

2009

URI Undergraduate and Graduate Course Catalog 2009-2010

University of Rhode Island

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THE UNIVERSITY OF RHODE ISLAND

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2009-10 CATALOG



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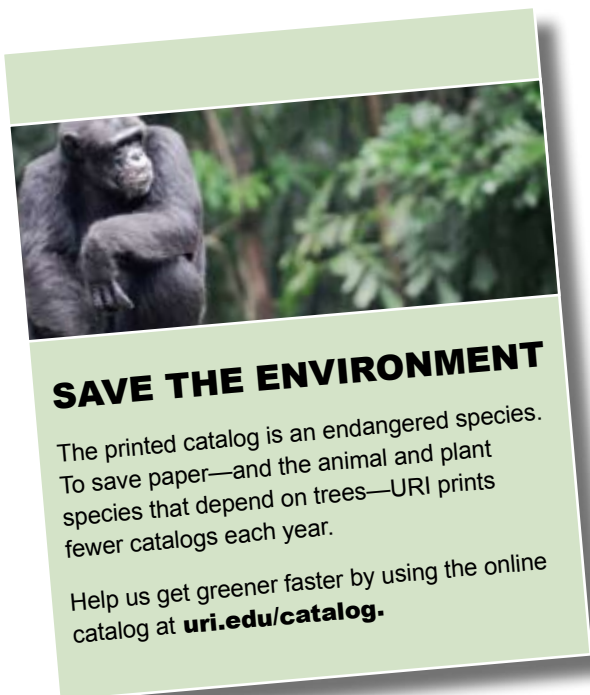
Office of Undergraduate Admission
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2009–10 CATALOG



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The University of Rhode Island is committed to the principles of affirmative action and the attainment of equal employment and equal educational opportunities for all qualified individuals. For further information, please contact the Affirmative Action Office at 401.874.2442.



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2009–2010 UNIVERSITY CALENDAR

*This calendar applies to undergraduate and graduate students enrolled at URI's Kingston and Providence Campuses.
For dates specific to candidates for graduate degrees, see pages 120–121.*

Fall Semester 2009

Labor Day, no classes,
offices closed
Sept. 7

Advising Day
Sept. 8

Classes begin
Sept. 9

Last day to drop courses
with pro-rata billing adjustment;
last day to add courses
and pass/fail option
Sept. 22

Columbus Day,
classes meet, offices closed
Oct. 12

Midsemester and last day
for students to change
from pass/fail option
Oct. 26

Midterm grades for
freshmen due in
e-Campus
Oct. 27

Last day for students to
drop courses
Nov. 2

Election Day,
classes meet,
offices closed
Nov. 3

Veteran's Day,
classes do not meet,
offices closed
Nov. 11

Thanksgiving recess,
no classes
Nov. 26–29

Classes end
Dec. 11

Reading day
Dec. 14

Final examinations
Dec. 15–19, 21–22

Final examinations
Make-up day
Dec. 23

Final grades due in
e-Campus
Dec. 28

Official date for
December graduation
Dec. 31

Spring Semester 2010

Advising Day
Jan. 22

Classes begin
Jan. 25

Last day to drop courses
with pro-rata billing adjustment;
last day to add courses
and pass/fail option
Feb. 7

President's Day,
classes do not meet,
offices open
Feb. 15

Midsemester and last day
for students to change
from pass/fail option
March 15

Midterm grades for freshmen
due in e-Campus
March 15

Spring break,
no classes, offices open
March 22–28

Last day for students to
drop courses
March 29

Classes end
May 3

Reading days
May 4–5

Final examinations
May 6–7, 10–14

Final grades due in
e-Campus
May 18

Graduate Commencement
May 22

Commencement
May 23

Summer Session 2010

Term I
May 24–June 25

Term II
June 28–July 30

*In case of major storms or other
circumstances, changes may be made in
the academic calendar when it is in the
best interest of the institution, without
prior notice to students.*

THE UNIVERSITY



The University of Rhode Island is a medium-sized state university with its primary campus 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 a national Sea Grant institution.

The University enrolls about 13,500 undergraduate and 2,500 graduate students, and has a full-time tenure-track teaching faculty of approximately 600.

Mission. The University of Rhode Island is the State's public learner-centered research university. We are a community joined in a common quest for knowledge. The University is committed to enriching the lives of its students through its land, sea, and urban grant traditions. URI is the only public institution in Rhode Island offering undergraduate, graduate, and professional students the distinctive educational opportunities of a major research university. Our undergradu-

ate, graduate, and professional education, research, and outreach serve Rhode Island and beyond. Students, faculty, staff, and alumni are united in one common purpose: to learn and lead together. Embracing Rhode Island's heritage of independent thought, we value:

- Creativity and Scholarship
- Diversity, Fairness, and Respect
- Engaged Learning and Civic Involvement
- Intellectual and Ethical Leadership

Campuses. The University has a spacious rural campus 30 miles south of Providence in the northeast metropolitan corridor between New York and Boston. The center of campus is a quadrangle of handsome, old granite buildings surrounded by 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, agricultural fields, and the University's Thomas M. Ryan Center.

In addition to the Kingston Campus, the University has three other campuses. The Feinstein Providence Campus houses the Alan Shawn Feinstein College of Continuing Education (ASFCCE), the University's biotechnology manufacturing program, and the new "Admission Option" for incoming traditional-aged students. The Narragansett Bay Campus, six miles to the east of the Kingston campus, overlooks the West Passage of Rhode Island's prized bay and is the site of URI's Graduate School of Oceanography. In the western part of Rhode Island, just 20 miles from Kingston, is URI's W. Alton Jones Campus; its 2,300 acres of woods, fields, streams, and ponds are 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 adapta-

tion of the concept, federal funds given to colleges for marine research and extension are called "sea grants." Similarly, federal funds given to colleges invited to participate in a national network of urban institutions are called "urban grants." As an urban grant campus since 1995, URI maintains communication with its sister institutions on community service issues and promotes the adoption of successful urban-focused activities and strategies throughout the nation.

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 of the University in 1981. A historical timeline can be found at the end of this catalog.

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 page 8).

Undergraduate students can earn the following degrees at URI:

Bachelor of Arts
 Bachelor of Science
 Bachelor of Fine Arts
 Bachelor of Landscape Architecture
 Bachelor of Music
 Bachelor of General Studies (Feinstein College of Continuing Education only)

URI's College of Pharmacy also offers a six-year entry-level program, leading to the Pharm.D. degree.

All Kingston freshmen who enter the University to earn a bachelor's degree are first enrolled in University College. All undergraduates at the University, whether at our Kingston or Providence campuses, have a wide choice of programs from which to choose a major, and our advising programs

provide help in making this important decision and in choosing appropriate courses.

Graduate Study. Graduate study at the University was inaugurated in 1907 with Master of Science degrees in chemistry and engineering. The Master of Arts degree was first awarded in 1951, and in 1960 the University awarded its first Doctor of Philosophy degree. Graduate work for professional degrees was initiated in 1962, when the degree of Master of Public Administration was first awarded. Today, the master's degree is offered in 55 areas of study and the doctorate in 36 areas. To date, over 19,605 master's degrees and 2,462 doctoral degrees have been conferred. Students may earn the following degrees:

Master of Arts
 Master of Science
 Master of Business Administration
 Master of Environmental Science and Management
 Master of Library and Information Studies
 Master of Marine Affairs
 Master of Music
 Master of Oceanography
 Master of Public Administration
 Doctor of Philosophy
 Doctor of Physical Therapy

The University also offers two joint programs with Roger Williams University, the M.S./J.D. in labor relations and human resources, and the M.M.A./J.D. in marine affairs. Additionally, the University cooperates with Rhode Island College in offering a joint Ph.D. degree in education.

The Graduate School has primary responsibility for administering policies and procedures relating to advanced study at URI. Graduate School policy is formulated by graduate faculty members, acting through their delegate body, the Graduate Council, which includes student members. Only the Graduate School or the Graduate Council can grant exceptions to the regulations for graduate study, which are explained in detail in the "Graduate Programs" section.

The University's graduate programs of study are listed on the following page.

Study and research in a combination of special areas is often possible, and some graduate programs actively encourage collaborative multidisciplinary work. Specific mention of these opportunities is included in individual program descriptions. Graduate-level course work applicable to a number of programs is offered in several locations throughout the state by the Alan Shawn Feinstein College of Continuing Education. In most cases, however, a portion of the courses must be taken on the Kingston Campus.

Students with a bachelor's degree from URI or another university with equivalent requirements and accreditation may be admitted for graduate study, providing their credentials meet the standards set by the Graduate School and the depart-

Educational Outcomes

The University of Rhode Island expects that every academic program, as a consequence of the interaction between general education and a major, will lead the student to

- think critically in order to solve problems and question the nature and sources of authority;
- use the methods and materials characteristic of each of the knowledge areas while understanding their interconnectedness;
- commit to intellectual curiosity and lifelong learning;
- maintain an openness to new ideas while utilizing the social skills necessary for both teamwork and leadership; and
- think independently, be self-directed, and take initiative based on informed choices.

For a statement of the expected outcomes of general education, see page 33. For a comprehensive set of statements regarding the expected outcomes of each college and major, visit uri.edu/assessment.

ment 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.

Research

Division of Research and Economic Development. Today, research conducted by the University of Rhode Island wields a major impact on issues that affect the region, the nation, and the world. In 2008, the university was awarded over \$69.1 million for sponsored research projects; \$50.8 million of these funds came from federal sources, representing money that would not otherwise be available to Rhode Island. While the scope of URI research extends well beyond our state borders, the economic impact of the URI research enterprise makes a significant contribution to the state. It is estimated that the University's research grants and contracts generate an additional \$100 million for our state and local economies, while providing cutting-edge research opportunities for our faculty and students, creating additional high-paying jobs, increasing state and local tax revenues, and fostering new discoveries to address our local, state, national, and global challenges.

Research funds from federal and state agencies, foundations, commercial firms, and the University enable URI's Division of Research and Economic Development to provide assistance to the University research community in all aspects of research development, including identification of funding sources, preparation of proposals, sponsored projects review, approval and submission of applications, compliance review and monitoring, acceptance of grant and contract awards, intellectual property management and commerce litigation, patent and copyright procedures, and research-related external relationships.

The University's recent initiative to develop the new URI Foundation for Research is advancing by strengthening liaisons among the University, its researchers, and corporations. These efforts leverage investment capital to market inventions, expand resources, and support additional research. URI undergraduate and graduate students benefit greatly from the wide array of learning experiences gained through authentic research opportunities. Supported by our URI Presidential Partnership Programs, new alliances enhance collaborations among various disciplines and faculty from a multitude of departments and colleges within the University, as well as with other universities across the country and the world. These partnerships conduct exciting research in the areas of sustainable energy; forensic science; computer graphics and 3D interactive visualizations; ocean instrumentation; sensors and surface technology; coastal environments; public health; family resources; physiology measurements and computing; food, hunger, and nutrition; and underwater marine resources.

Research Centers established to advance knowledge and leverage additional support include the Center of Excellence for Research on Offshore Renewable Energy, Center of Excellence in Undersea Technology, Cancer Prevention Research Center, Coastal Institute, Biotechnology Center, Center for Immunopharmacogenomics, Center for Molecular Toxicology, URI Center for the Humanities, Institute for Archaeological Oceanography, Environmental Data Center, State Crime Laboratory, Rhode Island Transportation Research Center, Center for Urban Studies and Research, Center for Vector-Borne Diseases, RI Center for Nursing Excellence, Center for School Improvement and Educational Policy, RI Gerontology Education Center, John Hazen White Center for Ethics and Public Service, Center for Human Services, URI Transportation Center, Center for Pacific Basin Capital Markets Research, Center for Pharmacogenomics and Molecular Therapy, Cooperative Extension Service, Feinstein Center for a Hunger Free America, Instructional Development Program, Labor

Research Center, Marine Advisory Service, Rhode Island Water Resources Center, Robotics Center, and the Coastal Resources Center.

Additional information about research and related expertise at URI can be obtained from the URI Division of Research and Economic Development: uri.edu/research/tro.

Research Facilities. URI is the principal public research institution in the state of Rhode Island. A number of innovative research facilities, as varied as our programs of study, are housed on our campuses. Our College of Engineering Computer Center (ECC) features 85 workstations; scanning, printing, and plotting services; and cable and wireless Internet access for personal laptop computers. Our Department of Plant Sciences operates 50 acres of research and education farm centers, including the C. Richard Skogley Turfgrass Center, the oldest turfgrass research and teaching program in the U.S. Plant Sciences is also affiliated with the URI Botanical Gardens and E.P. Christopher Arboretum. URI's entomology program has a biological quarantine laboratory, one of the only such university-affiliated facilities in the Northeast. Our College of Nursing possesses practice laboratories for students with a variety of equipment. Our Department of Physical Therapy has a clinical service and research unit that includes specialized exercise training equipment, computerized muscle dynamometry and clinical electrophysiology laboratories, aquatic therapy facilities, and work hardening stations. The Department of Kinesiology houses laboratories specializing in assessing human performance, metabolic testing, electron microscopy, bone density, and body composition analysis. URI's Speech and Hearing Clinic is a state-of-the-art service provider for individuals with speech, language, and hearing problems. While serving the community, it provides training and research opportunities for students. The Department of Chemistry houses laboratories specializing in NMR, analyses of energetic materials, forensic, biological, and separations science, and spectroscopy.

