard University.
- Singer, Roberta N., *Adjunct Instructor of Communicative Disorders*, 1986. M.S., 1978, University of Rhode Island.
- Sissenwine, Michael P., *Adjunct Professor of Oceanography*, 1981. Ph.D., 1975, University of Rhode Island.
- Sitkin, Ann Girona, *Adjunct Instructor of Library Science and Information Studies*, 1991. M.L.S., 1970, Columbia University.
- Smeal, Steven, *Adjunct Clinical Instructor of Medical Technology*, 1980. B.S., 1978, University of Rhode Island.
- Smith, Carol J., *Adjunct Instructor of Nursing*, 1991. M.S., 1987, University of Rhode Island.
- Smith, Richard D., *Adjunct Assistant Professor of Nursing*, 1991. M.D., 1971, Georgetown University School of Medicine.
- Smith, Tim D., *Adjunct Professor of Oceanography*, 1991. Ph.D., 1973, University of Washington at Seattle.
- Soja, Walter D., *Adjunct Instructor in Pharmacy Practice*, 1981. M.S., 1978, Northeastern University.
- Solomon, Elizabeth Anne, *Adjunct Instructor of Nursing*, 1989. M.S., 1986, University of Hawaii at Manoa.
- Sorensen, Jens C., *Adjunct Associate Professor of Marine Affairs*, 1985. Ph.D., 1978, University of California, Berkeley.

- Souza, Cheryl M., *Adjunct Clinical Instructor of Medical Technology*, 1988. B.S., 1979, Southeastern Massachusetts University.
- Spagnolo, John, *Adjunct Assistant Professor of Pharmacy Practice*, 1992. M.A., 1984, University of Rhode Island.
- Sparadeo, Francis R., *Adjunct Assistant Professor of Psychology*, 1984. Ph.D., 1981, University of Rhode Island.
- Stamoulis, Chrysanthe, *Adjunct Assistant Professor of Nursing*, 1992. M.B.A., 1983, Bryant College.
- Stankus, Tony, *Adjunct Instructor of Library and Information Studies*, 1982. M.L.S., 1976, University of Rhode Island.
- Stauffer, Kenneth R., *Adjunct Assistant Professor of Food Science and Nutrition*, 1986. Ph.D., 1979, Rutgers—The State University.
- Sterling, Harry S., *Adjunct Assistant Professor of Human Development, Counseling, and Family Studies*, 1986. Ph.D., 1979, Cornell University.
- Stern, Sydney V., *Adjunct Professor of Management*, 1990. Ph.D., 1962, Georgia Institute of Technology.
- Stetsko, Greg, *Adjunct Assistant Professor of Pharmaceutics*, 1992. Ph.D., 1983, Purdue University.
- Stottmeier, Kurt D., *Adjunct Professor of Medical Technology*, 1988. Ph.D., 1962, Universities of Hanover and Berlin, Germany.
- Strauss, Charles A., *Adjunct Associate Professor of Computer Science*, 1992. Ph.D., 1969, Brown University.
- Streit, Roy L., *Adjunct Associate Professor of Mathematics*, 1980. Ph.D., 1978, University of Rhode Island.
- Stevens, Benjamin H., *Adjunct Professor of Community Planning*, 1992. Ph.D., 1959, Massachusetts Institute of Technology.
- Stolze, Joachim, *Adjunct Assistant Professor of Physics*, 1992. Ph.D., 1982, University of Dortmund, Germany.
- Sullman, Stephen, *Adjunct Instructor of Pharmacy*, 1987. B.S., 1981, University of Connecticut.
- Svengalis, Kendall, *Adjunct Instructor of Library and Information Studies*, 1987. M.L.S., 1975, University of Rhode Island.
- Sweeney, Muriel, *Adjunct Instructor of English*, 1991. M.A., 1972, University of Rhode Island.
- Sylvia, J. Gerin, *Adjunct Special Lecturer in Industrial Engineering*, 1980. M.Ed., 1969, Northeastern University.
- Tarlov, Elizabeth C., *Adjunct Instructor of Nursing*, 1989. M.S., 1983, Pace University, Lienhard School of Nursing.
- Taylor, Suzanne, *Adjunct Professor of Labor and Industrial Relations*, 1987. Ph.D., 1970, University of Connecticut.
- Taylor, William R., *Adjunct Professor of Food Science and Nutrition*, 1960.
- Taylorson, Raymond B., *Adjunct Professor of Plant Sciences*, 1990. Ph.D., 1960, University of Wisconsin, Madison.
- Tebbetts, Diane, *Adjunct Assistant Professor of Library and Information Studies*, 1985. D.A., 1985, Simmons College.
- Telfeyan, Madeleine, *Adjunct Instructor of Library and Information Studies*, 1992. M.L.S., 1985, Simmons College.
- Terpolilli, Richard L., *Adjunct Instructor of Pharmacy*, 1987. B.S. 1972, University of Rhode Island.
- Thomas, Carol J., *Adjunct Professor of Community Planning and Area Development*, 1971. M.S., 1948, University of Connecticut.
- Thompson, Kenneth P., *Adjunct Instructor of Journalism*, 1990. B.A., 1989, University of Rhode Island.
- Thompson, Laura, *Adjunct Instructor of Natural Resources Science*, 1988. M.R.P., 1988, University of Pennsylvania.
- Thompson, William, *Adjunct Instructor of Library and Information Studies*, 1992. M.S.L.S., 1964, Louisiana State University.
- Thorn, Deborah B., *Adjunct Instructor of Pharmacy*, 1987. B.S., 1979, University of Rhode Island.
- Thursby, Glen D., *Adjunct Associate Professor of Botany*, 1987. Ph.D., 1983, University of Rhode Island.
- Tierney, Timothy, *Adjunct Assistant Professor of Education*, 1981. M.A., 1976, University of Rhode Island.
- Tobias, Jerry V., *Adjunct Professor of Communicative Disorders*, 1985. Ph.D., 1950, Western Reserve University.
- Tout, Doreen, *Adjunct Clinical Instructor of Medical Technology*, 1989. B.S., 1985, Rhode Island College.
- Trainees, Mark L., *Adjunct Assistant Professor of Nursing*, 1989. M.D., 1981, Baylor University.
- Tucker, Wayne, *Adjunct Assistant Professor of Mechanical Engineering and Applied Mechanics*, 1991. Ph.D., 1987, University of Rhode Island.
- Turnbaugh, Sarah P., *Adjunct Assistant Professor of Sociology and Anthropology*, 1985. M.S., 1977, University of Rhode Island.
- Turner, Ruth D., *Adjunct Professor of Zoology*, 1986. Ph.D., 1954, Radcliffe College, Harvard University.
- Umrigar, Cyrus J., *Adjunct Associate Professor of Physics*, 1992. Ph.D., 1980, Northwestern University.
- Uustall, Diann B., *Adjunct Assistant Professor of Nursing*, 1986. Ed.D., 1983, University of Massachusetts.
- Veri, Albert R., *Adjunct Associate Professor of Community Planning and Area Development*, 1984. M.L.A., 1969, Harvard University.
- Vocino, Michael, *Adjunct Instructor of Library and Information Studies*, 1992. M.A., 1981, University of Rhode Island.
- Vouros, Paul, *Adjunct Professor of Biochemistry and Biophysics*, 1988. Ph.D., 1965, Massachusetts Institute of Technology.
- Wachtel, Tom J., *Adjunct Associate Professor of Nursing*, 1989. M.D., 1973, Faculte de Medecine de Strasbourg, France.
- Wagner, Richard L., *Adjunct Professor of Pharmacy Practice*, 1985. M.D., 1975, Yale Medical School.
- Walsh, Joanna M., *Adjunct Instructor of Library and Information Studies*, 1990. M.L.S., 1972, Simmons College; M.A., 1977, Northeastern University.
- Warren, Frances H., *Adjunct Clinical Assistant Professor of Medical Technology*, 1986. M.S., 1981, Southeastern Massachusetts University.
- Waters, William J., *Adjunct Assistant Professor of Nursing*, 1985. Ph.D., 1974, The Ohio State University.
- Watkins, William D., *Adjunct Professor of Microbiology*, 1987. Ph.D., 1979, University of Rhode Island.
- Weinberg, Henry, *Adjunct Associate Professor of Mathematics*, 1983. Ph.D., 1974, New York University.
- Weinstein-Farson, Laurie L., *Adjunct Assistant Professor of Sociology and Anthropology*, 1988. Ph.D., 1983, Southern Methodist University.
- Welch, Dennis W., *Adjunct Assistant Professor of Pharmacy Practice*, 1992. B.S., 1971, University of Rhode Island.
- Welch, Frankie, *Adjunct Associate Professor of Textiles, Fashion Merchandising, and Design*, 1987. B.A., 1948, Furman University.
- Welsh, Oliver L., *Adjunct Professor of Communicative Disorders*, 1979. Ed.D., 1964, Boston University.
- Weygand, Robert A., *Adjunct Assistant Professor of Landscape Architecture*, 1989. B.F.A., 1971, B.S.C.E., 1976, University of Rhode Island.
- Weyhing, Mary, *Adjunct Assistant Professor of Psychology*, 1985. Ph.D., 1983, University of Rhode Island.
- Whelen-Knapp, Christine M., *Adjunct Instructor of Nursing*, 1991. M.S., 1975, Boston University.
- Whitaker, Susan, *Adjunct Clinical Instructor of Medical Technology*, 1980. B.S., 1967, University of Rhode Island.
- White, Harvey J., *Adjunct Assistant Professor of Electrical Engineering*, 1987. M.D., 1978, Wayne State University.

- White, William T., *Adjunct Instructor of Nursing*, 1986. M.S., 1983, University of Rhode Island.
- Wiberg, Donna, *Adjunct Assistant Professor of Nursing*, 1988. M.S.N., 1980, University of Rhode Island.
- Wild, Eugenia, *Adjunct Instructor of Women's Studies*, 1990. B.A., 1983, C.W. Post College.
- Wilk, Jacqueline B., *Adjunct Assistant Professor of Psychology*, 1988. Ph.D., 1983, University of Rhode Island.
- Willard, Deborah, *Adjunct Clinical Instructor of Medical Technology*, 1989. B.S., 1973, Rhode Island College.
- Williams, David O., *Adjunct Assistant Professor of Biomedical Engineering*, 1977. M.D., 1969, Hahnemann Medical College.
- Williams, Gloria K., *Adjunct Instructor of Microbiology*, 1988. M.S., 1979, Southeastern Massachusetts University.
- Winsor, Davis S., *Adjunct Assistant Professor of Community Planning and Area Development*, 1985. M.C.P., 1980, University of Rhode Island.
- Wolinski, Mary E., *Adjunct Assistant Professor of Music*, 1992. Ph.D., 1988, Brandeis University.
- Wood, David H., *Adjunct Associate Professor of Mathematics*, 1988. Ph.D., 1972, University of Rhode Island.
- Woodruff, Charles W., *Adjunct Professor of Pharmaceutics*, 1986. Ph.D., 1970, Purdue University.
- Wright, Thomas E., *Adjunct Professor of Civil and Environmental Engineering*, 1983. M.S.E., 1975, West Virginia University.
- Wyman, Cynthia M., *Adjunct Assistant Professor of Pharmacy Practice*, 1992. M.B.A., 1986, Bryant College.
- Young, Michael A., *Adjunct Associate Professor of Psychology*, 1985. Ph.D., 1974, Adelphi University, Institute of Advanced Psychological Studies.
- Younkin, Burrows T., *Adjunct Professor of Medical Technology*, 1988. Ph.D., 1981, Columbia Pacific University.
- Zackroff, Robert V., *Adjunct Professor of Microbiology*, 1986. Ph.D., 1979, Temple University.
- Zartler, Ann S., *Adjunct Assistant Professor of Psychology*, 1986. Ph.D., 1978, University of Rhode Island.
- Zinner, Steven H., *Adjunct Professor of Pharmacy Practice*, 1990. M.D., 1965, University of Pennsylvania.