Facilities at URI's Narragansett Bay Campus include a 12,000-square-foot research aquarium. The *R/V Endeavor* is the University's "regional class" research vessel, a 184-foot ship operated by the Graduate School of Oceanography. Other significant Bay Campus research facilities include the Marine Ecosystems Research Laboratory where large-scale marine ecosystem experiments are conducted; the Marine Geological Samples Laboratory, a virtual reality simulator used to study ocean and atmospheric circulation; the Inner Space Center, where information from remotely operated vehicles is monitored in real time; acoustic calibration and model tow tanks; and the containerized mobile Geobiology Field Laboratory. A wide range of sophisticated educational and research facilities are on the campus, including a geophysical fluid dynamics laboratory with a rotating table, a paleomagnetic laboratory, various types of mass spectrometers, a marine geological samples laboratory, and high resolution optical sensing for biological studies. The Bay Campus is also home to the Rhode Island Nuclear Science Center, where scientists have access to a research reactor for chemical analysis by neutron activation. For more information, and to contact individual researchers, visit the GSO Web site at gso.uri.edu.

The Genomics and Sequencing Center (GSC), in the Department of Cell and Molecular Biology in the Center for Biotechnology and Life Sciences, provides technical and analytical support for the molecular biology and genomics research focus of the University. The GSC offers services in robotic sample preparation, DNA sequencing, fragment analysis, and real-time/quantitative PCR to campus researchers and external clients. The GSC also provides imaging services using transmitted light, epifluorescence and scanning confocal microscopy, as well as cryostat sectioning of frozen specimens. Investigators are encouraged to incorporate these services into their research and teaching needs. The GSC is available for students, staff, and faculty at URI, as well as non-URI

researchers. Detailed information on sample preparation, submission instructions, and equipment use may be found at the GSC Web site at uri.edu/research/gsc.

For more information on URI's research facilities, please turn to the section on the college or department you are interested in.

Information Technology Services.

Information Technology Services (ITS) provides leadership and strategic direction for technology utilized by the University community for instruction and research. ITS maintains central server support, general purpose computing facilities, student personal computing resources, and a high-speed network. Students and faculty are provided access to an assortment of electronic services through the commercial Internet as well as Internet2. ITS is a service organization whose staff provide a variety of technical services in support of the University's mission and goals.

Centralized administrative, instructional, and research computing are supported on multiple servers running a wide variety of operating systems, from an IBM RISC system running AIX to Linux and Windows servers. Facilities for computer graphics are also offered, including a color plotter. Several hundred personal computers and workstations are located in public work areas, and virtually all offices are equipped with computing resources. These devices are connected to the campus network which provides access to ITS facilities, as well as the global Internet.

URI's Information Technical Services manages numerous personal computer laboratories on campus, featuring both Windows and Macintosh workstations. A wide variety of software application packages are available. These labs are available for faculty research, teaching, and general student use. A number of laboratories are specifically designed for use as computer classrooms. In addition, a significant percentage of general assignment classrooms are technology-equipped.

University Libraries

The University Libraries are located on three of the University's campuses. The major collection is housed at the Robert L. Carothers Library and Learning Commons in Kingston. There are also libraries at the Feinstein Providence Campus and at the Narragansett Bay Campus. The Pell Marine Science Library on the Narragansett Bay Campus houses the National Sea Grant Depository.

The University is a member of the Higher Education Library Information Network (HELIN), which extends borrowing privileges to the faculty, staff, and students of the Community College of Rhode Island, Brown University, Bryant College, Johnson & Wales University, Providence College, Rhode Island College, Roger Williams University, Salve Regina University, the University of Rhode Island, and Wheaton College (in nearby Norton, Massachusetts). The 12 R.I. health sciences libraries are also part of the HELIN network. Holdings of these libraries are included in the online public access catalog.

The Carothers Library in Kingston has open stacks that provide direct access to 1.3 million volumes, 25,000 electronic journals, 750,000 government documents, 1.6 million microforms and 9,250 items in the audiovisual collection. The Special Collections Department collects and maintains rare books, personal and political papers, church and historical records, the University archives, the commercial pattern archives, and a variety of special interest materials. The Carothers Library provides full reference, bibliographic, and circulation services during most of the 95 hours a week it is open.

Accreditation

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

The New England Association of Schools and Colleges is a nongovernmental, nationally recognized organization whose affiliated institutions range from elementary schools to 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 that has the necessary resources available 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 school's administrative staff or to the association at 209 Burlington Road, Bedford, MA 01730; 781.271.0022.

The national accrediting agencies that have approved the quality of certain course offerings and programs of study include the Accreditation Board for Engineering and Technology (ABET), Accreditation Council for Pharmacy Education, American Assembly of Collegiate Schools of Business (AACSB), American Association of Marriage and Family Therapy, American Chemical Society, American College of Nurse-Midwives, American Dietetic Association, American Library Association, American Physical Therapy Association, American Psychological Association, American Society of Landscape Architects, American Speech-Language-Hearing Association, Commission

on Collegiate Nursing Education, National Association of School Psychologists, National Association of Schools of Music, National Council for Accreditation of Teacher Education, and the Planning Accreditation Board.

The University is also an approved member institution of the American Association of Adult and Continuing Education, the American Council on Education, the Association for Continuing Higher Education, the Association of American Colleges and Universities, the Council for Higher Education Accreditation, the Council of Graduate Schools, the Institute for International Education, the National Association of State Universities and Land-Grant Colleges, the North American Association of Summer Sessions, the Northeastern Association of Graduate Schools, the Society for College and University Planning, and the University Continuing Education Association.

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 is authorized 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 ombud is a tenured or emeritus member of the faculty appointed by the Faculty Senate and is 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 voices of alumni are heard through the *Alumni Association*. The Alumni Relations Office recognizes all those who have attended the University for two semesters or more and whose class has graduated. URI has almost 100,000 alumni throughout the world. The Alumni Relations Office promotes the interests of the University and helps keep alumni in touch with their alma mater. Through its office and its network of chapters and affinity groups throughout the country, the Alumni Relations Office maintains ties with URI alumni through services, programs, special events, the magazine *QUAD ANGLES*, and the bi-weekly e-newsletter *InAdvance*. An annual dues-paying membership program provides funds for reunions, Homecoming, special events, the Student Alumni Association, alumni publications, and other University projects. The annual Big Chill Weekend and Alumni Golf Tournament provide scholarship and other University aid.

The University receives less than 12 percent of its support from the state. The balance comes from student fees and tuition, federal grants, fundraising, auxiliary enterprises, and other miscellaneous sources. The *University of Rhode Island Foundation*, an independent 501(c)(3), is charged with conducting all charitable fundraising efforts on behalf of the University, which is in the midst of its \$100 million Making a Difference campaign, as well as prudently investing the charitable donations given to support the University's endowment. Such endowment-related gifts are made as lasting legacies, providing support to the students, faculty, and programs of the University, in perpetuity. The Foundation is governed by its trustees and, more specifically, its 30-member executive board which includes the former chairman of the Board of Governors for Higher Education, the President of the University, the President of the Alumni Association, and a number of executive and volunteer alumni and supporters. The URI Foundation has a tradition of contributing a significant amount of both endowment-generated and non-

endowment related private funding to the University each year. Created by the Rhode Island General Assembly in 1957, the Foundation is proud of its record of commitment and service to the University.

Academic and Social Codes. Each student is a member of the University community, with all the rights, privileges, and responsibilities that go with such membership. The rights and privileges include full use of the educational opportunities and facilities offered on campus. The responsibilities include those of making proper use of these facilities in order to progress educationally, respecting the rights of others, and knowing and obeying the rules and regulations developed by the University community for the good of the total membership.

The University expects that all course papers, theses, and dissertations will be prepared, and all examinations taken, in conformance with accepted standards of academic integrity. This includes the proper citation and attribution of all material that is not the original product of the writer. It is the student's responsibility to determine the appropriate style used in his or her discipline for presentation of material derived from other sources and to adhere to it scrupulously in all written presentations. (See "Cornerstones," below.)

In addition, each student's University ID Card must be carried at all times on campus and presented upon request. Use of the card constitutes acceptance of all applicable terms and conditions. This card will remain the property of URI. Lost, stolen, or damaged cards must be reported immediately to the Campus Access Office (Room 216, Memorial Union).

Affirmative Action and Nondiscrimination. It is the policy of the University of Rhode Island not to discriminate on the basis of race, sex, religion, age, color, creed, national origin, disability, sexual orientation, gender identity or expression, and not to discriminate against disabled and Vietnam era veterans in the recruitment, admission, or treatment of students, the recruitment, hiring, or treatment of faculty and staff,

and in the operation of its activities and programs, as specified by state and federal laws, including the Equal Pay Act of 1963, Titles VI and VII of the Civil Rights Act of 1964, as amended, the Age Discrimination in Employment Act of 1967, Title IX of the 1972 Educational Amendments to the Higher Education Act, Executive Order 11246, as amended, Sections 503/504 of the Rehabilitation Act of 1973, as amended, the Americans with Disabilities Act of 1990, and all other laws which pertain to access and equity.

The administrators of Undergraduate Admission, Student Financial Aid, Graduate School, Career Services, Counseling Center, and Special Programs for Talent Development cooperate to provide information and guidance for economically and socially disadvantaged individuals seeking opportunities for study at the University. Inquiries may be directed to any of these offices.

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

URI CORNERSTONES

The University of Rhode Island is a principled community guided by values. As members of this community, we subscribe to the following principles, which form the foundation of our endeavors.

- We pursue knowledge with honesty, integrity, and courage.
- We promote independent choice, intellectual curiosity, open-mindedness, and free expression.
- We respect the rights and dignity of each individual and group.
- We reject prejudice and intolerance, and we work to understand differences.
- We accept personal responsibility for our actions and their consequences.
- We actively cooperate to improve the University, the state of Rhode Island, and the global community beyond our borders.
- We strive to be a community where the environment and property are treated respectfully.
- We seek to create and maintain an environment conducive to personal health and wellness.
- We work to develop skills that promote lifelong learning, leadership, and service.

*Developed by the Quality of Student Life Committee
and endorsed by the URI Student Senate.*

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, Health Services, and the Disability Services office in the Memorial Union.

Inquiries concerning compliance with antidiscrimination laws should be addressed to Roxanne Gomes, Interim Director of Affirmative Action, Equal Opportunity, and Diversity, Suite 201, Carlotti Administration Building, 401.874.2442. Questions regarding provisions for students with disabilities should be directed to the director of Disability Services in the Office of Student Life, 330 Memorial Union, 401.874.2098 (TTY via R.I. Relay, 800.745.5555).

Notice of Change

Rules, regulations, dates, tuition, fees, the availability and titles of programs and areas of specialization, their administrative location, and courses set forth in this catalog are subject to change without notice. Where a change in program requirements is made while a student is enrolled, the student may elect to complete the program under the requirements in effect at the time of matriculation or to shift entirely to the new requirements, but may not choose parts of each set. As a result of the ongoing reviews of all programs, certain offerings and specializations may be deleted or restructured between editions of this catalog.

Summary of Enrollment Fall Term 2008 (Nonduplicated)

Undergraduate Students (by College)

Arts and Sciences	1,897
Business Administration	731
Engineering	499
Environment and Life Sciences	1,060
Human Science and Services	901
Nursing	537
Pharmacy	378
(includes professional 6-year pharmacy program students)	
University College	6,788
Continuing Education (B.G.S.)	484
Nondegree (Credit)	277
<i>Total (Male 5,946; Female 7,606)</i>	<i>13,552*</i>

Graduate Students

Degree	1,850
Degree (Continuous Registration)	20
Certificate	66
Postbaccalaureate (nondegree)	599
<i>Total (Male 963; Female 1,562)</i>	<i>2,535</i>

TOTAL ENROLLMENT **16,087***

**includes 183 off-campus study students*

STUDENT LIFE AND SERVICES

An 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.



While much of the information provided here applies primarily to students at the Kingston Campus, you can find more information on offerings at URI's Providence Campus on pages 18 and 76 of this catalog, by visiting uri.edu/prov, or by visiting Room 125 at the Providence Campus.

Undergraduate Orientation

Orientation programs that facilitate new students' entry into the campus community are administered by University College. New students are charged a fee to cover expenses associated with participation in orientation such as room, meals, and materials.

New Student Orientation. All new first-year undergraduate students attend a two-day orientation to plan their academic programs, meet with an academic advisor

and register for first-term classes, learn about URI, and begin to acquire the skills essential for successful transition from high school and home to the University community. Admitted students begin receiving orientation registration materials in April.

Parents and family members of new students are invited to attend a specialized family orientation program, which coincides with New Student Orientation.

Transfer Orientation. Transfer students with 24 credits or more who are admitted to University College, rather than any of the degree-granting colleges, are invited to attend Transfer Orientation. This one-day program is designed to acquaint transfer students with some of the unique features and procedures of the University. Students meet with academic advisors and register for first term classes.

Orientation for International Students.

The Office of International Students and Scholars has implemented an orientation program and ongoing workshops to provide assistance in personal, academic, and financial matters to our international community and their dependents. Through this venue, OISS contributes to the University of Rhode Island's commitment to a global perspective. Staff members are available to help students adjust to life at the University and in the United States. For more information, email issoff@etal.uri.edu.

Lifestyles

Undergraduate Housing. Residence halls and boarding facilities are available to URI students during the regular academic year and during summer sessions. Some students prefer the option of living in a fraternity or sorority or off campus. On-campus housing for incoming transfer students is extremely limited.

Residence Halls and Dining Centers. There are 22 residence halls, an undergraduate apartment complex, and multiple theme houses on campus offering a variety of living accommodations. Notices are forwarded to all residence hall students during the spring semester to inform them of the housing application procedure for the following year. After returning students have been assigned, first-year students who have paid their housing application fee by May 1 will be assigned to the designated first-year housing spaces. All other students will be assigned on a space-available basis. Assignments of incoming students are generally made in the order in which their housing deposits are received. Every effort is made to honor roommate requests. For rates and contracts, see page 22.

Applications for residence hall living and more information about housing options can be obtained from the Department of Housing and Residential Life, Roger Williams Building, or from housing.uri.edu.

URI offers two large dining centers, a food court, two cafés, a late-night restaurant and lounge, concession stands, and a convenience store. We feature such popular brands as Starbucks, Freshiens, Upper Crust Pizza, and Astro's Burgers. The University requires that all students living in non-apartment style residence halls choose from a selection of available resident meal plans. Detailed descriptions of meal plans, facilities, menus, and hours of operation are available at uri.edu/dining.

Each URI student also has the opportunity to obtain a Ram account, which is an optional debit card account accessed through the student's ID card. Students who participate in the program have the ability to purchase food and supplies from various on- and off-campus merchants. Unused dollars in the Ram Account transfer from semester to semester until graduation.

Fraternities and Sororities. About 1,000 students participate in URI's fraternity-sorority system, which sponsors 13 houses designed for congenial small-group living. The Coordinator of Greek Affairs in the Office of Student Life advises these groups. The Greek houses promote scholarship, citizenship, and small-group living. Purchasing, dining services, and business management for these houses is provided by a private corporation controlled by the fraternity and sorority members.

Graduate Housing. Interested students should contact URI's Department of Housing and Residential Life for information, at 401.874.5390.

Off-Campus Housing. The Commuter Housing Office is located in Room 316 of the Memorial Union and maintains an online database of rental property and roommate listings available to URI students, faculty, and staff. The Commuter Housing Office is an on-campus resource for landlord/tenant legal questions and provides information regarding resources available to commuter students.

There are approximately 6,000 undergraduate students who commute daily to classes. URI typically has two kinds of com-

muters: those who live "down the line" and those who live "at home." Many juniors, seniors, and graduate students choose to live "down the line" within a 10-mile radius of URI in summer homes that are rented during the academic year, or the months of September through May. Students generally pay rents between \$400-600 per person per month in a furnished house. Supermarkets, laundromats, restaurants, shopping centers, and recreational facilities are nearby.

Resources and services available to commuters at URI include the online Off-Campus Property Listing; Roommate Database; Commuter Lounge in Memorial Union Room 310; RIPTA bus discounts; and commuter meal plans through Dining Services. Commuter students can purchase a Dining Services Flex Meal Plan at any time during the semester. For more information, visit the Campus Access Office in the Memorial Union or the Dining Services Web site at uri.edu/dining.

For more information about Off-Campus housing, phone 401.874.2828 or visit uri.edu/commuter_housing.

Student Government

Undergraduate. The *Student Senate* is a legislative body that represents the undergraduate students to the administration and faculty. It oversees student organizations and provides funding for them by distributing a portion of the Student Services fee. The Senate Office is located in the Memorial Union, phone: 401.874.2261. URI's Interfraternity Council supervises fraternity affairs, and the Panhellenic Association governs sorority life.

Graduate. The *Graduate Student Association* (GSA) is a government body maintained by and for the graduate students of the University with the purpose of enhancing the academic, intellectual, and social opportunities of its members. Officers and members of the GSA Senate, who are elected annually from the entire graduate student body, distribute GSA funds to graduate students and other qualifying groups, organize social events, and serve as graduate student rep-

resentatives on University-wide committees. GSA offices are located in Room 317 of the Memorial Union, phone: 401.874.2339, e-mail: gsa@etal.uri.edu, Web site uri.edu/gsa.

Student Discipline

Administered by the Office of Student Life, the University Student Discipline 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* (uri.edu/judicial/studenthandbook). The Student Discipline System receives complaints or allegations from aggrieved parties, the available facts are gathered and evaluated, and the case may be referred for formal administrative action or a hearing. Outcomes range from "no further action" to suspension or dismissal from the University and may include education, assessment, fines, or other conditions relating to the nature of the violation.

Student Services

Academic Enhancement Center. Located on the 4th floor of Roosevelt Hall with the Writing Center, the AEC supports academic achievement for students in all majors.

The AEC's trained undergraduate and graduate staff offer interactive Supplemental Instruction (SI) sessions for selected courses and one-to-one and small group tutoring in all academic areas (by appointment and on a walk-in basis). Students may seek AEC services for specific courses or assignments, or for general academic and organizational skills such as time management, effective listening, note taking, or test taking. The AEC also helps organize and facilitate study groups, and provides study group materials to students and faculty who wish to organize their own study groups. Workshops on study skills and organizational skills are offered throughout the year, and by appointment to campus groups. Additionally, AEC staff work with faculty and staff to

strengthen connections between classroom and lab learning and AEC services.

The AEC is open throughout the academic year, Monday through Thursday from 9 a.m. to 9 p.m., Friday from 9 a.m. to 1 p.m., and Sunday from 4 p.m. to 8 p.m. Up-to-date information on services available, office hours, tutor and teaching assistant schedules, tutor profiles, and special announcements are available on the AEC Web site, at uri.edu/aec. Students may make appointments online or by calling 401.874.2367. Walk-ins are taken on a first-come-first-served basis.

Students in excellent academic standing at all levels are encouraged to apply for tutoring positions in the AEC. Applications are available at the AEC Web site and in the AEC office.

Career Services. Offering both “high tech” and “high touch” approaches, URI’s centralized Career Services Department at 228 Roosevelt Hall assists URI undergraduates, seniors, grad students, and recent alumni assess their career goals, develop job search and decision-making skills, and implement career objectives. From the first year on, Career Services helps students choose majors, explore options, and find direction through professional one-to-one personal assessment.

To attract and raise incoming students’ awareness of the importance of an early start to career education, Career Services holds an annual fall welcome party in front of its location at Roosevelt Hall.

A full range of career development, planning, and job search services is provided to students from their first year at URI. A staff of professionally trained career counselors with advanced degrees in the field provides one-to-one confidential career assessment and career advising. In addition, Career Services offers students opportunities to meet with employers on-campus: staff maintains active relationships with over 2,000 employers (including school systems and non-profit organizations) from all geographic locations.

Career Services offers a Web-based career management system exclusive to URI

students and registered alumni. Through RhodyNet, accessible to students through their student IDs, users search available part-time and full-time opportunities, including internships. Providing “Oceans of Career Opportunity,” this secure system also allows users to apply and sign up for on-campus interviews; have their résumés forwarded to employers; access mentors; and learn about career fairs.

During the academic year, students may use walk-in career advising services for résumé reviews and other immediate concerns.

Job and internship fairs and networking events are held in both fall and spring and are open to all. Specialty job fairs attract specific students and alumni. These include Summer and Internship Job Fairs, Engineering and Technology Job Fair, Accounting Night, Nursing Job Fair, Education/Teaching Career Fair, Pharmacy Interview Day, and a Spring Career & Job Fair held at the Ryan Center.

URI Career Services also assists students whose goals include graduate or professional school. Career professionals review graduate school essays, assist in graduate school research, and advise concerning job search and interview techniques. Graduate Schools attend many of the career and job fairs.

The Career Resource Center at Career Services houses print and multimedia materials, including self-assessment tools, company information, and national directories not found elsewhere. Workshops—including how to choose an internship, how to conduct a job search, how to write résumés and cover letters, and how to interview—and several senior-oriented seminars are held in the CRC, which is open year-round.

For more information and hours, visit the Career Web site at career.uri.edu, call 401.874.2311, or email career@etal.uri.edu.

Chaplains. The University chaplains are active in providing religious services and in counseling, advising campus groups, teaching, and programming. The chaplains represent the Roman Catholic, Jewish, Protestant, Buddhist, and Muslim communities; referrals are available to representatives of

other faiths. The chaplains work together to foster dialogue, understanding, and respect among peoples of different faiths and traditions. See uri.edu/chaplains.

Counseling. The Counseling Center, located in Room 217 of Roosevelt Hall, is staffed by professional counselors, psychologists, and social workers. The Center offers individual counseling and a variety of skill-building and support groups to help undergraduate and graduate students achieve their academic and life goals. The Counseling Center provides assistance to students in areas such as adjusting to college life, coping with stress, building satisfying relationships, planning for the future, and coping with depression, substance use, or other mental health challenges.

Counselors work closely, as appropriate, with other health care providers in Health Services. Additionally, some students contact the Counseling Center for help with concerns about a roommate or friend. Information shared in counseling is confidential. Center hours are Monday through Friday 8:30 a.m.–4:30 p.m. with extended hours until 6:30 p.m. on Tuesday.

To make an appointment, students may simply stop by the Counseling Center, or call and schedule a time to meet with a counselor. If you need help with an urgent matter, ask to speak to the counselor-on-call. Phone: 401.874.2288. Web site: uri.edu/coun.

Disability Services for Students. Staff in Disability Services work with students and all units of URI to foster an inclusive and accessible environment, support academic success and self-advocacy, and promote ADA compliance. We recognize disability as cultural diversity and foster an inclusive environment through education, awareness, and accessibility.

We accomplish this mission by:

- recommending and coordinating reasonable accommodations in a variety of domains (exam, course, program, housing, transportation),
- encouraging student development through self-advocacy and personal decision making,

- supporting a commitment to academic success and student retention,
- providing training and information to faculty and administration that uphold the inclusion of persons with disabilities.

Please visit our Web site at uri.edu/disability/dss for more information about requesting and receiving accommodations, providing required documentation of disability, or general resource information. We are happy to discuss specific concerns by phone, in person, or by email. Our office is located at 330 Memorial Union, Kingston, RI 02881. Phone: 401.874.2098 (for TTY access call R.I. Relay at 800.745.5555). Email: dss@etal.uri.edu.

Health Services. Located in the Potter Building, adjacent to the residence halls, Dr. Pauline B. Wood Health Services provides primary ambulatory care to students. Nurse practitioners and physicians see students by appointment Monday through Friday from 9 a.m. to 8 p.m. in the general medicine and women's clinics with laboratory, radiology, and pharmacy services available. Limited services are available on Saturdays, Sundays, and most holidays with physician and pharmacy coverage from noon to 4 p.m.

Specialists in orthopedics, surgery, internal medicine, dermatology, gynecology, and psychiatry hold regular clinics at the Potter Building. A travel/immunization clinic administers vaccines available from the pharmacy. Allergy injections are given, provided the vaccines are supplied by the student. Care provided at Health Services is billed to insurance companies. Your mandatory health service fee covers all office visits not covered by insurance. Lab and X-ray charges not covered by insurance are the responsibility of the student. Co-payment for pharmacy is expected at the time of service.

Hospital care is available in the local community, as is referral to specialists. All medical expenses incurred outside the University's Health Services are the responsibility of the student. Therefore, students are required to have adequate accident/sickness

or health insurance. Students who choose a private physician assume responsibility for expenses incurred. See "Accident/Sickness Insurance" on page 21 for additional details or consult the Health Services brochure, "To Your Health."

Health educators provide a variety of services to promote and enhance personal health and well-being. Information on how to achieve a healthy lifestyle is provided through wellness clinics, outreach activities, awareness days, and dynamic peer education program workshops. A registered dietitian is available for nutrition education and counseling.

An emergency medical service (URI EMS) staffed by student volunteer EMTs responds to campus emergency medical calls 24 hours a day and transports patients to Health Services or the South County Hospital emergency room during the academic year.

Independent Students. Independent or nontraditional students make up over 10% of URI's undergraduate population. Any students over the age of 23 who are either returning to the University for a second degree or starting anew are eligible to benefit from the services provided at the Women's Center on 22 Upper College Road. The office is always on hand to lend individual support and ease an Independent Student's transition to college life. For more information on Independent Student Services, call 401.874.2097 or visit uri.edu/women_center.

International Students. The Office of International Students and Scholars (ISS) provides services for all internationals holding F and/or J nonimmigrant visa designations. We serve approximately 500 international visiting scholars, graduate and undergraduate students (degree and non-degree) and their dependents, from as many as 59 different nations. We are responsible for communicating and interpreting statutes, rules, and regulations that derive from the Department of Homeland Security, Department of State, Department of Justice, and the United States Citizenship

and Immigration Services (formerly known as the Immigration and Naturalization Services). We also disseminate information pertinent to international visitors from the RI Division of Motor Vehicles, the Internal Revenue Service, and the Social Security Administration.

The staff at ISS is committed to providing valuable and comprehensive services to our international community. ISS also provides workshops and cross-cultural programming events for students, their dependents, and scholars. Our center serves as a cross-cultural meeting place, hosting social events and recreational trips. Our comfortable lounge is equipped with many amenities and is open to any URI student or URI student organization. We co-sponsor events with Civic Clubs, such as Rotary International Club, the Rhode Island Association of International Advisors, and New England Land Grant Colleges International Advisors.