## Clinical Appointments

- Aschaffenburg, Peter H., *Clinical Instructor in Dental Hygiene*, 1984. D.M.D., 1981, Harvard School of Dental Medicine.
- Allen, Stephen W., *Clinical Instructor in Dental Hygiene*, 1989. D.D.S., 1980, Ohio State University College of Dentistry.
- Barry, Thomas F., *Clinical Instructor in Dental Hygiene*, 1989. D.D.S., 1951, University of Maryland School of Dentistry.
- Bhattacharya, Lalita, *Clinical Instructor in Dental Hygiene*, 1985. D.M.D., 1984, University of Pennsylvania.
- Brown, Diana V., *Clinical Instructor in Dental Hygiene*, 1986. A.S. in Dental Hygiene, 1963, The University of Rhode Island; B.S., 1987, Roger Williams College.
- Chapman, Kristine M., *Clinical Instructor in Dental Hygiene*, 1989. B.S., 1979, University of Rhode Island.
- Congdon, Karen S., R.N., E.M.T., *Clinical Coordinator in Cardiac Rehabilitation*, 1986. B.S., 1973, M.S., 1986, The University of Rhode Island.
- Connors, Elizabeth C., *Clinical Coordinator of the Speech and Hearing Center*, 1986. M.A., 1981, Northern Michigan University.
- English, Ray Jr., *Clinical Instructor in Dental Hygiene*, 1986. D.M.D., 1983, Boston University School of Graduate Dentistry.
- Feldman, Jan, *Clinical Instructor in Dental Hygiene*, 1973. D.D.S., 1964, University of Pennsylvania School of Dentistry; Certificate in Endodontics, 1970, Boston University School of Graduate Dentistry.
- Fimbel-Coppa, Denise, *Clinical Assistant Professor of Nursing*, 1985. M.S., 1979, University of Colorado.
- George, Raymond, *Clinical Instructor in Dental Hygiene*, 1982. D.M.D., 1964, Tufts University School of Dental Medicine; Diplomate, 1975, American Board of Orthodontics.
- Guthrie, James R., *Clinical Professor of Health Sciences*, 1977. M.D., 1948, New York University College of Medicine.
- Kaufman, Adam S., *Clinical Instructor in Dental Hygiene*, 1990. D.M.D., 1989, University of Connecticut School of Medicine.
- Kershaw, A. James, *Clinical Instructor in Dental Hygiene*, 1962. D.D.S., 1932, University of Maryland Dental School.
- Kilcline, Bernard A., *Clinical Instructor in Dental Hygiene*, 1980. D.M.D., 1972, Fairleigh Dickinson School of Dentistry.

- Leone, Marion T., *Clinical Instructor in Respiratory Therapy*, 1978. R.N., 1959, Cambridge City Hospital.
- Lowe, Kathy L., *Clinical Instructor in Dental Hygiene*, 1990. B.S., 1980, The University of Rhode Island.
- McArdle, Robert A., R.P.T., *Academic Coordinator of Clinical Education in Physical Therapy*, 1988. B.S., 1981, M.Ed., 1987, Northeastern University.
- Mullane, James R., *Clinical Instructor in Dental Hygiene*, 1979. D.D.S., 1964, State University of New York, Buffalo, School of Dentistry.
- Nager, Martin C., *Clinical Instructor in Dental Hygiene*, 1989. B.A., 1980, University of Rochester; D.M.D., 1985, Boston University School of Graduate Dentistry.
- Regan, J. Barry, *Clinical Assistant Professor of Communicative Disorders*, 1972. D.Ed., 1967, Boston University.
- Renz, Gene S., *Clinical Instructor in Dental Hygiene*, 1992. D.D.S., 1970, Georgetown University School of Dentistry.
- Rozendal, Nancy A., *Clinical Assistant Professor of Nursing*, 1983. Ed.D., 1977, Boston College.
- Schwab, Jay S., *Clinical Instructor in Dental Hygiene*, 1970. D.M.D., 1967, Tufts University School of Dental Medicine; M.Sc.D., 1969, Certificate in Pedodontics, 1969, Boston University School of Graduate Dentistry.

## Visiting and Affiliated Staff

### Dental Hygiene

- Capt. Thomas C. Splitgerber, *Commanding Officer, Naval Regional Dental Center, Newport*

### Medical Technology (Clinical Laboratory Science)

- Memorial Hospital of R.I., Pawtucket*  
Thomas S. Micolonghi, M.D., *Director*  
Judith Campbell, M.S., C.L.S., *Program Director*
- Rhode Island Hospital*  
Ramakrishna Nayak, M.D., *Medical Director*  
David Mello, M.S., C.L.S., *Program Director*
- Rhode Island Medical Center*  
Ho Young Lee, M.D., *Director*  
Ann Marie Roberti, M.S., M.T., *Program Director*
- The St. Joseph Hospital*  
Salvatore R. Allegra, M.D., *Director*  
Fran Warren Howard, M.S., M.T., *Program Director*

**Nursing****Bradley Hospital**

William T. White, R.N., M.S., *Director of Nurses*

**Butler Hospital**

Clare Sullivan, R.N., M.A., *Director of Nursing*

**Coventry Health Center**

Carol Belanger, *Administrator*

Kathy Laporte, R.N., *Director of Nurses*

**Coventry Senior Center**

Barbara Rayner, M.S.W., *Director*

**Elmhurst Extended Care Facility**

Helene Halasz, R.N., *Director of Nurses*

**Fruit Hill Day-Care Center**

Sister Ruth Crawley, F.M.M., *Administrator*

**Kent County Memorial Hospital**

Margaret Clifton, R.N., M.S.N., *Director of Nursing*

Elaine Barber, R.N., M.S.N., *Director, Nursing Inservice Education*

Virginia Bainton, R.N., *Director, Home Care Program*

**Kent County Mental Health Services**

Michael Lichtenstein, M.S., *Director of Clinical Services*

Karen Rush, R.N., B.S.N., *Program Manager*

**Kent County Visiting Nurse Association**

Claire S. Connor, R.N., M.P.H., *Executive Director*

Nancy Roberts, R.N., M.S., *Assistant Director*

**MHRH—Institute of Mental Health**

Norita Waters, R.N., M.S., *Director of Nursing Services*

Barbara Wragg, R.N., M.Ed., *Nursing Instructor Supervisor*

**Miriam Hospital**

Jeanette S. Matrone, R.N., Ph.D., *Nurse-in-Chief*

Carol Lamoureux, R.N., M.S., *Assistant Nurse-in-Chief*

**Newport County Headstart Program**

Larry Pucciarelli, *Director*

Maureen McEvoy, R.N.

**Newport Hospital**

Lorraine Davol, R.N., M.S., *Vice President for Nursing*

Dorothy Garmen, R.N., M.S., *Nursing Staff Development Instructor*

**Newport Naval Hospital**

Capt. D. Vertrees Holligsworth, *Commanding Officer*

William F. McKeon, M.D., M.P.H.

Denise Fahey, R.N., B.S., C.O.H.N.

**Providence Headstart Program**

Sister Barbara McMichael, *Director*

Mary McSoley, R.N., *Health Coordinator*

**Rhode Island Hospital**

Kay Litherland, R.N., M.A., *Vice President of Patient Service*

Dorothy M. Maddren, R.N., M.A., *Director, Nursing Education and Research Division*

Elaine Amato-Vealey, R.N., M.S., *Clinical Educator, Special Projects*

Margaret P. Boger, R.N., M.S., *Clinical Educator, Adult Services*

Anne L. McKinnon, R.N., B.S.N., *Clinical Educator, Pediatrics*

**Roger Williams General Hospital**

Cynthia A. Bielecki, R.N., M.S., *Associate Director, Nursing Research and Academic Affairs*

**Scallop Shell Nursing Home**

Neil E. Mahoney, *Administrator*

Lynn McCall, R.N., *Director of Nursing Services*

**South County Hospital**

Lizbeth M. Edelman, R.N., M.S., *Vice President of Patient Services, and Director of Nursing*

**Veterans Administration Medical Center**

Louise McMahan, R.N., M.S., *Chief Nurse*

Lynn Schoman, R.N., M.S., *Associate Chief, Nursing Service for Education*

**Visiting Nurse Association of Rhode Island**

Jane Mackenzie, R.N., M.S., *Executive Director*

Karen Bowman, R.N., M.P.H., *Director, V.N.A., Inc.*

Barbara Stewart, R.N., M.S., *Clinical Services Manager, V.N.A., Inc.*

**Visiting Nurse Services of Washington County and Jamestown**

Ann M. Clark, R.N., M.S.N., *Executive Director*

Kathy Gremel, R.N., M.S., *Director of Clinical Services*

**Westerly Hospital**

Barbara A. Brady, R.N., M.S., *Vice President, Operations*

Dawn Barrett, R.N., M.B.A., *Director of Nurses*

**Women and Infants Hospital of Rhode Island**

Mary Struck, R.N., M.S., *Vice President for Patient Care Services*

Diane J. Angelini, R.N., M.S., C.N.M., *Director, Nursing Education, Research, and Nurse Midwifery*

**Physical Education/Human Performance Laboratory/Cardiac Rehabilitation, Cardiovascular Maintenance, and Community Fitness****Tri-County Podiatric Association**

Gregg Congdon, D.P.M., *Podiatrist*

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Nikhilesh Dholakia, Ph.D., *Associate Director*

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Paul Dahlgren, Ph.D., *Associate Director*

Juan Francisco, M.A., *Assistant Director*  
Karen Sherman, M.A., *Assistant Director*  
Joseph Limanni, M.A., *Manager, Facilities*  
William H. Budnik, *Manager, Finances*

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 Joseph DeAlteris, Ph.D., *Co-coordinator, Sea Grant Fisheries, Aquaculture, Seafood Processing, Seafood Marketing Office*  
 Kathleen Castro, M.S., *Co-coordinator, Sea Grant Fisheries, Aquaculture, Seafood Processing, Seafood Marketing Office*  
 Virginia Lee, M.S., *Coordinator, Coastal Management Office*

**Rhode Island State Crime Laboratory**

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**Rhode Island Water Resources Center**

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 Scott W. Nixon, Ph.D., *Oceanography*  
 Allan J. Cain, Ph.D., *Geology*  
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Susanne West, *Coordinator of International Student Services*

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George Hadfield III, *East Bay Investments*  
 Russell Hogg, *Chairman and Chief Executive Officer, Hogg International Associates*

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 Edmund S. Rumowicz, *Executive Vice President, Galey & Lord*  
 Fred Shippee, *American Apparel Manufacturers Association*

## APPENDIX

### Research and Extension Units

#### **Agricultural Experiment Station.**

(Est. 1888. In the College of Resource Development) The designated Rhode Island/USDA partnership organization for research in the agricultural sciences. Basic and applied investigations in natural and human resources by 54 senior scientists assigned to college departments. Conservation and management of resources; improvement of the quality of environment, enhancement of home life, and support of resource-using business and industry. Strong orientation to estuarine and marine problems. Publication of research results in scientific journals and station bulletins available to the public.