For questions or inquiries, contact the International Center, at 37 Lower College Road, Kingston, RI 02881. Email: issoff@etal.uri.edu. Web site: uri.edu/iss.

Memorial Union. The center for campus activities, the Memorial Union houses a wide variety of educational, social, cultural, and recreational services and facilities for both undergraduate and graduate students. These include meeting and conference rooms, lounges, study rooms, radio station, campus newspaper offices, game room, offices for student organizations, scheduling and information office, a mailroom for students living on campus, ballroom, optical shop, flower shop, convenience store, cafeteria, restaurant, pizza shop, and a coffee and pastry shop.

Among the services provided are a unisex hair salon, credit union, copy center, bookstore, computer store, computer lab, 193° Coffeehouse, and the Memorial Union Technical Productions (which offers technical services in sound and lighting).

An undergraduate student board of directors works with the director and staff of the Memorial Union/Student Involvement Office to determine policy for the Union

and plan a full program of social, cultural, intellectual, and recreational activities.

Multicultural Center. Approximately 800 students use a variety of services for multicultural students at URI. African-American, Native American, Asian, Latin-American, Cape Verdean, Haitian, Muslim, and gay students have formed special-interest groups to further meet their needs. The Multicultural Student Center, located near the Memorial Union, serves as a gathering place for leisure, meetings, workshops, and various activities. Counseling, programming, and other services are provided by the staff of Multicultural Student Services (401.874.2851).

Talent Development. URI also offers Special Programs for Talent Development, a program of special interest to many minority and disadvantaged students. Talent Development was started in 1968 to help young people who otherwise could not attend the University. "TD" provides a special opportunity for minorities and disadvantaged persons.

Talent Development at URI includes a spring Saturday PREP Program and Pre-Mat, an intense six-week academic summer experience on the Kingston campus, which many TD students mark as a turning point in their lives. Upon successful completion of Pre-Mat, each student arrives in Kingston in September as a URI student and a member of Talent Development. TD provides students with special academic advising, financial aid based on need, and a strong support community.

Any Rhode Island resident may apply for Talent Development. Specifically, the program looks for minority and/or disadvantaged students who, without TD and its support services, could not expect to be admitted to URI. Even those who finished high school a while ago, or have a GED, may still be eligible for Talent Development.

To find out more about Talent Development at URI or its application process, ask your guidance counselor, call 401.874.2901, e-mail tdinfo@etal.uri.edu, or visit uri.edu/talent_development. You

can also find more information on the program on page 32 of this catalog.

Women Students. Women students make up more than half of URI's total student population. A Women's Center, administered by the Office of Student Life, provides the necessary resources to help create an environment rich in role models and free of sexual inequities. In addition, it coordinates lectures, programs, and activities of special interest to women. The Women's Center is located at 22 Upper College Road and includes a residential component for Women in Science and Technology and in Women's Leadership, a Violence Against Women Prevention Program, and the Rose Butler Browne Women of Color Mentoring Program. Phone: 401.874.2097.

Writing Center. Located in the heart of the Academic Enhancement Center on the 4th floor of Roosevelt Hall, the Writing Center provides free writing assistance to anyone in the university community. Tutors work with all writers, from all disciplines, on all projects, at all stages of the writing process—from brainstorming and understanding the assignment, to drafting and organizing, to revising and learning how to self-edit. Sessions may be one-to-one with an individual tutor, or in small groups working on the same assignment.

The Writing Center focuses on helping students build strategies and habits for effective writing in any situation. Tutorials are limited to 30 minutes per session, but writers are encouraged to return for more visits at several points during each project. In addition to our sessions, other resources include homework and study tables, reference books, and computers for researching and composing.

Although appointments are encouraged, walk-in sessions are sometimes available. The Writing Center is open approximately 40 hours each week, with both day and evening hours. For more information, call the Writing Center at 401.874.2367, log on to the Web site at uri.edu/artsci/writing/center, or stop by the Academic

Enhancement Center on the 4th floor of Roosevelt Hall.

Most tutors have been trained either as writing instructors in the Writing and Rhetoric Program, or as peer tutors through a course in writing consultancy (WRT 353). Any undergraduate interested in becoming a Writing Center tutor should enroll in WRT 353.

Student Involvement

Social, recreational, and cultural arts programs are sponsored by many different offices and student organizations at the University. These events are funded by student fees, and opportunities abound for students to become involved in selecting and coordinating them. The Student Entertainment Committee sponsors an extensive series of social programs featuring concerts, local and regional musicians, other live entertainment, lectures, and films.

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 the direction of the Theatre Department, presents several plays each year. Cheerleaders are active at varsity football and basketball games and other special events and rallies.

Students publish a newspaper four times a week and a yearbook. Radio station WRIU, 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. There is also a 24-hour student-run ambulance service.

Over 120 student organizations exist in which students can get involved. Covering a wide range, these organizations may be social, political, academic, religious, or media-related; several represent special-interest groups. There are also about 30 professional organizations on campus related to academic areas. Thousands of

students participate in the activities coordinated by these organizations. For information, students are directed to Room 210 in the Memorial Union.

Athletics and Recreation. The Department of Athletics and Recreation is committed to providing athletics and recreational opportunities to students, 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 emphasis of the program is to provide opportunities that encourage the pursuit of lifetime activities, a sense of commitment and teamwork, and the development of personal character while maintaining an environment that values cultural diversity and gender equity among student athletes and department staff.

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

Competitive club sport teams include equestrian, ice hockey, lacrosse, roller hockey, men's rowing, rugby, sailing, skiing, synchronized swimming, ultimate Frisbee, men's volleyball, water polo, and wrestling. The Intramural Sports Program also offers badminton, basketball, beach volleyball, billiards, bowling, flag football, floor hockey, golf, indoor soccer, softball, tennis, and volleyball throughout the year for all-male, all-female, and coed teams. In addition to membership in the Atlantic 10 Conference, the University holds membership in the Colonial Football Conference, NCAA, ECAC, and the New England Intercollegiate Athletic Association.

The 7,657-seat Ryan Center is the cornerstone of URI's athletic complex and serves as the home of Rhode Island men's

and women's basketball teams. Located adjacent to Meade Stadium, the \$54 million facility gives Rhode Island one of the finest facilities in the nation. The 200,000-square foot arena combines the heart and spirit of venerable Keaney Gym with the amenities, services, and conveniences of a modern arena. The Bradford R. Boss Arena is one of only two ice facilities in the state that operate for the entire year and are open for public skating.

The University has a number of other facilities for athletics and recreation. Mackal Field House contains three fitness rooms complete with weight training equipment, Lifecycles, stair climbers and rowing machines, a 200-meter track, four basketball courts, and a gymnastics training center. Mackal also houses the athletic department's administrative offices.

The 5,810-seat Meade Stadium opened in 1928 and underwent major renovations in 1980. An additional 2,200 seats recently opened along the west sideline. Opened in 1953, 3,385-seat Keaney Gym is the site of Ram volleyball matches. Keaney Gym was the home of the men's and women's basketball teams for 49 seasons. Tootell Physical Education Complex offers an aquatic center with competitive, instructional classes; two varsity team weight rooms; a dance studio; and East and West Gyms, available for basketball, volleyball, and badminton.

Bill Beck Field is the home of the URI baseball team. The playing surface has been upgraded and is one of the top baseball facilities in the Atlantic 10 Conference. Other athletic facilities at URI include a lighted soccer field, field hockey field, 12 tennis courts, softball field, Arrigan Sailing Center, Campanella Rowing Center, two beach volleyball courts, and practice fields.

Center for Student Leadership Development. The Center for Student Leadership Development offers for-credit classes, internships/teaching assistant positions, workshops, conferences, and programs designed to enhance students' leadership skills. The credit classes count toward

the academic minor in leadership. Other academic opportunities include individually designed internships, as well as tracks in Peer Leadership, Activism, Athletics, Fraternity and Sorority Leadership, and Emerging Leadership. Popular programs and conferences include the First-Year Leadership Institute, Outdoor Adventure Programs, and the FLITE course. The Center also manages URI's North Woods Challenge Course. In addition, leadership and group development consulting services are available. For more information, visit the Memorial Union, Room 210.

Honor Societies. The University has chapters of a number of national honor societies, invitation to which is recognition of scholarly accomplishment. Several societies recognize scholarship over a wide range of disciplines: Phi Beta Kappa, a national liberal arts honor society; Phi Eta Sigma, a national honor society for first-year students; and Phi Kappa Phi and the Golden Key, national honor societies for general scholarship. More specialized honor societies include Alpha Sigma Lambda (continuing education), Alpha Kappa Delta (sociology), Beta Alpha Psi (accounting), Beta Gamma Sigma (business), Beta Phi Mu (Beta Iota chapter, library science), Chi Epsilon (civil engineering), Dobro Slovo (Slavic), Eta Kappa Nu (electrical engineering), Financial Management Association (URI chapter, finance), Gamma Kappa Alpha (Italian), Iota Iota Iota (women's studies), Kappa Delta Pi (education), Kappa Omicron Nu (O Alpha Mu chapter, family and consumer studies), Kappa Psi (pharmacy), Lambda Kappa Sigma (women's pharmacy), Lambda Pi Eta (Beta Gamma chapter, communication studies), Lambda Tau (medical technology), Omicron Delta Epsilon (economics), Omicron Delta Kappa (leadership), Onyx (African-American scholarship), Order of Omega (fraternity/sorority), Phi Alpha Theta (history), Pi Kappa Lambda (Zeta Epsilon chapter, music), Phi Lambda Sigma (pharmacy-peer recognition), Phi Sigma Iota (foreign languages, literature, and linguistics), Pi Delta Phi (French), Pi Mu Epsilon (mathematics), Pi Sigma

Alpha (Gamma Epsilon, political science), Pi Tau Sigma (mechanical engineering), Psi Chi (psychology), Rho Chi (pharmacy), Sigma Alpha Pi (leadership and success), Sigma Delta Pi (Spanish), Sigma Iota Epsilon (management), Sigma Lambda Alpha (landscape architecture), Sigma Pi Sigma (physics), Sigma Theta Tau (nursing), and Tau Beta Pi (engineering).

Office of Student Involvement and Experiential Learning. Staff members in the Office of Student Involvement and Experiential Learning create special programs and workshops that foster student involvement and offer academic opportunities outside the classroom. They advise student organizations in all areas of group dynamics, leadership, personal growth and development, and program planning. In addition, they coordinate Ram Tour weekend bus trips, the annual First Night/Welcome Week festivities for incoming students, and the annual A. Robert Rainville Student Leadership banquet.

Student-Run Businesses. The Memorial Union offers students a number of opportunities to run businesses under full-time supervision but with a large amount of independence. Enterprises such as the Memorial Union Technical Productions (sound and lighting) and the 193° Coffee House allow for management training and excellent work experience.

Feinstein Providence Campus

While all URI students have access to all that's available on the Kingston Campus, they also find a range of unique services at the campus in Providence, including a bookstore, library, Academic Skills Center, Office of Student Services, and Child Development Center. Please note: Providence is a non-residential campus. For more information on the range of opportunities at the Feinstein Providence Campus, call 401.277.5000 or visit uri.edu/prov.

Confidentiality of Records

Procedures for the release and disclosure of student records maintained by the University of Rhode Island 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, including parents and spouses, do not have access to a student's education records or to personally identifiable information from those records without the written consent of the student who specifies that the records be released or unless specifically authorized by law. The law does allow the release of such information and records in a number of cases without the written consent of the student, including the following: (i) notification of parents or guardians of a student under 21 years of age about an alcohol or other drug violation; (ii) incidents involving certain crimes of violence; (iii) disclosures warranted by a health and safety emergency; (iv) disclosures to school officials, including contractors and outside parties, who have a legitimate educational interest as determined by the institution; (v) disclosures required by lawful subpoena, court order, or other legal process.

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.

ENROLLMENT SERVICES



This section discusses the University's fees, expenses, financial aid, and registration for students.

Tuition, fees, and policies set forth in this catalog are subject to change without notice. All charges are billed by the semester and are due and payable upon receipt of the bill or by the due date indicated on the bill.

The amount of tuition and fees varies depending on whether the student is matriculated or nonmatriculated, on whether the student is enrolled in full- or part-time study, on whether the student is a legal resident of the state of Rhode Island, and on course sponsorship.

Matriculated and Nonmatriculated Students. All students who are seeking undergraduate degrees at the University must be admitted to *matriculated* status by the Undergraduate Admission Office. Students who have received their baccalaureates and who wish to earn graduate degrees at the University must be admitted by the Graduate School as *matriculated* students. Persons who wish to enroll for courses at the University but are not interested in pursuing degrees must register as *nonmatriculated* students. See the Undergraduate and Graduate admission sections for application procedures.

Full-Time and Part-Time Students. Matriculated undergraduate students enrolled in 12 or more credits per semester are considered *full-time students*. Matriculated graduate students enrolled in nine or more credits per semester and teaching and research assistants are also considered *full-time students*.

Matriculated undergraduate students enrolled in 1 to 11 credits are considered *part-time students*. Matriculated graduate students enrolled in 1 to 8 credits who are not teaching/research assistants are also considered *part-time students*.

Resident, Nonresident, and Regional Students. 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.

A minor student's parents or legal guardians 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, in order 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.

A member of the armed forces (on active duty) or his or her spouse stationed in the state on military orders shall be entitled to classification as a resident student during any semester, the first class day of which is encompassed by the orders.

Undergraduate students are classified as resident or nonresident by the dean of admission. A student may appeal the decision to the Board of Residency Review. Some international high school students who have lived in Rhode Island for at least one year and who meet particular requirements (laid out in the regulations adopted by the Board of Governors for Higher Education) may be eligible to pay *in-state* tuition and fees.

Graduate students are classified as resident or nonresident by the dean of the Graduate School. A certificate of residence is included in the graduate self-managed application package.

Regional status is granted to students enrolled in the New England Regional Student Program, whereby students from other New England states may enroll in designated programs at URI that are not offered in their own states (see page 31).

Course Sponsorship. Courses offered through the University's Kingston campus are considered Kingston-sponsored (except those offered at night). ASFCCE-sponsored courses are those courses offered through the Alan Shawn Feinstein College of Continuing Education at Kingston, Providence, and satellite locations.

Matriculated Full-Time Students**Tuition Per Year**

<i>Undergraduate (ASFCCE and Kingston)</i>	
Rhode Island residents	\$8,238
Out-of-state residents	24,736
Regional students	
admitted prior to fall 2006	12,358
admitted fall 2006 or later	14,418
<i>Graduate (ASFCCE and Kingston)</i>	
Rhode Island residents	\$8,828
Out-of-state residents	22,100
Regional students	13,242

Mandatory Fees Per Year

(1) Full-time undergraduate students enrolled in *seven or more Kingston-sponsored credits*, graduate students enrolled in *five or more Kingston-sponsored credits*, and graduate teaching and research assistants:

Undergraduate

Registration Fee	\$50
Student Health Services Fee	460
Student Services Fee	780
Accident/Sickness Insurance (<i>may be waived with proof of comparable coverage</i>)	1,133
TOTAL	\$2,423

Graduate

Registration Fee	\$50
Student Health Services Fee	460
Student Services Fee	608
Accident/Sickness Insurance (<i>may be waived with proof of comparable coverage</i>)	1,133
TOTAL	\$2,251

(2) Full-time undergraduate students enrolled in *less than seven Kingston-sponsored credits* and graduate students enrolled in *less than five Kingston-sponsored credits*, who are not teaching or research assistants:

Undergraduates and Graduates

Registration Fee	\$50
ASFCCE Activity Fee	40
TOTAL	\$90

Matriculated Part-Time Students**Tuition Per Credit**

<i>Undergraduate (ASFCCE and Kingston)</i>	
Rhode Island residents	\$343
Out-of-state residents	1,031
Regional students	
admitted prior to fall 2006	515
admitted fall 2006 or later	600
<i>Graduate (ASFCCE and Kingston)</i>	
Rhode Island residents	\$490
Out-of-state residents	1,228
Regional students	735

Mandatory Fees Per Semester

(1) Part-time undergraduate and graduate students enrolled in *only Kingston-sponsored courses*:

Registration Fee	\$25
Activity Fee (<i>undergraduate students only</i>)	24
Graduate Tax (<i>graduate students only</i>)	5
Student Services Fee	
Undergraduate	\$27 per credit
Graduate	\$27 per credit

(2) Part-time undergraduate and graduate students enrolled in *only ASFCCE-sponsored courses*:

ASFCCE Activity Fee	\$20
Registration Fee	25

(3) Part-time undergraduate and graduate students enrolled in *ASFCCE and Kingston-sponsored courses*:

ASFCCE Activity Fee	\$20
Registration Fee	25
Activity Fee (<i>undergraduate students only</i>)	24
Graduate Tax (<i>graduate students only</i>)	5
Student Services Fee (<i>Kingston-sponsored courses only</i>)	
Undergraduate	\$27 per credit
Graduate	\$27 per credit

Nonmatriculated Students**Tuition Per Credit**

		<i>Non-Resident</i>	<i>Resident</i>
001–499 Level Courses	\$343	\$1,031	
500 Level and Above Courses	490	1,228	

Mandatory Fees Per Semester

Registration Fee	\$ 25
Activity Tax	15
Student Services Fee (<i>Kingston-sponsored courses only</i>)	
Undergraduate	\$27 per credit
Graduate	\$27 per credit

Mandatory Fees

Student Services Fee. This fee is mandatory for all full-time students enrolled at the Kingston campus, both undergraduate and graduate. The student services fee covers the cost of the Memorial Union, transportation, and capital projects. The undergraduate fee supports funds that are distributed to the Student Senate for a wide variety of student programs and activities. The fee paid by full-time graduate students supports the above and, instead of the undergraduate Student Senate, the Graduate Student Association.

Health Services Fee. The health fee is mandatory for all full-time Kingston undergraduate and graduate students, and optional for matriculating students at the Alan Shawn Feinstein College of Continuing Education. All international students are assessed this fee regardless of enrollment location. Part-time, matriculating students who choose to receive their health care at URI Health Services can be assessed this fee upon request, as well as the student accident/sickness insurance fee (which may be waived with proof of comparable coverage). The health fee covers the cost of the following:

- routine office visits with URI staff providers (the full cost of visits if insurance doesn't cover the cost and/or co-pay expenses in situations where insurance covers a portion),
- ambulance/emergency transport services (by URI EMS),

- pharmacy (most over-the-counter medicines, small co-pay for prescriptions for acute care, medications for chronic conditions at 50 percent of cost),
- administrative services provided at Health Services, and
- health education.

Accident/Sickness Insurance. It is URI policy that full-time Kingston students as well as all international students and their dependents have current health insurance to provide coverage for unexpected, extended, and expensive care resulting from accidents and illnesses that are not covered by the Student Health Services fee. All full-time Kingston students and all international students and their dependents are required to purchase school health insurance unless evidence of comparable coverage in another plan is provided to the University through a completed waiver form. Waivers are done on line at uri.edu/health. Questions should be referred to the Health Services Insurance Office at 401.874.4755.

To waive the Accident/Sickness Insurance, a student must complete and electronically submit the waiver to Health Services each year, prior to the end of the add period (the first two weeks of classes). Unless the waiver is received and accepted, the student is responsible for the billed amount. The Accident/Sickness Insurance is optional for non-international part-time matriculating students and ASFCCE matriculating students. Students who elect insurance coverage through the University are also required to pay the Health Services fee each semester that they are registered students, regardless of the number of credits they are carrying.

Additional Fees

Books and Supplies. All students—both undergraduate and graduate—should expect extra expenses each academic year for books and supplies and should allow for additional expenditures for travel and personal needs.

Credit Overload. A credit overload fee will be charged to all matriculated undergraduate students who register and/or enroll in excess of 19 credits. This fee is equivalent to the per-credit rate given for part-time undergraduate students. Matriculated graduate students who register and/or enroll in excess of 15 credits will be billed at the per-credit rate given for graduate students. Students with combined enrollment at both the Kingston and ASFCCE campuses will also be assessed the credit overload fee if enrollment exceeds the credit limits stated above.

Enrollment Deposit. An enrollment deposit of \$300 is required from all Kingston undergraduate students accepted and is applied to the first-term bill. The fall term enrollment deposit is 100 percent refundable through May 1, 50 percent refundable through June 1, or 20 percent refundable through July 1, provided that the Admission Office is notified in writing of the student's intention not to enroll. The spring term enrollment deposit is *not* refundable.

Off-Campus Study. Undergraduate students taking courses at another institution for credit at URI pay a fee of \$368 per semester. (See page 27.)

Graduate Continuous Registration. Graduate students maintaining continuous enrollment and registered for no credit (CRG 999) are required to pay a fee of \$515 per semester.

Transcripts. A transcript service fee of \$35 is assessed to all students in their first semester of enrollment at the University.

Courses. A laboratory/clinical fee of \$55 will be charged for each undergraduate and graduate laboratory or clinical course.

Undergraduate engineering students pay a program fee of \$451 per semester for full-time students, \$38 per credit for part-time students. Pharm.D. students pay a program fee of \$2,750 per semester commencing in their third year.

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

Students taking applied music courses, except for composition, are charged an additional fee of \$105 for a one-credit course (half hour of a private lesson per week) and \$200 for courses offering two, three, four, or six credits (one hour of a private lesson per week). Applied music courses for which students are charged an additional fee are MUS 110, 210, 310, 410, and 510.

Beginning in the sophomore year, student nurses must purchase authorized uniforms and nursing equipment. The approximate cost is \$300.

Graduation. All newly matriculated students will be charged a one-time \$75 fee for graduation documents. In addition, master's degree candidates must pay a thesis-binding fee of \$18, and doctoral candidates must pay dissertation-binding and microfilming fees of \$88. These fees are due before candidates submit their theses or dissertations for approval by the Graduate School.

Late and Special Fees

Late Registration. A late registration fee of \$75 is charged to students whose registration is not completed before the first Monday following the first day of classes.

Late Payment. Unpaid balances following the term bill due date are subject to late payment/billing penalties which are based upon the outstanding amount due. The penalty is also applied to students who register late effective as of the end of the add period (first two weeks of classes) until date of registration and payment. The late payment fee is not cancelled nor reduced without presentation of written evidence of University error signed by an official of the University. Late payment fees are: \$10 per month if the balance is over \$50 and under \$400; \$15 per month if the balance is between \$400 and \$999.99; \$25 per month if the balance is \$1,000 or more.

Returned Check. A \$20 returned check fee is assessed with each check not accepted for deposit and returned by the bank.

University Monthly Payment Plan. The University offers a monthly payment plan to assist students and parents in meeting term bill obligations. A nonrefundable application fee is assessed upon enrollment. Please visit the Enrollment Services Web site at uri.edu/es to review the current monthly payment plan application fees.

Partial Payment. A \$30 fee is assessed when partial payments are received following the term bill due date.

Collection Agencies. Term bills which are not fully paid by the end of the semester are subject to collection activity by outside agencies.

Reassessment of Fees Policy. Fees are reassessed and adjusted according to credit enrollment, student status, residency, course level, and course sponsorship. This results from drop/add transactions and status changes processed by the registrar during the add period. The dropping of credits after the add period will not reduce term bills. Students anticipating fee adjustments must complete all drop/add transactions by the reassessment deadline. This policy pertains but is not limited to downward billing adjustments, including credit overload courses dropped; change in student status from full-time to part-time; part-time student dropping courses; and the assessment of program fees and lab/clinical fees, if charged.

Tuition Waivers

The University of Rhode Island accepts tuition waivers from senior citizens and unemployed individuals; prerequisites are described below. Students who qualify for waivers must apply for financial aid, and any aid received (except loans) must be applied toward the amount waived. Admission into particular courses is granted on a space-available basis and at the discretion of the institution. All other costs of attendance are to be paid by the individual student.

For Senior Citizens. Any Rhode Island resident senior citizen who submits evidence of being 60 years of age or over and of having

a household income of less than three times the federal poverty level is allowed to take courses at any public institution of higher education in the state with the tuition waived.

For the Unemployed. Any individual who submits evidence of currently receiving unemployment benefits from the state of Rhode Island, of having a household income of less than three times the federal poverty level, and of not being claimed as a dependent by a parent (or someone else) will be allowed to pursue course work at any public institution of higher education in Rhode Island with the tuition and registration fee waived; this waiver also applies to any Rhode Island resident who submits evidence of residency and of currently receiving unemployment benefits in another state. To be eligible for the waiver, the student must have been collecting benefits within 60 days before the first day of classes.

Housing and Dining Options and Fees

A comprehensive description of the University's undergraduate on-campus residence halls, suites, and apartments, and all associated housing fees, is available at housing.uri.edu. To speak to a representative about on-campus housing for undergraduate students, please call 401.874.4151. Please note that residents of the University's residence halls and suites are required to purchase a Resident Meal Plan. For more information on resident meal plan options and fees, please visit uri.edu/dining. To speak to a representative about the University's dining plans, please call 401.874.2055.

Housing and Dining Contract. The University's Housing and Dining Contract is an annual and binding contract that is in effect for the entire academic year. Please note that a non-refundable housing fee is required at the time of application to reserve a room. The housing deposit for all eligible students, including freshmen, is \$200. This housing application fee will be applied

toward the resident's annual housing fee. Housing and dining fees for residents of the University's residence halls, suites, and apartments will appear on each resident's term bill; payment is due upon receipt of this bill. Checks should be made payable to the University of Rhode Island and should be sent or delivered to the Office of Enrollment Services.

Residents who elect to vacate the University's residence halls, suites, or apartments before the end of the contract period, for any reason other than dismissal from the University, will be assessed a contract cancellation fee for both the housing and dining portions of their contract. In addition, they will be billed for their actual use of the housing facilities as well as their dining plan, in accordance with the respective housing and dining refund policy.

URI is a nonsectarian institution, and resources are not available to construct special diet kitchens for religious, health, or personal reasons. A nutritionist reviews extreme medical conditions. Some medical conditions may be accommodated. Residents requesting a medical variance from the meal plan requirement must submit for approval a Medical Variance Report, completed by a physician, to URI Dining Services. To obtain this application form, contact the Campus Access Office at 401.874.2055. The University housing and dining systems operate on a computerized entry system using URI student ID cards and hand geometry readers. The student ID must be presented at all resident dining facilities.

Telecommunications Fee

There is a \$532 telecommunications fee assessed to each resident of the University's residence halls, suites, or apartments.

University Refund Policies

Refunds of payments made or reductions in 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.