#### **Center for Atmospheric Chemistry Studies (CACS).**

(Est. 1981. In the Graduate School of Oceanography) Provides a focal point for the development of a broad scale research effort in atmospheric sciences at the University, provides a resource in atmospheric chemistry and air pollution research for the state of Rhode Island, and provides direction and leadership for several of multi-institutional, multinational research programs examining global-scale problems in atmospheric chemistry.

#### **Consortium for the Development of Technology (CODOT).**

(Est. 1970. In the College of Resource Development) Is affiliated with the International Center for Marine Resource Development. Member universities include Michigan State, Wisconsin, California at Davis, and Washington. Assists in the improvement of food technology in low-income and developing countries; programs in Latin American countries, Africa, Far East, and Middle East.

#### **Coastal Resources Center.**

(Est. 1971) Carries out research projects, surveys, and studies aimed at solving marine and coastal management problems. The center is directing a five-year program to develop coastal resource management programs in Ecuador, Sri Lanka, and Thailand, and is part of a multidisciplinary team at URI studying the environmental characteristics, human uses, and governance of four U.S. estuaries. The center also provides policy and technical guidance to state and local agencies on coastal resources management.

**Cooperative Extension Service.** (In the College of Resource Development) Partnership made up of local residents, land-grant universities, the USDA, and local government. The mission is education and the transmis-

sion of practical information to the public produced by research centers and the University. Three district offices are located in East Greenwich (Kent and Washington Counties), Greenville (Providence County), and Newport (Newport and Bristol Counties). Extension program areas include: 1) home economics—family living; 2) 4-H youth development; 3) agriculture and community resource development.

**Core Facility.** (Est. 1980. In the Graduate School of Oceanography) A center of expertise in the design and fielding of new deep-ocean sampling technology. Provides a wide range of services to an international user community in the area of equipment development as well as supporting the traditional geological sampling requirements of the GSO community. Maintains a collection of historical geological samples, accessible to qualified investigators.

#### **Institute of Human Science and Services.**

(Est. 1980. In the College of Human Science and Services, Department of Education) Elementary and secondary curriculum evaluation and development; research and development in areas such as lifelong learning, human resource development, human service policy making, measurement, and human services. Specialists in research methodology and testing; curriculum development; reading, language arts, mathematics, and the base skills; and adult and vocational education.

#### **Institute for International Business.**

(Est. 1988 in the College of Business Administration) The institute seeks to encourage and support interdisciplinary research, education, and training in international business, drawing on University faculty and outside resources to serve the needs of the business community and to enrich the academic and outreach programs of the College of Business Administration. The institute attempts to coordinate its efforts with those of other University offices, centers, and programs concerned with international research and education.

#### **International Center for Marine Resource Development (ICMRD).**

Founded in 1969, ICMRD serves developing countries in the field of international marine sciences. Responding to the needs of these developing countries, the center has implemented research and training programs utilizing an integrated approach to technical assistance, considering the social, cultural, economic, and technical aspects of fishery development and coastal resource management. ICMRD serves as the catalyst for university-wide international development programs as well as a center for the transfer of appropriate technology. The center draws on the expertise of faculty and staff to develop comprehensive

solutions to the needs of developing countries and to requests made by its principal funding source, the Agency for International Development (AID).

**Labor Research Center.** (Est. 1983) The Labor Research Center is a tripartite, independent, multidisciplinary unit devoted to the study and teaching of subjects broadly defined as labor and industrial relations. The center is concerned with research and service as well as the administration of the graduate program leading to the M.S. degree in labor and industrial relations. More than 50 full-time University faculty members from three colleges and 13 departments are associated with the center in either a teaching or research capacity. Labor, human resource management, and neutral external advisory committees work with the center's director and faculty in helping to define research and program needs and interests.

#### **Laboratories for Scientific Criminal Investigation.**

(In the College of Pharmacy, Department of Pharmacology and Toxicology) Instruction, research, and service in scientific criminal investigation. Technical consultation for law enforcement agencies; special instruction in criminalistics for police. Close collaboration with the Rhode Island Attorney General's Office.

#### **Laboratory for the Study of Information Science (LSIS).**

(Founded in 1974. In the College of Arts and Sciences) The LSIS was established to provide information processing services for government agencies and private-sector organizations. Its staff of six information scientists set up databases and create information retrieval programs, as well as provide for the analysis and reporting of data. LSIS can offer graphical and tabular summaries for its sponsors. These services are useful in aiding management decisions for resource uses. LSIS integrates various sophisticated technologies to meet the requirements of contracting organizations. Using a Prime 2655 computer, as well as various microcomputers, the LSIS is currently one of the leading centers for the dissemination of information regarding the arctic environment.

#### **National Sea Grant Depository.**

(Est. 1971) Housed in the Claiborne Pell Marine Science Library; national site for all materials published under Sea Grant auspices. Subject matter touches areas such as aquaculture, marine resources, law and socioeconomics, biomedicinals, ocean engineering, coastal management, pollution studies, marine education, and applied oceanography. The National Sea Grant Depository publishes abstracts quarterly, makes available loan copies of Sea Grant documents, and conducts online literature searches.

**Office of Marine Programs (OMP).** Housed in the Marine Resources Building, the OMP is responsible for the public education, institutional advancement, and communications and public relations activities of the Graduate School of Oceanography. The OMP manages the Narragansett Bay Classroom, Friends of Oceanography, GSO alumni affairs, campus tours and public events, and publication of *Maritimes* and *At the Bay Campus*. The OMP also serves as the administrative home of the URI Marine Programs Advisory Council and the National Sea Grant Depository.

**Pacific-Basin Capital Markets Research Center.** (Est. 1989. In the College of Business Administration) Creates, maintains, and distributes capital markets databases for eleven Pacific-Basin countries; promotes academic research and training programs for a better understanding of the region's capital markets; and provides an international forum for global communities of business, government, and academia to exchange research ideas and findings and relevant information that effects the region. The center is administered outside the departmental structure under the leadership of a director who reports to the dean of the College of Business Administration.

**Research Center in Business and Economics.** (Est. 1965. In the College of Business Administration) Services various research activities of College of Business Administration faculty. Conducts research for public and private organizations.

**Research Institute for Telecommunications and Information Marketing.** (Est. 1989. In the College of Business Administration) Fosters, encourages, and supports research and education in telecommunications and information marketing, drawing on University faculty and outside resources to serve the needs of the business community and to enrich the academic and outreach programs of the College of Business Administration. The institute is administered outside the departmental structure under the leadership of a director who reports to the dean of the College of Business Administration.

**Rhode Island Sea Grant Advisory Service.** Sea Grant is a federal-state-private-sector partnership dedicated to the wise use and development of marine resources for the public benefit. Sea Grant has a three-pronged mission: research, education, and outreach. As part of its education and outreach mission, Rhode Island Sea Grant Advisory Service works on marine-related problems as a partner with industries, businesses, schools, museums, and state and local governments. Rhode Island Sea Grant Advisory Service brings unbiased expertise based on the best scientific knowledge available. Our

goal is to develop a knowledgeable citizenry so that the best-informed decisions on marine issues can be made.

**Rhode Island Sea Grant Program.** (Est. 1968. In the Graduate School of Oceanography) Acts as a focal point in a partnership between government, industry, and the University to increase scientific understanding of the oceans and coastal waters, improve management of marine resources, and promote development of marine products. Consists of research, education, and advisory services.

**Rhode Island Water Resources Center.** (Est. 1965) State center for research and training in all phases of water resources. Each state has such a center established by federal law to make sure the nation at all times has a sufficient supply of water to meet its needs. Principal investigators need not be employed at University of Rhode Island, and programs with other agencies and individuals are encouraged.

**Robotics Research Center.** (Est. 1980. In the College of Engineering) Research by faculty and students on robotics and advanced automation. Emphasis on new technology for assembly, inspection, and parts presentation. Industrial Participation Program (IPP) supports technology transfer and the graduate program. Special projects and consultation services.

**URI-NOAA Cooperative Marine Education and Research (CMER) Program.** The CMER Program was established at the same time University of Rhode Island was designated as a Center of Excellence in Coastal Marine Studies by the National Oceanic and Atmospheric Administration (NOAA). The program's purpose is to foster closer interactions between elements of NOAA and the University, strengthening both organizations in the process, and enhancing NOAA's ability to address issues of regional and national concern. The program is also intended to provide technical training in marine-related disciplines, primarily on the graduate and professional levels. Cooperative activities have included joint research and the posting of NOAA personnel as adjuncts to the University faculty.

**URI Small Business Development Center (SBDC).** (In the College of Resource Development) Utilizes the services of URI faculty and private consultants to provide assistance to small businesses throughout the state in accounting, finance, marketing, product development, and personnel concerns. The URI SBDC also develops and presents seminars and courses for small business owners and entrepreneurs on topics such as financial management, marketing management, computers for the small business, sources of capital, and sales management.

## Loan Funds and Scholarships

These are privately contributed loan and scholarship funds. For federal programs and general student aid information, see page 24.

### LOAN FUNDS

Short-term loans up to \$200 are available to full-time students who can demonstrate a means of repayment. These are interest-free loans which may be used only for education-related expenses and must be repaid within 90 days.

Short-term loan funds have been contributed by private donors. In addition to an unrestricted fund, loans are available for students majoring in engineering, home economics, nursing, pharmacy, and resource development, and for graduate and international students.

Included among the many donors to the Short Term Loan Fund are: Leroy F. Burroughs, Dean Mason Campbell Memorial, Norman M. Fain, Peter M. Galanti and Josephine Galanti, Barney M. Goldberg, Patrons Association, Providence Engineering Society, Providence Wholesale Drug Company, University of Rhode Island Alumni Association, John H. Washburn Memorial, and Louisa White Fund.

Individual loan funds have been established in memory of Dr. Gabriel F. Jack and Gladys E. Jack. Both funds are available to any qualified URI students with financial need and good scholastic standing. Interest rate is one-half of prevailing rate. Donations to these funds were made by Dr. J. Louis Jack in memory of his brother and his wife.

Fourteen-day emergency loans up to \$25 are also available through the Dr. John F. Quinn Memorial Student Loan Fund.

Applications for short-term loans and emergency loans are available at the Student Financial Aid Office.

### SCHOLARSHIPS

Scholarships preceded by an asterisk (\*) have recipients selected by the college concerned and/or the organization providing the funds.

#### Any College of the University

*Alumni Association:* Income from endowment. (See also Carl R. Woodward, Francis H. Horn, Thomas V. Falciglia, and Presidential Scholarships.)

*Alumni Ram Club Memorial:* Offered in honor of Rhode Island alumni who sacrificed their lives in two world wars. Recipients selected on the basis of financial need, campus citizenship, scholastic ability, and leadership as evidenced by participation in sports and other extracurricular activities.

**Alumni Children Merit Scholarships:** Six \$500 awards given annually to two sophomores, two juniors, and two seniors who are sons or daughters of URI alumni. Awards based on highest quality point average for the previous academic year among the pool of applicants in each category. Awards will be given only to those who submit formal application.

**URI Alumni Association Merit Scholarships:** Fifteen \$500 awards to incoming URI freshmen based on scholastic achievement, SAT scores, and overall record in humanities, psychology and sciences, the performing and studio arts, pure and applied sciences, and professional and human services. Open to all Rhode Island high school seniors.

**URI Class of 1899 Memorial Scholarship:** Income from endowment for a scholarship awarded annually to students on the basis of financial need.

**URI Class of 1930 Memorial Scholarship:** Income from 50th Class Reunion gift. Awarded to two or more undergraduate or graduate students based on academic ability and on need, as determined by the Student Financial Aid Office.

**URI Class of 1931 Memorial Scholarship:** Income from endowment for scholarships awarded annually to students on the basis of financial need.

**URI Class of 1935 Memorial Scholarship:** Income from endowment for scholarships awarded annually on the basis of financial need.

**URI Class of 1936 Memorial Scholarship:** Income from endowment for scholarships awarded annually to undergraduate students on the basis of financial need with preference given to lineal descendants of members of the Class of '36. If no relatives of the Class of '36 apply, the awards shall be made to any applicants the University selects based on financial need and academic performance.

**URI Class of 1937 Memorial Scholarship:** Income from endowment for scholarships awarded annually on the basis of financial need.

**URI Class of 1938 Memorial Scholarship:** See Raymond G. Bressler Memorial Scholarship.

**URI Class of 1939 Memorial Scholarship:** Income from endowment for scholarships awarded annually on the basis of need.

**URI Class of 1940 Memorial Scholarship:** Income from endowment for scholarships awarded annually on the basis of need.

**URI Class of 1941 Memorial Scholarship:** Income from endowment for scholarships awarded annually on the basis of financial need.

**George and Violet Ajootian Endowed Scholarship:** Income from endowment awarded annually to students with financial need.

**American Screw Company Foundation:** Income from endowment, awarded to students having financial need, with preference to children of former employees of American Screw Company.

**Anthony Athletic Association Scholarship:** \$200 awarded annually to a graduate of Coventry High School with financial need.

**George E. Arnold Memorial Scholarship:** Income from endowment for scholarships awarded annually on the basis of financial need.

**Aurora Civic Association Endowed Scholarship:** Income from endowment to support the University's general scholarship fund.

**B.A. Ballou:** Scholarship awarded annually to student with financial need.

**John F. Bannon Endowed Scholarship:** Earned income from endowment to be awarded to undergraduate or graduate students on the basis of financial need.

**Carlton and Olive Barton Scholarship Endowment Fund:** Annual income from the fund will be awarded to an undergraduate student with an above average academic record and genuine financial need.

**\*John M. Baxter Endowed Scholarship:** Income from endowment for scholarship in basketball or track awarded annually to a student competing in one of these sports. Recipient selected by the Director of Athletics in consultation with basketball and track coaches. The funds were donated by the late John M. Baxter, Class of '52; Sun Life Assurance Co. of Canada; and numerous others.

**Ralph S. Belmont, M.D., '31 Endowed Scholarship:** Income from endowment available to undergraduate students with financial need. First consideration given to graduates of Rogers High School, Newport, R.I.

**Artacky and Elese Berberian:** Income from endowment awarded annually to a student with financial need.

**Alice Bliss Memorial Scholarship:** Income from endowment awarded to students with financial need.

**\*Boss Family Endowment:** Two-thirds of income from endowment for scholarships in athletics.

**Raymond G. Bressler Memorial Scholarship:** Established by the Class of 1938 on their 50th anniversary. Income from endowment for scholarships awarded annually to students based on financial need.

**Nathalie Briggs Scholarship Endowment Fund:** Income from endowment awarded to a member of the Lambda Beta chapter of Chi Omega.

**Leroy F. Burroughs:** Income from endowment awarded annually to a student with financial need.

**Castellucci and Galli, Inc.:** Income from endowment awarded annually to a student with financial need.

**Hazel Ruth Cavnor Memorial Scholarship:** Income from endowment for a scholarship awarded annually to students on the basis of financial need and application in studies.

**Citizens Bank:** \$500 awarded annually to students with financial need who are Rhode Island residents, with preference to children of employees of Citizens Bank.

**John Clarke Trust:** Annual award to student from Aquidneck Island majoring in nursing or teaching who demonstrates financial need.

**Commercial Management, Inc. Scholarship:** Annual grants to students demonstrating need with satisfactory academic standing.

**Corner Kick Scholarship Fund:** Scholarship awarded to a male soccer player recommended by the head coach of the URI men's soccer team and the athletic director as approved by the Financial Aid Office.

**\*Lt. Parker D. Cramer '59 Memorial:** Income from endowment provides two annual awards (a sabre and \$200) to outstanding students in Reserve Officers Training Corps (ROTC) having leadership qualities and high ethical standards.

**Cranston Print Works Company Scholarships:** Awarded to dependent children of employees. Available to qualified applicants for a maximum of 2 years at up to \$1,500 annually. Applications available at Office of Director of Human Resources, Cranston Print Works, Cranston, R.I.

**A.T. Cross Company:** Income from endowment awarded to deserving students with financial need.

**Cumberland Farms Scholarship:** Awarded annually to full-time employees of Cumberland Farms who are or will be enrolled as full-time students (12 hours).

**Frances B. DeFrance Memorial Scholarship:** Annual award of \$200 given on the basis of scholastic ability and financial need to a woman student who is a Rhode Island resident. Contributed by Chapter B, P.E.O., Kingston, R.I., in memory of one of its founders.

**Paul DePace Scholarship Endowment:** Income from endowment, established by PARI in honor of Paul DePace, director of URI Capital Projects, for scholarships awarded to students who are permanently disabled.

**Daniel R. Dye Memorial:** Income from endowment awarded annually to a graduate of East Providence High School with financial need selected by the URI Student Financial Aid Office.

**Frances R. and James W. Eastwood '37 Endowed Scholarship:** Income from endowment for a deserving student with demonstrated academic promise.

**James J. Federico, Sr., Endowed Scholarship:** Income from endowment established as a permanent memorial in honor of Mr. Federico and in recognition of his outstanding contributions, guidance, and example to youths at all levels of education and athletic participation. Income from the endowment will provide annual academic support for a student-athlete graduating from Westerly High School and matriculating at the University of Rhode Island, Mr. Federico's alma mater.

**Ferland Corporation Endowed Scholarship:** Income available to students with financial need. Preference to be given to employees or children of employees of the Ferland Corporation.

**William N. '17 and Anita Fritsch Scholarship:** Income from endowment to be awarded to a student with financial need.

**Galkin Charitable Foundation:** Awarded to an undergraduate student with financial need.

**Thomas A. Gamon Memorial Endowed Scholarship:** Income from endowment awarded annually to students from Aquidneck Island.

**Beatrice and Tom Garrick, Sr., Endowed Scholarship:** Income from endowment for a scholarship awarded annually to a minority student with financial need. Recipient to be selected by the Student Financial Aid Office. The fund was established with proceeds from the 1988 NCAA basketball tournament.

**General Dynamics Electric Boat Division Scholarship:** \$350 awarded to children of full-time employees of the Quonset Point facility. The students must have financial need and must be studying business, engineering, or the sciences.

**Carlisle Hall '15 Endowed Scholarship:** Income awarded to students with financial need with preference to Kappa Rho Chapter of Phi Gamma Delta fraternity members and ROTC cadets.

**Louis Raymond Hampton '42 Endowed Scholarship Fund:** Annual income from the endowment will be awarded based on genuine financial need and acceptable academic performance. First preference will be given to engineering students who are dependent children of Providence Gas Company employees.

**Harris Corporation:** \$1,000 available annually, with preference first to children of Harris Corporation employees, second to residents of the Westerly-Pawcatuck area, third to students of the College of Engineering.

**James H. Higgins Memorial:** Income from endowment, awarded to men or women students with financial need. Gift is from the estate of Mrs. James H. (Ellen F.) Higgins.

**James H. Higgins, Jr.:** Income from endowment awarded to students with financial need.

**\*High School Model Legislature:** Amount of general fee awarded to an incoming freshman who has given an outstanding performance in the Model Legislature. Application must be made for this award.

**Percy Hodgson:** Income from endowment, awarded annually to students with financial need, with preference to students from foreign countries.

**Charles H. Hood:** Scholarship awarded annually to an undergraduate student demonstrating financial need.

**Francis H. Horn:** Income from gift of URI Alumni Association and gifts from Friends of Francis H. Horn, with special consideration to applicants from foreign countries who can qualify with respect to academic standing and financial need.

**\*International Grant:** A limited number of partial out-of-state tuition awards based on financial need awarded by the Office of International Student Services. Grants are not available to first-year students.

**A. Livingston Kelley Memorial:** Income from endowment, established by the will of A. Livingston Kelley, awarded to a student with financial need who is a resident of Rhode Island.

**Kenyon Piece Dyeworks, Inc.:** Income from endowment with preference to employees or children of employees with financial need.

**Paul J. Kervick Family:** Income from endowment awarded annually to children of employees of Providence Steel and Iron Company with financial need.

**Chester H. Kirk Endowed Scholarships:** Awarded to children of Amtrol employees. Students without financial need will receive \$100; for other children of Amtrol employees, financial need and the amount of award will be determined by URI Financial Aid Office.

**Harry Knowles Memorial:** Income from endowment, established by the will of Harry Knowles, awarded annually to students with financial need.

**Harold Kopp Scholarship:** Income from endowment for a scholarship in football awarded annually. Recipients selected by Robert Griffin. This scholarship includes the Horizons Retirement Center, Rose family, Pezzelli, John F. Quinn, and Hoder family endowments.

**Jack Kraft Endowment for Basketball:** Income from endowment for a scholarship in basketball established in honor of Jack Kraft, URI basketball coach and director of athletic giving, upon his retirement.

**Legislative Internship:** Income from endowment, given to a member of the junior class to finance a summer at the Rhode Island Legislature, serving either a state senator or a state representative.

**Leviton Foundation:** Awards available annually to children of employees of American Insulated Wire, Atlas Wire & Cable, Cable Electric Products, Leviton Manufacturing, Rhode Island Insulated Wire, and other affiliated companies. Preference given to applicants who are undergraduates with financial need and best scholastic standing.

**\*Austin T. Levy Memorial:** Income from endowment, awarded annually to students with financial need, with preference to graduates of Burrillville High School.

**Little Family Foundation:** Junior Achievement Fellowships for full-time graduate business study. Recipients must have been Junior Achievement participants or advisors. Preference given to Rhode Island residents with two or more years of work experience, chosen by the graduate business faculty. If no R.I. residents are eligible, out-of-state students may be chosen.

**\*Edward Marth Scholarship:** \$500 annual grant to a graduate student enrolled in the labor relations and industrial management program.

**Minorities Scholarship Endowment Fund:** Income from endowment awarded annually to a minority student with financial need. Recipient selected by the Student Financial Aid Office. Funds donated by the URI Alumni Association.

*The Moore Company Scholarship:* Awarded annually to students with financial need with preference to children of George C. Moore Company employees in Westerly, Carr-Fulflex, Inc. in Bristol, and Darlington Fabrics in Westerly.

*Richard B. Morrison Memorial:* Income from endowment awarded annually to Rhode Island residents with financial need.