Students receiving Federal Title IV funds, i.e., Federal Pell grants, Direct Stafford Loans, Perkins loans, Federal PLUS loans, Federal Supplemental Educational Opportunity grants, or other Title IV assistance programs are subject to the federal return of funds regulation. The regulation states that Federal Title IV funds must be returned according to a pro-rata formula based upon the amount of time spent in school up to the 60th percentile of attendance. Thereafter, federal disbursements are not adjusted. For example:

Assume that a student withdraws during the third week of school after attending 20 days and the term bill has been paid entirely by a Direct Stafford loan. If the semester consist of 100 days, 80 percent of the loan must be returned to the loan fund since the student only attended 20 percent of the semester. However, the student's bill is reduced by only 60 percent per the University's refund policy as stated above. The student will be responsible for the difference.

Personal payments and outside scholarships are not considered for refund until the term bill balance is fully paid.

Students who take a leave of absence are subject to the same federal return of Title IV funds policy as are students withdrawing from the University.

Attendance Period. For refund purposes under both policies, the attendance period begins on the first day of classes and ends on the official date of withdrawal or leave of absence. If an official date is not known, the last known date of attendance is used. Students who withdraw or take a leave of absence during the add period (the first two weeks of classes) are assessed tuition and fees based upon the highest number of credits for which they are registered during this period.

The Accident/Sickness Insurance fee is not refundable unless the fee is waived, regardless of the date of withdrawal, since the student is covered for the entire aca-

ademic year. The fee is cancelled, however, if the student withdraws prior to the first day of classes.

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 Department of Housing and Residential Life for damages, and obligations required by the University Student Discipline System) may result in denial of registration for the following semester and/or disenrollment. Appropriate departments will provide the student with notice of the debt, reason for it, and a review, if requested. Students must fulfill all financial obligations to the University before receiving transcripts or a diploma.

Financial Aid

Financial aid is money made available from federal, state, local, or private sources that helps students attend the postsecondary institutions of their choice. At the University of Rhode Island, these varied sources are administered by Enrollment Services in Green Hall. URI's 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, disability, 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 a child'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 U.S. citizens or eligible non-citizens are eligible to apply for financial aid. Foreign students desiring information about financial assistance should contact URI's Office of International Students and Scholars.

To be considered for financial aid, a person must have been accepted and enrolled at least half time (6 credits for undergraduates, 4.5 for graduate students) as a matriculated student at the University. Enrolled students must be making satisfactory progress toward their degrees according to the University's policy on satisfactory progress (see page 25).

In general, a student who already has received a baccalaureate degree is considered eligible for only those aid programs listed as available to graduate students. This applies even if the student is pursuing a second undergraduate degree. For more information, please check with an Enrollment Services counselor.

Application Procedure. To apply for financial aid, students must complete a Free Application for Federal Student Aid (FAFSA), available online at fafsa.ed.gov. This form is also used to apply for state scholarships, including those for Rhode Island and Massachusetts. Residents of other states should check with their state scholarship or grant authority to inquire if another form is needed to apply for state scholarship funds.

The awarding of financial aid for the current academic year may require validation and documentation of all information submitted to Student Financial Assistance. Therefore, students must be

prepared to submit the following information if asked: signed copies of their own and their parents' last U.S. income tax returns 1040/1040A/1040EZ. When and if requested by Student Financial Assistance and Employment Services, all tax schedules must also be included.

Application Priority Dates. The Free Application for Federal Student Aid should be filed online at fafsa.ed.gov after January 1, and no later than March 1. Applications completed on or before March 1 will receive first consideration for financial aid awards; however, applications will be processed as long as funds remain available.

Federal Aid Available

Federal Pell Grants. The Pell Grant, available to undergraduates, is designed to form the foundation of all financial aid received. Each applicant is mailed a set of Student Aid Reports, a copy of which is electronically sent to Enrollment Services if URI 003414 was put on the FAFSA. 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.

Federal Supplemental Educational Opportunity Grant. This program is intended to assist undergraduate students with the greatest financial need. First priority is given to students receiving Pell Grants.

Federal Perkins Loan. Eligibility is based on exceptional financial need. 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.

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

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

Federal Work-Study Program. This federally supported program provides undergraduates with 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, and nonpolitical agencies. Other institutionally funded employment is also available.

Federal William D. Ford Direct Loan. All students who complete the FAFSA can participate in the William D. Ford Direct Loan program. Those students who meet the financial need criteria may receive in whole or in part a subsidized loan where the federal government pays all interest until six months after graduation, withdrawal, or a drop in enrollment status to less than half time. Unsubsidized loans are available for those students who do not qualify for the need-based subsidized William D. Ford loan. Those eligible to borrow under the unsubsidized William D. Ford Direct Loan program include independent undergraduate students, graduate and professional students, and certain dependent undergraduate students. The same terms and conditions as for subsidized William D. Ford loans apply, except that the borrower is responsible for the interest that accrues while the student is still in school.

Federal William D. Ford Direct Loan for Parents. Parents who have good credit may borrow up to the cost of education minus estimated and actual financial aid by submitting an application to Enrollment Services. If the loan is approved, it will be disbursed in multiple installments, usually at the beginning of each semester.

University Aid Available

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

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

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, and class year. A list of available scholarships can be found in the URI Office of Student Financial Assistance and Employment Services. A letter of application should be sent to Enrollment Services for specific scholarships.

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

Regular Student Employment. Positions funded by the University are available to more than 1,500 undergraduate and graduate students. Job postings are available at uri.edu/es.

University Loans. Emergency loans are available to full-time undergraduate and graduate 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 Enrollment Services.

State and Other Sources of Aid

Undergraduate residents of Rhode Island are encouraged to apply for 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. 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 organi-

zations, clubs, labor unions, fraternities, sororities, and businesses. Students should apply directly to the source if they believe they qualify. Also contact the URI Office of Student Financial Assistance and Employment Services, located within Enrollment Services, for a list of loans, scholarships, and special awards available to undergraduate and graduate students.

Policy on Satisfactory Academic Progress (SAP). Federal regulations require all institutions that administer Title IV student assistance programs to monitor the academic progress towards a degree or certificate of students applying for funds. All University of Rhode Island students who have completed a Free Application for Federal Student Aid (FAFSA) and wish to be considered for Title IV federal aid as well as selected other types of assistance must meet the criteria stated in the policy. Programs governed by these regulations include:

- Federal Pell Grant
- Federal Work Study
- Federal Supplemental Educational Opportunity Grant
- Federal Perkins Loan
- Health Professions Loan
- Nursing Student Loan
- William D. Ford Federal Direct Subsidized Stafford Loan
- William D. Ford Federal Direct Unsubsidized Stafford Loan
- William D. Ford Federal Direct Parent Loan for Undergraduate Students (PLUS)
- Most private loans
- University of Rhode Island grant and scholarship programs (including Centennial and Talent Development programs)
- R.I. State Scholarship programs (including Academic Promise and Children's Crusade)

Eligibility. Your financial aid eligibility is based on satisfactory academic progress (SAP) standards that the University of Rhode Island's office of Enrollment Services is required by the U.S. Department of Education to establish, publish, and apply. The office of Enrollment Services measures your academic performance and enforces SAP

standards to ensure that you, as a financial aid recipient, progress toward graduation. If you fail to meet these standards, you become ineligible to receive financial aid until you comply with all requirements.

Financial aid recipients will be reviewed for satisfactory progress at the end of the spring semester after grades are posted. A student who does not meet the satisfactory academic progress standards will be terminated from financial aid assistance. An aid-terminated student is **ineligible for any further financial aid**, including student loans, until satisfactory academic progress is re-established. Readmission to a program or removal from academic probation does not automatically constitute eligibility for federal financial aid.

SAP Standards: Undergraduate Students. In addition to maintaining good standing within your college, your academic performance must meet two main SAP components:

Qualitative Standard. This component is represented by your cumulative grade point average. Your cumulative GPA must be a minimum of 2.00 after the successful completion of 60 credits or your fourth term of enrollment, whichever comes first.

Quantitative Standard. The quantitative component requires you to complete your degree within a maximum timeframe. The ratio between attempted and completed credits determines your credit completion ratio. You are eligible to receive financial aid for a maximum timeframe of 150 percent of the published degree credits required to complete your program. For example, if your undergraduate degree program requires 120 degree credits, you are eligible for financial aid up to 180 attempted credits (program restrictions apply). Each year, your cumulative credit completion ratio is calculated to ensure that you have earned at least 67 percent of the credits you attempted to maintain your aid eligibility.

Transfer Credits. These credits are counted in the total earned credits.

Withdrawals. All credits for which a student is registered beyond the drop period will be included in the measurement.

Repeated Courses. If you repeat a course, credits for each time you register will be added to the attempted/earned credit totals. However, only the most recent grade received will be used in the calculation of your cumulative GPA.

SAP Standards: Graduate Students. In addition to maintaining good standing within your college, your academic performance must meet two main SAP components:

Qualitative Standard. As a graduate student, you must maintain a minimum cumulative GPA of 3.00 (unless your college requires a higher GPA) for the entire enrollment period. You are required to maintain at least a 2.00 GPA if you are a professional student in the Pharmacy program.

Quantitative Standard. The quantitative component requires you to complete your degree within a maximum timeframe.

As a Ph.D. candidate, you must complete your degree within seven calendar years of being admitted to your doctoral program (program restrictions apply).

As a graduate student pursuing a master's degree, you are eligible to receive financial aid for a maximum timeframe of five years after the date you are first enrolled as a graduate student at the University.

Your progress within this maximum timeframe will be reviewed annually at the end of each spring semester. At this time, your cumulative credit completion ratio is determined to ensure that you have completed at least 67 percent of all credits attempted to maintain your financial aid eligibility. If you are unable to complete your degree within this timeframe, you may appeal for an exemption.

Master's and doctoral students who have completed all course requirements including thesis research shall be considered to be making satisfactory progress at least at the half-time rate if they are registered for at least one thesis credit and have written permission from the dean of the graduate school.

SAP Appeal Process. A student who is declared ineligible to receive aid for not maintaining SAP may appeal the decision to the SAP committee within 15 days of

receipt of the notification. If there are mitigating circumstances that resulted in the student's inability to make SAP, the student should write a letter of appeal documenting the circumstances and submit the letter to the Satisfactory Progress Appeals Committee, c/o Enrollment Services, 35 Campus Avenue, Kingston, RI 02881.

Graduate Fellowships, Assistantships, and Scholarships

Detailed information (stipends, allowances, tenure, etc.) on graduate fellowships, assistantships, and scholarships is available from the Graduate School Office and online at uri.edu/gsadmis. Fellowships and scholarships are awarded by the Graduate School to students selected from nominations submitted by department chairpersons. Students are advised to request nomination for these awards by the chairperson of the department in which they plan to study or in which they are currently enrolled.

Graduate assistants are expected to register for a minimum of six and a maximum of 12 credits per semester. Students who hold scholarships, fellowships, or assistantships are not eligible for additional employment unless written permission is received from the Graduate School.

Graduate students have access to a national computerized database of fellowships and other financial assistance opportunities available to students pursuing advanced degrees, completing dissertation research, or seeking postdoctoral positions.

Fellowships. Fellowships are awarded to graduate students in recognition of their achievement and promise as scholars. They are intended to enable students to pursue graduate studies and research without rendering any service to the University.

URI Diversity Graduate Fellowships are awarded by the Graduate School to students from minority and underrepresented groups. *URI Foundation Minority Fellowships* are also available to students from minority and underrepresented groups, with nominations usually made by departments to the Graduate School.

Special Fellowships are supported by various industrial firms, private foundations, and individuals, and are usually restricted to students in particular areas of study and research. The stipends and supplemental allowances of these fellowships are not uniform.

URI Fellows receive a stipend for the academic year and have tuition, health insurance, and the registration fee paid from University funds. URI Fellows are responsible for the remaining fees. Those wishing to be considered for fellowships must have their application file completed no later than February 1.

Graduate Teaching Assistantships and Research Assistantships. Assistantships are awarded to full-time graduate students to provide them with teaching and research training. Assistants may be required to provide service for up to 20 hours per week. Appointments are initiated by department chairpersons. To be eligible for such appointments, students must first be admitted as degree candidates. Applications for assistantships should be completed by February 1. Appointments are announced in early April.

Departmental Teaching Assistants assist, under supervision, with department instructional and/or research activities. No more than ten hours per week will be in classroom contact.

Research Assistants are assigned to individual research projects sponsored either by the University or an outside agency. On supported research contracts and grants, the graduate research assistants are expected to devote 20 hours per week to research activities.

Teaching and research assistants receive a stipend for the academic year. In addition, tuition (12 credits maximum), the registration fee, and health insurance are paid from University funds for each semester of the academic year of the appointment. The student is responsible for the remaining fees. Additional remuneration is given for appointments during the summer, although this cannot be guaranteed. Stipends and tuition remissions for students appointed to partial assistantships will be prorated for

the period of the appointment. The student will be responsible for the remainder of the full-time tuition and fees. The same policy applies to assistantships terminated during the academic year.

Tuition Scholarships. These scholarships cover tuition and registration fee and are awarded by the Graduate School from University funds. These scholarships are awarded to qualified students demonstrating financial need. Nominations for these scholarships are made by individual departments.

Registration

All students must register for courses through Enrollment Services via the e-Campus system (Web) in order to be properly enrolled.