*Daniel J. Murray and Blanche R. Murray Family Endowed Scholarship:* Income from endowment awarded annually to a student with financial need.

*Carl Myllymaki Memorial Scholarship Endowment:* Income from endowment for a Westerly High School senior who participates in either sports or student government and who will be attending the University of Rhode Island. Carl Myllymaki was a URI student who was killed in action in Vietnam.

*Native American Scholarship:* Annual grant awarded to a student with financial need who is a native American Indian. (Tribal documentation must be provided.)

*Keith Nester Scholarship:* Awarded annually to member of fraternities and sororities in honor of Mr. Nester who retired after 23 years as director of the Fraternity Manager's Association.

*Andrew J. Newman—John W. Chapman Scholarship:* Income from endowment awarded annually to a worthy male student in need of financial assistance, preferably to a member of the Lambda Chi Alpha Fraternity. Recipients selected by the Student Financial Aid Office.

*Mrs. Dorothy M. Noble Endowed Scholarship:* Income from endowment for two \$150 book awards presented each spring to members of the Kappa Rho Chapter of Phi Gamma Delta.

*\*Northeast Institute of Food Technologists:* \$300 annual award established by the Northeast section of the Institute of Food Technologists for undergraduate students in the New England area who have a significant interest in furthering the development of food science. Selection based on interest in food science, academic excellence, personal character, and extracurricular activities.

*Edward E. Pierce and Ida Fisher Pierce Scholarship:* Income from endowment for a scholarship based on financial need.

*Brinton C. Piez Golf Endowment:* Income from endowment to be awarded to a URI student golfer with financial need.

*Howard E. Possner, M.D., '37 and Dorothy Babcock Possner '37 Scholarship:* Income from endowment awarded annually to a premed student in good academic standing and with genuine financial need.

*A. Robert Rainville Memorial Scholarship:* Income from endowment awarded annually to at least one senior from West Warwick High School. The recipient(s) will be selected by the Student Financial Aid Office. Preference will be given to candidates who have shown some evidence of community involvement prior to application. Following selection, Mrs. Robert (Henriette) Rainville (or her family) will be informed of the recipient's (s') name(s) and offered the chance to meet with the recipient(s).

*Ram Club Scholarship:* Income from endowment designated for support of the general athletic scholarship program. Recipients selected by the Department of Athletics.

*Rau Fastener Company:* Income from endowment, awarded annually to students, with preference to children of Rau Fastener employees.

*Elton Rayack Scholarship:* Scholarship awarded annually to a junior demonstrating financial need and scholastic achievement.

*Raytheon Company:* Grants awarded annually to students with financial need.

*Louis M. Ream Memorial:* Income from endowment awarded annually to students with financial need.

*Mary Ellen Reilly Scholarship:* \$500 awarded annually to a woman student (sophomore or above) on the basis of academic excellence and financial need.

*\*Reserve Officers Training Corps (ROTC) Army Scholarship Program:* Two-, three-, and four-year scholarships are available to outstanding young students who are seeking not only a commission as an army officer, but a path of dynamic career opportunities. Selection is based on applicant's achievement, not financial status. Includes full tuition and fees, and up to \$1,000 for the school year, paid directly to the student. Contact the Department of Military Science.

*Rhode Island Hospital Trust National Bank:* Awards available annually to sons and daughters of Rhode Island Hospital Trust National Bank employees who meet URI's financial need requirements.

*Rhode Island Women's Club of Providence Endowed Scholarship:* Income from endowment for a scholarship awarded annually to a woman (women) who is a full-time meritorious student at URI. Scholarship restricted to worthy and needy students. Recipients selected from among nominations from the academic deans by the Office of the Provost.

*Pasquale and Rosaria Rizzi:* Income from endowment awarded annually to two or more junior or senior members of Beta Psi Alpha chapter of Theta Delta Chi fraternity on the basis of scholarship, achievement, and financial need.

*Mary L. Robinson Memorial:* Income from fund established by the will of Anna D. Robinson in memory of her mother, awarded to students with financial need.

*Samuel and Gertrude J. Rosen:* Income from endowment fund awarded to students with financial need.

*N. Edward Rosenhirsch Memorial:* Income from endowment awarded to students with financial need.

*Sarni Family Endowed Scholarship:* Income from endowment to be awarded annually for up to one-half of tuition costs. First preference to needy, qualified first-generation students of at least one Italian parent. Scholarships to be distributed equally among the colleges.

*A.A. Savastano Endowed Scholarship:* Income from endowment for a \$500 scholarship in athletics awarded annually to a high school athlete letter winner with financial need. Financial Aid Office or URI coaches may propose the recipient.

*Joseph J. Scussell '31 Endowed Scholarship:* Income from endowment to be awarded annually on the basis of academic performance and financial need.

*Abby M.B. Slade Memorial:* Grants to students who are graduates of Providence high schools and have financial need.

*Aleck Slade Scholarship:* Income from endowment to be awarded annually to a student who is a pole vaulter (first preference), a track and field athlete from New York City (second preference), or a track athlete from Fall River (third preference). Any matriculated student becomes eligible if no students meet the three preferences.

*Edwin S. Soforenko Foundation Scholarship:* Income from endowment to be awarded annually to deserving students on the basis of need with first preference to employees of Insurance Underwriters, Inc., and their families.

*Harold B. Soloveitzik '35 Endowed Scholarship:* Income from endowment to be awarded annually to worthy students with financial need. First preference to students from the South County and Pawcatuck area.

*Michael Spero '34 Scholarship Endowment:* Income from endowment to be awarded annually to American-born undergraduate students on the basis of normal progress toward completion of the baccalaureate degree and financial need.



*Stan Stutz Memorial:* Income from athletic scholarship to students with financial need with preference given to residents of Westchester County, N.Y.

*\*Student-to-Student:* Income from endowment fund awarded annually to a student with financial need.

*\*Alice M. Talbot:* Income from endowment, established by a \$10,000 gift from The Salvation Army in appreciation of Miss Talbot's past philanthropy to The Salvation Army, and added to by the Ted Clarke family and the URI Century Club. Awarded annually to a University student selected in accordance with guidelines of the URI Century Club for scholarship recipients and with approval of the Director of Athletics of the University.

*Frederick C. Tanner Memorial Fund:* Several awards available annually to students with financial need, with preference given to sons and daughters of Federal Products Corporation employees.

*\*Frederick D. Tootell Memorial:* Income from endowment awarded annually to a student by the Track Club.

*Triangle Club of Kingston:* Minimum of \$200 awarded annually to a student from Rhode Island with financial need.

*Francesco and Marianina Ucci Family Scholarship Endowment:* Income from endowment awarded annually to students who have completed their sophomore year and are majoring in a scientific discipline including, but not limited to chemistry, engineering, biological or physical science, pharmacy, computer science, or premedical studies. The recipient is selected by the Student Financial Aid Office with preference given to graduates of West Warwick High School. This fund was established by Pompelio A. Ucci, Class of '43.

*University Grant:* The Board of Regents has made available a sum of money to be used for scholarships. While it is expected that in any year the great majority of these scholarships will be awarded to residents of Rhode Island, in certain exceptional cases out-of-state students may qualify.

*University of Rhode Island Foundation Trustees Scholarships:* Income from endowments appropriated annually for scholarships and awarded by the Student Financial Aid Office.

*\*URI Alumni Association "Presidential":* \$1,000 awarded for senior year to son or daughter of URI alumnus(a) having highest cumulative quality point average for three years at URI. In the event of a tie, award to be divided. Application to be made through the Alumni Association Office.

*URI Parents Fund:* Income from endowment awarded annually to students with financial need.

*URI Patrons Association, John F. Quinn Memorial:* Income from \$5,000 endowment established by the Association as a memorial to Dr. Quinn, former Vice President for Student Affairs, to be awarded annually to a student with financial need.

*URI Patrons Fund:* Scholarship awarded annually to student with financial need.

*Washington Trust Company:* Awarded annually to an undergraduate student from Rhode Island with financial need.

*Paul Watelet '34 Athletic Endowment Fund:* Income from endowment for athletic scholarships with first preference given to a participant in URI men's basketball.

*Westerly Lions Club:* Income from endowment awarded annually to graduates of Westerly High School with financial need with preference given to upperclassmen.

*George F. Weston Memorial:* Income from a fund established by the Providence Technical High School Athletic Field Association awarded annually to graduates of Rhode Island high schools and college preparatory schools who demonstrate financial need. Preference is given to former students and descendants of former students and teachers of Technical High School of Providence.

*David R. Wilkes:* Income from endowment awarded annually to a student with financial need with preference given to a resident of Rhode Island.

*Frank and Natalie Williams '40 Endowed Scholarship:* Income from endowment for scholarships to undergraduate students in good academic standing with genuine financial need. First preference to students from Rhode Island.

*Woman's Seamen's Friend Society of Connecticut:* Awards to undergraduate and graduate students from Connecticut who are in marine-oriented programs and have financial need.

*Carl R. Woodward:* Income from Alumni Association gift available annually to students with financial need.

*Lt. Charles Yaghoobian, Jr., '65 Memorial:* Income from endowment available to a student with financial need, with first preference to residents of Blackstone Valley, R.I., majoring in physical education, and second preference to residents of Blackstone Valley, regardless of major.

## Arts and Sciences

*\*Ward Abusamra Scholarship in Music and Voice:* Income from endowment for a scholarship in music awarded annually to a graduate or undergraduate music major on the basis of merit. Preference given to students concentrating in voice or choral. Recipient to be selected by the Department of Music Recruitment and Awards Committee during annual spring auditions.

*Heidi Allen Memorial Scholarship:* Income from endowment fund, established by parents and friends of Heidi Allen to be awarded to a student with financial need who is a political science major.

*Bessie D. Belmont Memorial:* Gift of Dr. and Mrs. Ralph S. Belmont in memory of his mother. Income awarded annually to an undergraduate majoring in natural sciences on the basis of scholarship and/or diligent application and financial need.

*\*Stanley Berger Memorial Scholarship:* Income from endowment to be awarded annually to a graduate student in clinical psychology. Recipient selected by Department of Psychology.

*R. Craig Caldwell Scholarship:* Income from endowment for a scholarship in computer science awarded annually to a student majoring in this field on the basis of scholastic ability alone. Recipient selected by College of Arts and Sciences.

*\*Catharine and Walter Eckman Memorial Scholarship:* Income from endowment to be awarded annually to a graduate student in the humanities (including English, comparative literature, languages, history, philosophy, music, and political science). Recipient selected by Graduate School Committee on Scholarships and Fellowships.

*\*Thomas V. Falciglia Honorary:* Income from endowment awarded annually to a music major concentrating in piano, organ, orchestral instrument, or voice on the basis of musical achievement or contribution to the music program, or to a musically talented freshman, with preference to students with financial need.

*Fine Arts Scholarship:* Scholarship awarded annually to a music major demonstrating financial need.

*Lillian and Benjamin Fine Memorial:* Income from endowment awarded annually to an undergraduate in journalism with financial need.

*\*Graduate Library School Scholarship:* Income from endowment awarded annually to a student enrolled in the Graduate Library and Information Studies program.

*\*Dr. Adolphus C. Hailstork III Music Scholarship for Minority Students:* Awarded on the basis of merit to minority students entering the Department of Music.

*Mabel T. Harrison Memorial Grant in Music:* Scholarship grant awarded annually to a meritorious student(s) of a string instrument. Recipient(s) to be selected by the Department of Music Recruitment and Awards Committee. Recipients must maintain a "qualified academic standard."

*Frederick L. Jackson Scholarship Endowment:* Income from endowment for a scholarship awarded annually to a student with financial need in the College of Arts and Sciences who is enrolled in the physical, biological, or social sciences or in the humanities.

*"Mother" Jones Memorial Scholarship:* \$500 awarded annually to a student in the Women's Studies program with financial need.

*June Rockwell Levy Memorial:* Income from endowment awarded annually to music students with financial need.

*Henry H. Mackal:* Income from endowment awarded to students with financial need and majoring in engineering, mathematics, natural sciences, or physical education.

*John T. McCarthy '36 Memorial:* \$250 available annually for a junior or senior majoring in zoology, with preference given to a student planning to attend a veterinary school.

*Nautilus Nest Scholarship:* Awarded annually to a junior or senior enrolled in electrical engineering, physics, or computer science, on the basis of academic achievement and financial need. Recipients must be residents of Rhode Island or Connecticut and citizens of the United States.

*Mary A. Silverman-Ravin, M.D., Scholarship Award:* \$250 given annually to the highest-ranked female premedical student at the close of her junior year.

*\*Max Rosen Memorial:* Income from endowment awarded annually to a student with financial need, preferably a junior, majoring in history with emphasis on American history.

*Mildred C. Thelen Scholarship in Spanish:* Scholarship grant awarded annually to a student majoring in Spanish on the basis of meritorious performance and financial need.

*\*Ruth Erskine Tripp Memorial:* \$200 awarded annually to an undergraduate majoring in music and selected on the basis of an audition and financial need.

*\*Frank L. Woods Endowed Scholarship:* Established by his family and friends as a permanent memorial in honor of Dr. Woods, URI professor of German and linguistics, the

scholarship provides for support for a junior or senior majoring in German or German linguistics. Recipients will be chosen by members of the German faculty. Awards for tuition, fees, and other University expenses will be made by the Financial Aid Office.

#### Business Administration

*American Production and Inventory Control Society, Providence Chapter (APICS):* Awarded annually to a senior who is a major or minor in production and operations management and is an APICS member.

*Anderson Family Trust:* Income from endowment for a scholarship to an insurance major in the College of Business Administration.

*George A. Ballentine Memorial:* \$200 awarded annually to a student with financial need.

*Dr. Winfield S. Briggs Memorial:* Income from endowment available to students of accounting with financial need.

*Frank and Arthur Fiorenzano Endowed Scholarship:* Income from endowment awarded annually to juniors and seniors in the College of Business Administration on the basis of financial need with consideration given to academic excellence. Preference given to Rhode Island residents, or F.A.F., Inc., employees and their children.

*\*Francis S. Goff, Jr., '35 Endowed Scholarship in Business:* Income from endowment awarded annually to undergraduate students majoring in business on the basis of good academic standing and genuine financial need. First preference to employees or children of employees of Providence Mutual Fire Insurance Co. Second preference to students from Rhode Island.

*Saul and Alfred Goldstein Fund:* Income from endowment available to a student with financial need.

*\*Independent Insurance Agents of Rhode Island Scholarship:* \$2,500 awarded annually to deserving students in risk management and insurance.

*Northwestern Mutual Scholarship:* \$1,000 grant scholarship awarded to students who have demonstrated ability and aptitude in the areas of insurance sales. Recipients chosen by a selection committee.

*Ralph C. Potter Endowment:* Income from endowment available to a student in College of Business Administration with financial need.

*\*Rhode Island Society of Certified Public Accountants:* An annual scholarship award of \$200 to a sophomore or junior majoring in accounting who has a good scholastic record.

*Brooksby A. Sanderson Memorial Endowed Scholarship Fund:* Income from endowment awarded annually for a scholarship to a worthy student with financial need who is majoring in accounting in the College of Business Administration.

#### Engineering

*A.J. Beaudoin Memorial Scholarship (Electrical League of Rhode Island):* Two \$1000 grants awarded annually to Rhode Island residents who are majoring in electrical engineering and who have financial need.

*Emilie and Norman Borden Scholarship:* Income from endowment established in the memory of Norman Borden to be awarded to a student majoring in chemical engineering.

*Ronald and Lillie Bowden Memorial Scholarship:* Income from endowment for a scholarship to a student enrolled in the College of Engineering.

*George A. Brown Memorial Scholarship Fund:* Income from endowment for a scholarship awarded to a student majoring in mechanical engineering.

*Peter Carley '79 Memorial Scholarship:* Income from endowment for a scholarship awarded on the basis of financial need, academic performance, or a combination of both, with first preference given to civil engineering students.

*\*Albert E. Carlotti Endowment:* Income from endowment for undergraduate and graduate students enrolled in the College of Engineering.

*Francis J. Connell '49 Memorial Scholarship Endowment in Engineering:* Income from endowment awarded annually for a scholarship in civil engineering to a junior or senior on the basis of genuine financial need and acceptable academic performance. First preference to a student from Newport; second preference to a student from Rhode Island.

*Kenneth A. Epstein Engineering Scholarship:* Annual grant for a scholarship to a student enrolled in the College of Engineering.

*George Geisser, Sr., Endowed Scholarship:* Income from endowment awarded annually to civil engineering student(s) in good standing with financial need.

*GTE Lighting Products Scholarship:* Annual award for a scholarship to financially assist students whose courses of study are in technical fields related to manufacturing.

*\*Amos Kent Memorial Scholarship:* Income from endowment created by the National Council of Engineering Associates. Awarded to a student in engineering who is entering the senior year and has ability, motivation, and financial need.

*Mason B. Kingsbury Memorial Scholarship:* Income from endowment for a scholarship in engineering awarded annually. Recipient selected by the College of Engineering.

*James M. Lenehan Memorial Scholarship*

*Endowment:* Income from endowment to be awarded to a student in the College of Engineering with academic ability and financial need. First preference given to a student majoring in mechanical engineering whose practical experience or schooling and activities demonstrate that the student is a self-starter likely to become a manager of engineers.

*Gabriel Lengyel Scholarship:* Income from endowment established by the late Ruth Braun for a scholarship to be awarded annually to the electrical engineering major with the most outstanding scholastic achievement.

*Charles A. Maguire Associates:* Income from endowment awarded to students in the field of engineering with financial need.

*Carleton Maine Fund:* Income from endowment for a scholarship awarded annually to a deserving student in environmental, civil, or related engineering specialties, who is in need of financial assistance. Recipient selected by Student Financial Aid Office.

*\*Angelo A. Marcello Memorial:* Income from endowment for a scholarship in civil engineering awarded annually to a junior or senior based on financial need with consideration given to academic excellence. Minimum award \$350; maximum, 50 percent of tuition.

*Arthur J. Minor Memorial:* Income from endowment available annually to a student with financial need.

*Vincent E. and Estelle Murphy Endowed Scholarship:* Income from endowment established in the memory of Vincent E. Murphy awarded to a meritorious student in the College of Engineering.

*Grant H. Potter Memorial:* Income from endowment, a bequest of Warren L. Offer, for scholarships to students with financial need, with preference to Rhode Island engineering students specializing in the fields of electronics or aeronautics.

*Col. John Joseph '35 and Mary Drew Prybyla Achievement Award:* \$1,000 awarded annually to a male and female graduating senior who: achieved academic excellence in engineering or science; earned a letter in varsity athletics; and are members of the R.I. Army National Guard, R.I. Air National Guard, or another military reserve unit in Rhode Island, have completed a three-year period in active military forces, or are eligible for commissioning in a reserve component (in that order).

*R.I. Chapter, American Society for Metals Scholarship:* \$500 grant awarded annually to a Rhode Island resident enrolled or matriculated in the College of Engineering with financial need.

*R.I. Public Works Association Scholarship:* \$500 awarded annually to a junior from Rhode Island with financial need and good academic standing who is majoring in civil engineering.

**Human Science and Services**

*\*Glenn C. Brown Endowed Dental Hygiene Scholarship:* Income from endowment awarded annually in the clinical second semester to a junior or senior with good academic performance. Genuine financial need may also be considered.

*\*Elizabeth W. Christopher Memorial:* Income from endowment awarded to students in home economics who have completed their fourth semester at the University. Selection will be made on the basis of scholarship and evidence of potential service and concern for the welfare of others.

*Ruth E. Curran Endowment Fund:* Income from endowment awarded to students in home economics.

*\*Mabel Streeter Perrin Memorial:* Income from endowment awarded annually to students in home economics on the basis of scholastic performance and financial need. Restricted to Rhode Island residents.

*\*Dr. and Mrs. James P. Reid Endowed Scholarship:* Income from endowment for a scholarship in physical education, health, and recreation, awarded annually to a master's or doctoral student on the basis of academic scholarship, professional interest, and involvement. Preference to second-year students.

**Nursing**

*Emilie C. '16 and Norman H. '15 Borden Nursing Scholarship:* Income from endowment awarded annually to a nursing student with financial need.

*M. Adelaide Briggs Memorial:* Income from endowment available to nursing students with financial need.

*Mildred J. Galanti Endowed Scholarship:* Income from endowment for a scholarship in nursing.

*Oscar and Laurette Lapierre:* Income from endowment to a student in the College of Nursing, from Central Falls, R.I., who has financial need.

*Roddy Charitable Trust Endowed Scholarship:* Income from \$25,000 available to students in the College of Nursing with financial need.

*Sigma Theta Tau, Inc., Delta Upsilon Chapter Scholarship:* \$500 grant awarded annually to a full-time student in the College of Nursing who has completed two or more clinical nursing courses, on the basis of academic grade point, evidence of leadership, creativity, professional commitment, and financial need. Application form at College of Nursing.

*Ella Soloveitzik '37 Memorial Scholarship:* Income from endowment to be awarded annually to worthy nursing students pursuing a teaching career. First preference to students from the South County and Pawcatuck area.

*Catherine H. Suda/Edward S. Pratt Memorial Scholarship:* Income from endowment for a scholarship awarded annually to a student in the College of Nursing. First preference to students from North Kingstown; second, Washington County; third, Rhode Island; and fourth, other qualified students. Recipient selected by Dean of College of Nursing.

*\*Barbara Tate Scholarship in Nursing:* Income from endowment awarded annually to a junior or senior nursing student with good academic standing. Award based on clinical competence. Applications available at the College of Nursing.

*Frederick and Doris Titchener Nursing Scholarship:* Annual award to a student in the College of Nursing with financial need.

*\*Esther A. Watson Memorial:* Income from endowment awarded annually to students, with first preference given to graduates of The Memorial Hospital School of Nursing; second preference to relatives of such graduates.

**Oceanography**

*Robert H. and Marjorie P. Fillmore Memorial:* Income from endowment fund established by Judith A. Fillmore (daughter) in memory of her mother and father (URI graduates, Classes of '35 and '36) awarded to an undergraduate or graduate student, on the basis of good scholastic standing, who demonstrates financial need and is enrolled in the URI ocean sciences program. First consideration is given to sons and daughters of the University of Rhode Island, Washington Alumni Club, Washington, D.C.

*Joshua MacMillan Graduate Fellowship:* Income from endowment for a fellowship awarded annually, based on genuine financial need, to students at the Graduate School of Oceanography with a marked interest in research related to fisheries science.