Matriculated (official degree-seeking) students generally register in April and October for the following semester. However, freshmen entering in the fall semester may register at specified dates during the summer as part of summer orientation.

Students are expected to register for courses before classes begin. Those who are unable to do so may enroll as late registrants via the e-Campus system or at Enrollment Services during the first two weeks of classes. A late registration fee shall be charged to students whose registration is not completed before the first Monday following the first day of classes (see page 21). Additional information is available from Enrollment Services.

Nonmatriculating Students. The Non-Degree Student Application Form is available on the Web at uri.edu/es/forms/pdf/enrollServ/0107_NonDegree.pdf; or contact Enrollment Services for registration instructions. Registration for nonmatriculating students begins after matriculated students have registered.

Course Schedule. The *Course Schedule* is available on e-Campus in April and October for the fall and spring semesters. The University reserves the right to cancel courses offered in the *Course Schedule*.

Payment of Fees. Arrangements must be made with Enrollment Services for complete and timely payment of tuition and/or fees. If during the semester it becomes apparent that a student has not met his or her financial responsibilities to the University, sanctions will be imposed. Sanctioned students may not be allowed to receive transcripts or register for future semesters.

Drop and Add. Students are permitted to continue to add courses through the first two weeks of classes only. Courses offered by the Alan Shawn Feinstein College of Continuing Education may be added by the prescribed deadline.

Students may drop courses by the drop deadline according to official procedures. However, courses dropped after the end of the second week of classes will not affect the fees that have been assessed (see pages 22–23).

A student may drop a course after the end of the drop period only in exceptional circumstances and with authorization of the dean of his or her college.

Auditing. When you audit, you have permission to attend a course without taking it for credit. (Auditing is not permitted in noncredit courses.) You may be admitted to a class on a space-available basis with the instructor's consent as indicated by his or her signature on an audit authorization form, which must be filed in Enrollment Services before the end of the add period. The instructor will determine the extent to which you may participate in class activities. Your name will not appear on official class rosters, and the course will not be noted on your grade report or permanent academic record. Note: You must be enrolled in at

least one other course to be permitted to audit a course without additional fees.

Off-Campus Study. A full-time student who wishes to study at another college and use that course work to satisfy graduation requirements at URI 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 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 URI, or take an official leave of absence for that period.

Veterans Benefits. Full information describing these can be obtained from your base education officer or the VA Regional Office, 380 Westminster Street, Providence, RI 02903; in the U.S., call 800.827.1000.

Veterans enrolled in Kingston who are eligible to receive VA educational benefits must notify Enrollment Services in person. In order to satisfy VA regulations, students who receive VA educational benefits must report all changes in academic status to the veterans registration clerk in Enrollment Services.

Recipients of VA educational benefits are governed by the same University policies as are all other students.

Transcripts. Students can obtain a copy of their transcripts via the e-Campus system or by submitting a written request to Enrollment Services. Transcripts will not be issued

to students who have unpaid financial obligations to the University.

Change of Address. It is the responsibility of the student to report changes of local or home address to Enrollment Services. Students may update their address information through the e-Campus system.

Required Identification. In order to obtain a University ID card and be certified for employment, students must possess a photo identification card, such as a driver's license, and a certified copy of their birth certificate. A valid passport serves both purposes.

Readmission. Students formerly enrolled at the University and seeking re-entry may obtain applications for readmission at the Office of Enrollment Services. All applications for readmission must be submitted to Enrollment Services no later than August 15 for the fall semester, and December 31 for the spring semester.

Email. The University of Rhode Island has established email as one of the official means of communication with faculty, staff, and students on important academic and administrative matters. To ensure that each member of the University has access to this important form of communication and that students can be reached through a standardized channel when needed, faculty and staff are asked to activate an email account (address) on the University's mail.uri.edu server. Students are required to do so. All official University communications will be sent to this official University email address.

UNDERGRADUATE ADMISSION

The Office of Admission strives each year to enroll a diverse undergraduate class of freshman and transfer students from the state of Rhode Island, as well as from other states and countries. We seek to enroll students who are prepared to be successful at the University, who possess a variety of talents and strengths, who are committed to becoming contributing members of the community, and who will be stimulated and challenged by doing undergraduate work in an environment that includes scholarly research and graduate study.

Students are selected for enrollment primarily on the basis of their academic competence; without regard to race, sex, religion, age, color, creed, national origin, disability, or sexual orientation; and without discrimination against veterans. The University has been authorized under federal law to enroll nonimmigrant foreign students.

Kingston Campus. All freshmen pursuing degrees at the Kingston Campus are admitted to University College, a college of advising and academic student services. Many who are undecided about their choice of major use their time 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. URI evaluates applicants' credentials in terms of their stated prospective majors. Several programs are highly selective due to limited enrollment capacity.

Information Sessions. The Admission staff offers information sessions and campus tours for prospective students and their families. Reservations are **not** required. Call ahead to confirm available dates: 401.874.7000, or check the Web site, uri.edu/admission/visiting.

Campus Tours. Student tour guides conduct walking 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 401.874.7000 or refer to uri.edu/admission. Tours of the Narragansett Bay Campus and the Graduate School of Oceanography may also be arranged. Call 401.874.6211 for details.

Providence Campus. At the University's Feinstein Providence campus, students will discover several options:

- For the high school senior seeking an urban education, the URI "Admission Option."
- For those interested in a fast track to a career in biotechnology, the Biotechnology Manufacturing Program.
- For the adult student, the Alan Shawn Feinstein College of Continuing Education (ASFCCE).

Applicants to ASFCCE are admitted under "performance-based admission" (PBA). For URI applicants without recent evidence of academic success, but with the potential to successfully complete college-level work, this represents an opportunity to pursue a college degree. PBA is available to applicants whose last formal, full-time educational experience occurred at least three years ago, and who have graduated



from high school or earned an equivalency diploma. PBA is limited to students applying to the Alan Shawn Feinstein College of Continuing Education for undergraduate degree programs. For more information, contact an academic advisor at the University's Providence campus, Room 245, 401.277.5160. You can find more information on offerings through ASFCCE on page 76 of this catalog. Students intending to transfer from Providence to programs at the Kingston campus should be aware of all requirements and discuss them with their advisor.

The "Admission Option" offers graduating high school seniors the option of enrolling at the Feinstein Providence Campus of the University of Rhode Island as commuter students. It is a good choice for students who want a high quality URI education but prefer a nonresidential campus in the state's urban center. Because it is smaller and nonresidential, the Feinstein Providence Campus has a reduced fee structure that gives commuter students a greater value

for their URI tuition dollars. There are currently three majors for which traditional age students (18–22 year olds) can complete their courses of study entirely in Providence: psychology, communications studies, and human development and family studies. Other majors may require students to register for some or all of their upper-level courses in Kingston. Even if they have not yet decided on a major, students may elect to begin their studies at the Feinstein Providence Campus immediately after they have graduated from high school. Application for this option is made directly through the URI Admission office at uri.edu/admission.

The Biotechnology Manufacturing Program is a Bachelor of Science degree offered in an intensive format that culminates in accelerated industry-based employment opportunities. See page 98 for more information or call 401.277.5050.

Freshman Admission Requirements

Admission to URI is competitive, and primary emphasis in the review process is placed on the student's high school record, quality of courses taken, grades earned, and performance on standardized tests (SAT or ACT). Extracurricular activities, alumni tradition, a personal essay, and letters of recommendation are also considered. The students offered admission for fall 2009 presented an average GPA of 3.31 on a 4.00 scale, with SAT scores of approximately 1,662 combined.

The SAT or ACT test is required for freshman candidates and must be sent electronically by the testing agency to URI. Each candidate is given individual consideration; however, a minimum of 18 units of college preparatory work is expected: four units in English, three in algebra and plane geometry, two in a physical or natural science, two in history or a social science, two in the same 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, foreign languages, mathematics, social

sciences, or laboratory sciences. Candidates for the College of Engineering, the College of Business Administration, and majors in chemistry, computer science, and physics must complete four units of mathematics (precalculus or trigonometry); candidates for the College of Engineering should also select chemistry and physics. Applicants to the Bachelor of Music degree program must audition and must contact the Department of Music for specific requirements. Applicants to the College of Pharmacy should see pages 115–116 for specific requirements.

Students presenting official GED results in lieu of a high school diploma must present secondary school or college records that show successful completion of all the admission requirements listed here.

International Candidates. International candidates must submit original or certified copies of original documents (in the original language) and notarized translations in English. Candidates must meet the University's academic requirements. After students have been admitted, 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 aid is available to international students, although they are eligible for consideration for merit scholarships.

Inquiries from international students concerning nonimmigrant visas, transfers, funding, etc., should be sent to URI's Office of International Students and Scholars, 37 Lower College Road, Kingston, RI 02881; e-mail: issoff@etal.uri.edu.

Homeschooled Applicants. Homeschooled applicants must meet the same entrance requirements as students who have followed a traditional schooling profile. We consider the following information when making a decision regarding admission to the freshman class:

- Comparative competencies of content through the completion of 18 prescribed Carnegie units of work displayed on an official transcript

- Standardized testing that supports the content competencies
- Earned Grade Point Average

The required material can be presented in several ways:

- Submission of a transcript from a home-schooling agency that supplies curriculum outlines and reviews and grades completed work. The University will require SAT subject exams if specific course content is unclear
- Submission of the results of SAT subject exams in the following areas to demonstrate competencies: American history or world history; math level 1C; biology, chemistry, or physics (select two); any foreign language
- Submission of a transcript of college courses that displays the prescribed units of work
- Submission of the results of Advanced Placement or CLEP examinations

Application Procedures

Students should discuss their plans for study at the University with their guidance counselors as early as possible to establish realistic goals and program selections. The University is a member of The Common Application group. URI admission counselors will be glad to correspond with students about individual circumstances. Requests for information should be sent to URI Admission, 14 Upper College Road, Kingston, RI 02881. You may also call 401.874.7000, or visit the Admission Web page at uri.edu/admission.

Students are enrolled at the beginning of the fall semester in September and at the beginning of the spring semester in January. *Not all programs enroll new students in January.* High school seniors are urged to submit applications, including first quarter grades, early in the academic year, since URI reviews applications on a continuing basis as soon as complete credentials are submitted. Applicants are notified as soon as decisions are made. The closing deadline for fall term freshman applications is February 1.

Transfer applications are due by May 1. The closing deadline for spring term applications is November 1. Enrollment deposits are due by May 1.

Early Action and Merit Scholarships. To qualify for Early Action and merit scholarship consideration, a *completed* application for admission with the candidate's signature, official high school transcript (including the list of senior courses), standardized test scores submitted electronically by the testing agency to URI, application fee, URI Common Application supplement, and at least one letter of recommendation *must be received in the Office of Admission by December 1, 2009*. Decisions will be made on complete applications by the end of January, and offers of admission are nonbinding. Students offered admission under the Early Action plan may apply to other colleges and are not required to make a commitment to URI prior to May 1.

If a scholarship recipient's residency classification changes, the award amount will change to match the amount for the new tuition category.

Admission Inquiry Online. Candidates must check the status of their applications online. Instructions are forwarded to candidates when applications are received.

Entrance Tests. All candidates for freshman admission must take the SAT or ACT. Applicants who have been away from formal studies for three or more years should contact the Admission Office about entrance requirements or refer to the "Providence Campus" section on page 28 of this catalog.

Applicants are encouraged to take the SAT or ACT as early as possible in their senior year; taking the test after January reduces a candidate's prospects for a timely decision. Students are required to have their test scores submitted electronically to the University by the testing service. Full information concerning these tests may be obtained from local high schools and is available online at collegeboard.com.

Domestic students whose first language is not English are encouraged to submit their official Test of English as a Foreign Language (TOEFL) results or International English Language Testing System (IELTS) results to supplement their SAT scores.

All international applicants whose first language is not English or for whom English has not been the language of instruction are required to submit one of these testing results. International student applicants must score minimum TOEFL results of 550 on the paper-based version, 213 on the computer version, or 79 on the Internet (iBT) version. Required minimum results for the IELTS are 6.5. For more information about the TOEFL, visit ets.org. For more information about the IELTS, visit ielts.org.

Early Enrollment/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 wishing 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 will normally have completed three years of English, three of mathematics, two of foreign language, two to three of social studies or history, and two of natural or physical science. Students must be academically competitive within their high school class, have corresponding scores on the SAT or ACT, and have the endorsement of their high school counselor or principal. Those interested should plan with their high school counselor early in their junior year, and direct further inquiries to the Admission Office. An interview is required.

Advanced Placement. Advanced standing for freshmen is granted to students who have completed college-level courses in a high school participating in the Advanced Placement Program and who have passed (with a score of 3 or better on most ex-

aminations) the CEEB Advanced Placement Examination in the following subject areas: art history, art studio (drawing and general), biology, chemistry, computer science (AB), English (language and composition; literature and composition), French (language and literature), German (language), history (European and United States), Latin (Virgil and Catullus-Horace), mathematics (calculus AB and BC), music theory, physics B (mechanics) and C (electricity and magnetism), and Spanish (language and literature). For a list of University courses considered equivalent to advanced placement classes, please visit uri.edu/admission/advancedplace.

Advanced Standing. In addition, students can take proficiency examinations administered by University departments to be granted advanced standing. Entrance with advanced standing can accelerate the completion of degree requirements or enrich the undergraduate program by allowing for additional elective or advanced courses.