*Graduate School of Oceanography Alumni Fellowship:* Income from endowment awarded annually to a student from the Graduate School of Oceanography on the basis of scientific proposals.

*Andrew D. Starr Memorial:* Awarded annually to a graduate student with financial need.

*Germaine and Francis Webb Graduate Fellowship in Oceanography:* Income from endowment awarded annually to a student from the Graduate School of Oceanography based on genuine financial need and research related to relevant marine environmental issues.

### Pharmacy

*\*Orlando Buonanno Memorial:* Awarded annually to a pharmacy student on the basis of financial need.

*\*Burroughs Wellcome Co. Scholarships:* Annual grant for scholarships for outstanding students of pharmacy based on a criterion of excellence established by the College.

*Harriet A.F. Clafin Scholarship:* Income from endowment awarded to students with financial need in the College of Pharmacy.

*\*Sidney Cohn Memorial:* Income from bequest awarded to a student from the College of Pharmacy with financial need.

*\*Consumer Value Stores (CVS):* Three \$500 awards to students who are in their fourth or fifth year, with satisfactory academic standing, financial need, and interest in a career in retail (community) pharmacy, with high preference to children of CVS employees.

*David R. DeFanti Memorial Scholarship Fund:* Income from endowment for a scholarship to be awarded to a student in the College of Pharmacy.

*Douglas Drug, Inc., Scholarship:* \$500 awarded annually to a student in the College of Pharmacy.

*Jack Eckerd Corporation Scholarship:* Annual grant awarded to students in the College of Pharmacy. First preference to sons or daughters of Eckerd employees.

*\*Florence Champlin Hamilton Memorial:* Income from endowment awarded annually to a student in the College of Pharmacy on the basis of scholastic ability and financial need.

*\*La Verdiere Drug Company:* \$250 awarded annually to student in third, fourth, or fifth year on the basis of satisfactory scholastic standing and financial need.

*\*Edward M. Lee Memorial:* Income from endowment awarded annually to students from the Woonsocket and North Smithfield area.

*Gladys N. Longo Endowed Scholarship:* Income from endowment for a scholarship in pharmacy on the basis of financial need.

*\*Martec Recognition Award:* \$150 scholarship to a deserving fourth-year pharmacy student selected by the faculty.

*\*National Association of Chain Drug Stores, Inc., Scholarship:* Annual grant for scholarships for pharmacy students on the basis of satisfactory academic standing, financial need, and a career interest in community pharmacy practice.

*Gertrude I. Nelson and Henry Nelson, Jr., Scholarship:* Income from endowment awarded annually to a student in the College of Pharmacy with financial need.

*\*William G. Peckham Memorial:* Established by the will of Mary M. Peckham (Mrs. William G.), the scholarship provides \$200 to a first-year student registered in pharmacy and continues until graduation if merited by scholastic performance.

*\*Rhode Island College of Pharmacy:* Income from endowment for scholarship in the field of pharmacy.

*\*Rhode Island College of Pharmacy Class of 1926:* A sum from which scholarships are awarded on the basis of financial need and scholarship.

*Rhode Island Pharmaceutical Association Scholarship Endowment:* Income from endowment for a scholarship in pharmacy awarded annually on the basis of financial need to third-, fourth-, or fifth-year students. Recipients selected by Student Financial Aid Office.

*\*Rhode Island Pharmaceutical Association:* \$300 awarded annually to an upperclass student in the College of Pharmacy on the basis of scholastic ability and financial need.

*Rite Aid Corporation Scholarship:* Grant awarded annually to students in the College of Pharmacy.

*\*SEMPA Pharmacy Award:* Endowment income from a gift of the Southeastern Massachusetts Pharmaceutical Association to a third-, fourth-, or fifth-year pharmacy student from southeastern Massachusetts. Priority to scholastic excellence above financial need.

*Mary Tafuri Community Practice Scholarship Fund:* Income from endowment awarded to a pharmacy student interested in the practice of community pharmacy. The student must be at the end of the third or fourth year of study and must also be a U.S. citizen.

*\*Walter B. Thompson Memorial:* Income from endowment awarded annually to a deserving student.

*Daniel P.N. Tsao Memorial Scholarship:* Income from endowment awarded annually to a pharmacy student.

*Walgreen Award:* Scholarship awarded to a deserving student in or at completion of the first professional year.

*\*Waterbury Druggists' Auxiliary:* \$200 available annually to a worthy third-, fourth-, or fifth-year student from the area of Waterbury, Conn.

*Leonard R. Worthen Scholarship in Pharmacy:* Income from endowment for a scholarship in pharmacy.

*\*Heber W. Youngken, Jr., Scholarship:* Awarded annually to a student in the fourth- or fifth-year class who has demonstrated outstanding service activity in the interest of pharmacy at state and/or national levels.

### Resource Development

*Anonymous:* Income from endowment awarded annually to students in the fisheries and marine technology program with financial need. Preference is given to graduates of Martha's Vineyard Regional High School and then to graduates of Cape Cod High School.

*\*John W. Atwood Memorial:* Income from endowment awarded annually to a junior or senior student in animal science programs; students to be selected by a committee on the basis of financial need, academic performance, and interest.

*Harriet G. Bird Memorial Scholarship (Merwin Memorial Free Clinic for Animals, Inc.):* \$1,000 awarded annually to Massachusetts residents with financial need who are majoring in animal science and technology and are interested in the welfare of animals.

*Barbara Bradford Brand '30 Scholarship:* Income from bequest awarded to a student in the College of Resource Development interested in researching ways to accelerate protection of the environment.

*W. Berkley Carter Endowed Scholarship:* Scholarships awarded annually to students majoring in urban horticulture and turfgrass management.

*Joseph Chaves Memorial Scholarship:* Scholarship established by Chaves Gardens, Inc., to be awarded to a student in the College of Resource Development on the basis of merit.

*\*John Samuel Clapper Memorial:* Income from endowment established by Orville O. Clapper in honor of his father who pioneered the development of modern turf. Awards to outstanding juniors or seniors showing marked and abiding interest in turf culture.

*James W. Cobble Memorial Scholarship:* Income from endowment awarded annually to a senior, junior, or sophomore in the College of Resource Development primarily on

the basis of financial need accompanied by evidence of satisfactory progress toward a degree.

**\*Cofish International, Inc.:** Grant in the amount of \$2,000 awarded to a student in the final year of the fisheries and marine technology program who demonstrates effort and excellence in the course of studies.

**College of Resource Development Merit Scholarship:** Income from endowment for scholarships in the College of Resource Development awarded on the basis of merit.

**\*Lloyd Robert Crandall Memorial (Ashaway Line and Twine Manufacturing Co.):** Income from endowment awarded annually to students in the fisheries and marine technology program with financial need.

**Wayne King Durfee and Bernice Anderson Durfee Aquaculture Merit Scholarship:** Awarded annually to a junior or senior who has majored in aquaculture and fishery technology for at least one year. The recipient is selected based on merit as evidenced in the past academic year with first preference given to a student with special interest in shellfish.

**\*Golf Course Superintendents' Association of America Scholarships:** \$500 competitive scholarships awarded nationally on the basis of scholastic ability, professed interest in golf turf management, and recommendation of advisors.

**Mabel B. Goshdigian Scholarship:** Awarded to a dietetics major based on merit.

**\*Morton and Ruth Grossman Endowment:** Income from endowment awarded annually to students studying for the profession of turfgrass management. Recipient will be selected by faculty in the Department of Plant Sciences who serve as advisors to students majoring in urban horticulture and turfgrass management.

**Arthur D. Jeffrey Memorial Scholarship:** Income from endowment awarded to a graduate student in community planning with financial need.

**\*Cedric C. Jennings '37 Memorial:** Income from endowment available annually to students with financial need who are studying entomology or plant pathology.

**Kingston Hill Gardeners Scholarship:** Scholarship awarded on the basis of merit to a student majoring in the Departments of Plant Sciences or Natural Resources Science.

**\*Alice P. Mayer:** Two annual awards of \$1,500 each to students with interest in agriculture, horticulture, or fishery technology, who reside in Newport County. Preference to junior or senior students.

**\*William S. Moody III Memorial Endowment:** Income from endowment awarded for four years to an undergraduate in the College of Resource Development. The recipient(s) will be selected by the dean of the college on the basis of academic merit and interest in environmental issues and studies. Established in the memory of William S. Moody III, this endowment was donated by Mr. and Mrs. William S. Moody, Jr., his parents, and Mrs. William S. Moody, his widow.

**Northeast Institute of Food Technologists Scholarship:** Awarded to a food science major on the basis of merit.

**Al Owens Scholarship:** Scholarship awarded annually to a student in the College of Resource Development based on merit.

**\*Jean Louise Pimental '70 Memorial:** Income from endowment to a student in animal science with preference to a woman from Rhode Island.

**\*John E. Powell Memorial:** Income from endowment available annually to students on basis of worth and need.

**Providence Gas Environmental Scholarship:** Awarded to students preparing for careers in environmental management and residing in the household of a Providence Gas customer.

**\*Ralston-Purina:** \$650 award to an outstanding student with professional interest in food science. Selection is based on scholarship, leadership, character, citizenship, potential, and need. Selection by Ralston-Purina from applications recommended by the college.

**Rhode Island Dietetic Association Scholarship:** Awarded annually to a Rhode Island resident majoring in dietetics based on merit and financial need.

**\*Rhode Island Golf Course Superintendents' Association Scholarship:** \$200 awarded annually to a student studying for the profession of turfgrass management who has an expressed interest in golf course maintenance.

**Rhode Island Nurserymen's Award:** Awarded to the student who scores the highest in a departmental plant identification contest.

**Rhode Island Nurserymen's Association Scholarship:** Awarded to a student majoring in ornamental horticulture with the highest cumulative quality point average.

**Society of Soil Scientists of Southern New England Scholarship:** Awarded to a student majoring in soil science on the basis of scholarship, extracurricular activities, character, and need. The recipient must have completed six credits in soil science.

**South County Garden Club, Susan B. Wilson Scholarship:** Awarded to a student in landscape architecture.

**\*Southern Rhode Island Soil Conservation District Scholarship:** \$500 awarded to a junior or senior with professional interest in soil conservation or related area. Selection made by a committee of soils faculty and district representatives, based on scholarship, experience in soil science, extracurricular activities, character, and attitude.

**Karen Volk Memorial Scholarship Fund:** Income from endowment awarded on the basis of need to a female freshman in the Department of Fisheries, Animal and Veterinary Science.

**Wantaknowhow Garden Club:** Scholarship awarded annually to a student in resource development.

## SPECIAL AWARDS

**Academy of American Poets Prize Program:** Income from the Nancy Potter Scholarship Fund endows two \$100 prizes to be awarded each year by the Academy of American Poets.

**\*Dennis W. Callaghan Memorial Award in Management:** Income from endowment awarded to the outstanding senior in management in the College of Business.

**\*David J. Chronley Award for Creativity in Chemical Engineering:** Awarded annually to a student in the Department of Chemical Engineering. Selection will be made by the department.

**\*John B. Fraleigh Prizes in Mathematics:** Income from endowment awarded annually for prizes to undergraduates for excellence in mathematics.

**Peter M. Galanti Award:** Income from endowment awarded annually to a deserving student in business administration.

**David Ketner Memorial:** Income from endowment for a prize(s) to art students established in the memory of David D. Ketner, former URI professor of art.

**Peter Merenda Prize for Excellence in Statistics and Research Methodology:** \$1,500 to a finishing Ph.D. student in the Department of Psychology for excellent academic performance.

**Professor William D. Metz Prize in History:** Income from endowment awarded annually to a graduating senior for excellence in history.

**\*L. Douglas Nolan Academic Achievement in Science Award:** Income from an endowment awarded annually to a student in graduate school who excels in one of the natural sciences.

*William Potter Prizes in Chemistry:* Awarded to Ph.D. students in pharmacy on the basis of academic achievement in chemistry.

*Col. John Joseph '35 and Mary Drew Prybyla Achievement Award:* Annual award to a male and female graduating senior with as many of the following characteristics as possible—earned a degree in engineering, nursing, or science; earned a varsity letter; is a member of the R.I. National Guard or ROTC.

*\*Rhode Island Nurserymen's Association Award:* \$150 awarded annually to a student in advanced course in landscape design, who attains the highest score in competitive examination in plant identification. Award presented at association's annual spring meeting.

*\*Rhode Island Nurserymen's Association Scholarship:* \$150 awarded annually to a student who has completed at least five of the eight professional courses specified in ornamental horticulture and has attained highest cumulative quality point average. Recipient selected by Associate Dean for Instruction. Award presented at association's spring meeting.

*\*Rhode Island Tuberculosis and Respiratory Disease Association Award:* \$1,000 awarded annually in honor of the association's former president, Harry L. Gardner, to a senior accepted by an accredited medical school. Based on need. Apply to chairman of Faculty Premedical Advisory Committee.

*Grace B. Sherrer Honors Awards:* Income from endowment awarded annually as prizes to outstanding undergraduates enrolled in the Honors Program.

*Leonard Eckerman Smith Memorial:* Income from endowment awarded to students at the University of Rhode Island with a major interest in public speaking.

*Ralph Thompson Award in Chemical Engineering:* Income from endowment awarded annually to the student in chemical engineering who demonstrates the greatest increase in quality point average from the end of the freshman year to the end of the junior year.

*\*Richard Dawson Wood Memorial Award for Excellence in Botany:* Income from endowment fund, awarded on the basis of scholarship, character, academic integrity and intellectual enthusiasm, to a senior entering graduate studies in botany. In addition, an independent research paper on a project previously discussed with a faculty member in botany must be submitted by April 30 of the senior year.

*\*Dr. Barbara Allen Woods Memorial Awards for Excellence in German Studies:* Students selected by faculty members in the Department of German.

## Historical Outline

- 1888 State Agricultural School established  
Agricultural Experiment Station established  
Watson farm purchased as site
- 1889 Taft Laboratory  
John H. Washburn appointed principal
- 1890 South Hall
- 1891 College Hall  
Ladd Laboratory
- 1892 Rhode Island College of Agriculture and  
Mechanic Arts founded May 19  
John H. Washburn, President
- 1894 First class graduated  
Alumni Association formed
- 1895 College Hall burned and rebuilt as Davis  
Hall
- 1897 Lippitt Hall  
First *Grist* yearbook published
- 1898 Preparatory school established
- 1902 Homer J. Wheeler, Acting President
- 1903 Kenyon L. Butterfield, President
- 1904 Extension Department organized
- 1906 Howard Edwards, President  
Greenhouse and Horticultural Building
- 1907 Master's degree awarded for the first time
- 1908 Preparatory school discontinued  
The *Beacon* (student newspaper) established  
as a monthly  
Rho Iota Kappa (first fraternity)
- 1909 East Hall  
By charter amendment, name changed to  
Rhode Island State College
- 1910 Theta Chi (first national fraternity)
- 1912 First fraternity house (Beta Phi, now Phi  
Gamma Delta)
- 1913 Ranger Hall  
Chapter of Phi Kappa Phi, national honor  
society
- 1918 Academic work suspended April 28  
Student Army Training Corps
- 1919 Academic work resumed January 2
- 1921 Washburn Hall
- 1924 Home Management House
- 1928 Memorial Gateway  
Bliss Hall  
Edwards Hall  
Rodman Hall  
East Farm acquired
- 1930 John Barlow, Acting President
- 1931 Raymond G. Bressler, President  
President's House
- 1932 Reorganization of college: Schools of  
Engineering, of Science and Business,  
and Agriculture and Home Economics
- 1934 Asa Sweet and Edward Sweet lands  
purchased
- 1936 Narragansett Marine Laboratory  
Animal Husbandry Building  
Eleanor Roosevelt Hall  
Quinn Hall  
Central Heating Plant  
Peckham farm purchased
- 1937 Green Hall
- 1938 Meade Field
- 1939 Board of Trustees of State Colleges created
- 1940 John Barlow, Acting President
- 1941 Carl R. Woodward, President
- 1942 War-accelerated program with summer  
term initiated  
Reorganization of School of Science and  
Business into separate schools of Sci-  
ence and of Business Administration  
Engineering Experiment Station established  
Industrial Extension Division established
- 1943 Army Specialized Training Unit assigned to  
college
- 1944 Second Peckham farm purchased  
Industrial Extension Division replaced by  
Division of General College Extension  
War-accelerated program ended in  
September
- 1945 Degree program in nursing established  
Sherman farm acquired
- 1946 Quonset hut colony erected as emergency  
housing project  
School of Home Economics established
- 1948 School of Arts and Sciences established  
Bachelor of Arts degree authorized by Board  
of Trustees
- 1949 Bachelor of Arts degree awarded for first  
time at June Commencement
- 1950 Butterfield and Bressler Halls
- 1951 Name changed to University of Rhode  
Island by act of General Assembly
- 1952 Pastore Chemical Laboratory
- 1953 Chapter of Sigma Xi, national scientific  
honor society  
Frank W. Keaney Gymnasium  
Laboratories for Scientific Criminal  
Investigation established
- 1954 Rhode Island Memorial Union
- 1957 College of Pharmacy established  
URI Foundation established
- 1958 Francis H. Horn, President  
Degree of Doctor of Philosophy authorized  
by Board of Trustees  
Child Development Center  
Hutchinson, Peck, and Adams Residence  
Halls  
Hope Dining Hall
- 1959 Woodward Hall  
Administration Building  
Computer Laboratory established  
Potter Infirmary  
Wales and Kelley Halls
- 1960 Fish Oceanographic Laboratory  
Independence Hall  
Davis Hall and East Hall remodeled  
Two-year program in dental hygiene  
established  
Bureau of Government Research  
established  
Faculty Senate established
- 1961 Graduate School of Oceanography  
Tucker, Merrow, and Browning Halls  
Gilbreth Hall
- 1962 Crawford Hall  
W. Alton Jones Campus acquired  
Research ship *Trident* commissioned

- 1963 Tyler Hall  
Graduate Library School established  
Weldin and Barlow Halls
- 1964 Fogarty Health Science Building  
Watson House restored
- 1965 Addition to the Memorial Union  
University Library  
Law of the Sea Institute established  
Sherman Maintenance Building  
Bachelor of Fine Arts and Bachelor of Music degrees authorized  
Research Center in Business and Economics established  
Water Resources Research Center established
- 1966 Aldrich, Burnside, Coddington, Dorr, Ellery, and Hopkins Halls, and Roger Williams Center  
Justin S. Morrill Science Building  
Fine Arts Center (Phase I)  
Institute of Environmental Biology established
- 1967 Two-year program in commercial fisheries established  
Ballentine Hall  
F. Don James, Acting President
- 1968 Kelley Hall Research Annex  
Pell Marine Science Library  
Horn Laboratory  
First Sea Grant received  
Werner A. Baum, President  
New England Marine Resources Information Program established
- 1969 Home Management Center  
Curriculum Research and Development Center established  
Heathman Hall  
Faculty Center  
Dental hygiene bachelor's program established  
International Center for Marine Resource Development established
- 1970 Fayerweather Hall  
Gorham Hall  
Consortium for the Development of Technology established  
Marine Advisory Service established
- 1971 Tootell Physical Education Center  
Fine Arts Center (Phase II)  
Conference Center, Jones Campus  
Administrative Services Center  
Board of Regents for Education (Education Act of 1969) takes over direction of higher education  
URI named one of first four Sea Grant Colleges and designated National Sea Grant Depository
- 1972 Biological Sciences Building  
Chafee Social Science Building  
University College established  
Coastal Resources Center established  
Graduate apartment complex
- 1973 William R. Ferrante, Acting President  
Research Aquarium  
Science Research and Nature Preserve Buildings, Jones Campus  
Community Planning Building
- 1974 Frank Newman, President  
Laboratory for the Study of Information Science founded
- 1975 Addition to the University Library building
- 1976 Research ship *Endeavor* commissioned
- 1977 Bachelor of General Studies established  
White Hall  
Chapter of Phi Beta Kappa, national liberal arts honor society  
Center for Ocean Management Studies established  
Center for Energy Study established  
Regional Coastal Information Center established
- 1978 College of Human Science and Services succeeds College of Home Economics  
Norman D. Watkins Laboratory
- 1979 Information Center
- 1980 Institute for Human Science and Services established  
Robotics Research Center
- 1981 Center for Atmospheric Chemistry established  
Division of University Extension name changed to College of Continuing Education  
Board of Governors for Higher Education established by act of General Assembly
- 1983 Marine Resources Building  
Small Business Development Center established  
Edward D. Eddy, President
- 1984 Labor Research Center established  
Food Science and Nutrition Center
- 1985 Addition to Pastore Chemical Laboratory  
Applied Engineering Laboratory
- 1986 Anatomy Laboratory  
Biotechnology Center established  
Division of Marine Resources name changed to Office of Marine Programs
- 1988 Institute for International Business established
- 1989 Fisheries and Marine Technology Building  
Pacific-Basin Capital Markets Research Center established  
Research Institute for Telecommunications and Information Marketing established
- 1990 W. Alton Jones Campus Environmental Education Center designated a National Center for Environmental Education
- 1991 Robert L. Carothers, President  
Mackal Field House  
Library addition  
Social Science Research Center  
Engineering Building and addition to Kirk Laboratory  
Atmospheric Chemistry Center, Narragansett Bay Campus
- 1992 URI Centennial Celebration

## Summary of Enrollment Fall Term 1991 (Nonduplicated)

### Undergraduate Students by College, Kingston Campus

Arts and Sciences	2,403
Business Administration	620
Engineering	482
Human Science and Services	967
Nursing	209
Pharmacy	276
Resource Development	527
University College	4,423
Unassigned	11
Nondegree (Credit)	303
<b>Total (Male 4,873, Female 5,348)</b>	<b>10,221</b>

### Graduate Students, Kingston Campus

Degree	1,828
Degree (Continuous Registration)	68
Nondegree (Continuing)	66
Postbaccalaureate (Temporary)	382
<b>Total (Male 1,047, Female 1,297)</b>	<b>2,344</b>

### TOTAL ENROLLMENT

**KINGSTON CAMPUS** 12,565

### Undergraduate Students, College of Continuing Education

Degree	918
Nondegree (Credit)	882

### Graduate Students, College of Continuing Education

Degree	474
Degree (Continuous Registration)	0
Nondegree (Continuing)	14
Postbaccalaureate (Temporary)	672

### TOTAL ENROLLMENT

**CONTINUING EDUCATION** 2,960

### GRAND TOTAL

**15,525**

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