International Baccalaureate Degree Program. URI awards credit for most higher level examinations taken in high school and passed with a score of 5, 6, or 7. Course credit is awarded at the discretion of individual departments. No credit is awarded for standard level examinations. Visit uri.edu/admission/advancedplace.

Transfer Admission Requirements. Transfer students are those who have completed 24 or more hours of transferable college coursework. A minimum cumulative GPA of 2.50 is required, but most successful applicants have much higher grade point averages. Certain programs may require a higher GPA 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 35. Students may apply to URI teacher education programs only after acceptance

by an academic department. Some programs restrict enrollment of new transfer students to the fall semester only.

Transfer students must submit transcripts directly to URI from all colleges and universities attended, whether or not they expect or desire credit for such work. High school records must also be submitted. Transfer candidates must be in good standing and eligible to return to the institutions they attended previously. Credit is not awarded for course work taken prior to admission to URI and disclosed after acceptance. Credit will only be given for courses in which the student earned a final grade of C or better.

Credit transferred from other schools is limited by the following restrictions: 1) no more than half of the credits URI requires for graduation can be transferred from two-year institutions; 2) students must earn at URI at least one-half of the credits required for a major, at least one-half of the credits required for a minor, and at least one-fourth of the credits required for graduation; 3) only grades earned for course work at URI are included in the calculation of a student's grade point average.

The College of Business Administration (CBA) requires transfer students to have 60 college credits, including Accounting I and II, Business Communications, Calculus I and II, Economics I and II, Statistics I and II, and one computer course. Students not meeting these requirements may be admitted to University College and later transfer to CBA, provided they complete the above-named courses and meet the college's GPA requirement. The University grants direct transfer credit for equivalent upper-level business courses taken at institutions that are accredited by AACSB International (The Association to Advance Collegiate Schools of Business). Upper-level business courses taken at an institution not accredited by AACSB International must be validated by examination. Courses not validated will be awarded open elective credit.

Joint Admission. The Joint Admission Agreement (JAA) is available to Community College of Rhode Island (CCRI) students who, prior to earning 30 credits, matriculate into one of the recognized JAA transition plans. Each transition plan specifies at least 32 credits that transfer to URI in fulfillment of general education requirements. Although some additional general education courses may be required, the following core requirements ensure that transferring and continuing students have common knowledge across a broad spectrum of the liberal arts and sciences: Writing/Communications (3 credits), Literature (3), Fine Arts (3), Mathematics (3), Science (8), Social Science (9), additional general education (3). Since the requirements of specific degree programs vary, students should consult with their JAA advisor regarding course selection.

To aid students and their advisors in making appropriate selections, JAA transition plans are available on the *Rhode Island Transfers* Web site (ribghe.org/ritransfers.htm) and in the *Transfer Guide for Students* available at the same site. Only programs specified in these publications and sites as JAA programs with transition plans are included in this agreement.

Proficiency Examinations. Students showing 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 exams. A student who successfully passes such an exam 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, mathematics, and/or foreign languages or culture, must still complete the specified number of credits for their degree programs.

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

College Level Examination Program (CLEP). Students who have been away from formal studies for three or more years may take 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, and the exams must be taken during the first semester of enrollment. Transfer students may receive credit from CLEP General Examinations taken prior to enrollment at URI, provided that their scores meet URI standards and their academic dean judges that the CLEP credit does not duplicate other transfer credit.

Academic departments may use CLEP Subject Examinations as proficiency exams to test students' mastery of the subjects taught by the department. A department that judges a CLEP Subject Examination to be a satisfactory proficiency exam decides what credit should be awarded within the department to students passing 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.

For more information, visit ribghe.org/transferguide.htm, choose the document for the correct academic year, and scroll down to section 2. Choose College Level Exam Program from the drop-down menu.

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 a small number of selected programs at URI 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. Commencing with the fall 2006 semester, freshmen and transfer students in approved regional programs will be charged tuition at the rate of 1.75% of the in-state fee. Graduate students and continu-

ing undergraduate students will be charged at the rate of 1.5% of the in-state fee. If at any time a student transfers out of the New England Regional Student Program, out-of-state fees will apply.

Details are available from the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111 (nebhe.org), or high school guidance offices. All new students apply for regional student status as part of the application process. The Office of Registration and Records provides information pertaining to this program for students already enrolled at URI.

Continuing or returning students claim eligibility by submitting a formal request to Registration and Records prior to the end of the add period of the semester in which regional status is to be effective. Visit uri.edu/admission/newenglandprog to see which majors from each New England state apply.

Talent Development. URI encourages the application of minority and disadvantaged individuals from Rhode Island. In 1968, the Talent Development (TD) program was established here to recruit and retain minority and disadvantaged applicants. TD provides an opportunity for URI admission, an academic pre-matriculation program

in residence at Kingston, and consistent academic support throughout a student's undergraduate program. Financial aid is available for students accepted to Talent Development; need is determined by the filing of a Free Application for Federal Student Aid (FAFSA) form. For more information on this program, please see page 16 or visit uri.edu/admission/talentdevelopment.

Interested students should apply to Talent Development during their senior year in high school. Those possessing an equivalency diploma or who have been out of high school for some time are also encouraged to apply. Applications and all credentials should be sent to the URI Admission Office, 14 Upper College Road, Kingston, RI 02881, from October 1 through February 1.

Health Questionnaire. Once you are admitted to the University, Health Services will mail you a new student packet including information that will allow you to enter a secure Web site and utilize your "online student health" module. You will be asked to promptly complete and enter a health questionnaire which will provide basic background information for your URI Electronic Medical Record prior to your arrival on campus.

Each entering student must also provide a certificate signed by a licensed health care provider giving the dates of immunizations to protect against rubella (German measles), rubeola (measles), and mumps, hepatitis B, and varicella (chicken pox), in addition to a tetanus-diphtheria (Td) booster within ten years (per Section 23-1-18(9) of the general laws of Rhode Island). This certificate is included in the mailing to new students. Students failing to comply with this requirement will face sanctions and will be unable to register for classes.

UNDERGRADUATE PROGRAM REQUIREMENTS

This section deals with academic requirements, regulations, and opportunities for undergraduates that are University-wide rather than college-related.

Consistent 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.

NOTE: The University administration may alter, abridge, or eliminate courses and programs of study. While every effort is made to keep this catalog current, not all courses and programs of study listed may be available at the time of student 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 in the best interests of the University.

General Education Requirements

The University believes that all undergraduate students, regardless of their degree programs, need experience in the study of fundamentals that builds on the student's previous education and continues through the undergraduate years and beyond. All bachelor's degree students follow the same University-wide general education requirements. While general education requirements for all students are selected from the same list of approved courses, there are possible variations based on the student's major. Students should consult specific college and departmental requirements and discuss the requirements with an advisor. In their first semester, all entering freshmen and new transfer students with fewer than 24 credits are required to take *URI 101 Traditions and Transformations: A Freshman Seminar*, including community

service provided by the Feinsein Enriching America Program (see "Course Descriptions," beginning on page 165).

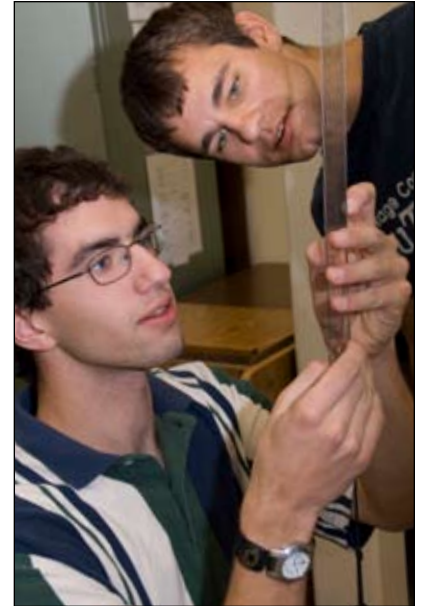
The purpose of general education at the University of Rhode Island is to lay a foundation for the lifelong enrichment of the human experience and for a thoughtful and active engagement with the world. This foundation is built on recognition of the complexity of nature, society, and the individual. The objective of general education is to introduce students to the fundamental dimensions of this complexity and to develop an appreciation of different ways of understanding it and different cultural responses to it.

General Education Learning Outcome Objectives

In academic and non-academic settings, with respect to fine arts and literature, humanities and Letters, the natural sciences, and the social sciences, students will be able to ...

- **identify** basic concepts, theories, and developments;
- **recognize** issues, as well as aesthetic and literary elements and forms;
- **ask** questions appropriate to the modes of inquiry;
- **collect** information relevant to the questions raised; and
- **analyze** the information in order to address the questions or solve problems.

For a comprehensive set of statements regarding the expected outcomes of each college and major, visit uri.edu/assessment.



Corresponding with its goals, the general education program is divided into the following core areas:

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 on artistic and literary expression and interpretation.

Foreign Language/Cross-cultural Competence. *Six credits* or the equivalent in course work related to communicating across cultures.

Letters. *Six credits* in courses that address the wisdom and traditions of the past and present in a global setting.

Mathematical and Quantitative Reasoning. *Three credits* in a course on mathematical or quantitative skills and their application.

Natural Sciences. *Six credits* in courses on the interrelationships of the natural world.

Social Sciences. *Six credits* in courses related to the study of human behavior in social, economic, cultural, and political contexts.

Because particular skills are essential to a thoughtful engagement with the world, each general education course incorporates opportunities to practice three (3) or more of the following skills: reading complex texts, writing effectively, speaking effectively, examining human differences, using quantitative data, using qualitative data, using information technology, and engaging artistic activity.

In addition, the University has a commitment to providing students with the opportunity to examine diversity within and across national boundaries and requires that at least two of the courses taken as part of a student's general education program must be designated as diversity [D] courses. Only one course in a foreign language may be applied to the diversity requirement. Since these diversity courses may be selected from any of the general education core areas, this requirement does not increase the total number of credits in the general education program.

Specific courses that may be used to meet these requirements are listed below. If a course is countable in more than one core area, a student may count the course in only one core area. For an explanation of course codes, see pages 165–166:

English Communication: Writing (ECw): BGS 100*, ELS 112, 122; HPR 326; WRT 104, 105, 106, 201, 227, 235, 302, 303, 304 [D], 305 [D], 333; **General (EC):** COM 100 [D], 110 [D]; LIB 120; PHL 101.

Fine Arts and Literature (A): AAF 247 [D], 248 [D]; ART 101, 207; ARH 120 [D], 251 [D], 252 [D]; CLA 391 [D], 395 [D], 396 [D], 397 [D]; CLS 160 [D]; ENG 110 [D], 160 [D], 241 [D], 242 [D], 243 [D], 247 [D], 248 [D], 251 [D], 252 [D], 260 [D], 262 [D], 263 [D], 264 [D], 265 [D], 280 [D], 300 [D], 302 [D], 303 [D], 304 [D], 317 [D], 355 [D], 357 [D], 358 [D]; FLM 101 [D], 203 [D], 204 [D], 205 [D]; FRN 309 [D], 310 [D], 320 [D], 391 [D], 392

[D], 393 [D]; HPR 124, 125, 201A, 202A, 324, 325; LAR 201; MUS 101 [D], 106 [D], 111, 292 [D], 293 [D]; PLS 233, 335 [D]*; RUS 391 [D], 392 [D]; SPA 305 [D], 306 [D], 307 [D], 308 [D], 320 [D]; THE 100, 181, 351 [D], 352 [D], 381, 382, 383; WMS 317 [D]. *Please note: the College of Arts and Sciences requires one course in fine arts and one course in literature. See page 49.*

Foreign Language/Cross-cultural

Competence (FC): This requirement shall be fulfilled in one of the following ways:

- 1) demonstration of competence through the intermediate level by a proficiency examination or by successfully completing the 104 level in a living language or the 302 level in a classical language (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);
- 2) 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);
- 3) course work in a language not previously studied (or studied for less than two years in high school) through the beginning level. All modern and classical language courses used to fulfill these options carry the [D] designation;
- 4) study abroad in an approved academic program for one semester;
- 5) majoring in a foreign language;
- 6) two courses in cross-cultural competence selected from the following list: CPL 300 [D]; FRN 309 [D], 310 [D], 320 [D], 391 [D], 392 [D], 393 [D]; HIS 132 [D], 171 [D], 172 [D], 180 [D], 311 [D], 327 [D], 374 [D], 375 [D]; HPR 201F, 202F; LET 151L [D], 151Q [D], 151R [D]; NRS 300 [D]; PHL 331 [D]; RLS 131 [D]; SPA 320 [D]; TMD 224 [D]. Six credits of a full-semester approved Intercultural Internship in a foreign country through the Office of Internships and Experiential Education may be substituted for cross-cultural competence courses. Formally registered international students, students with a recognized immigrant status,

and students who are naturalized citizens may be exempt from the foreign language or cross-cultural competence requirement at the discretion of the dean of the student's academic college.

Letters (L): AAF 150 [D], 201 [D], 355 [D], 356 [D]; APG 327; BGS 392 [D]; CLS 160 [D], 235; EGR 316 [D]; ENG 110 [D], 160 [D], 243 [D], 251 [D], 252 [D], 280 [D], 355 [D], 356 [D]; HIS 111, 112, 113 [D], 114 [D], 116, 117, 118 [D], 130 [D], 132 [D], 141 [D], 142 [D], 145 [D], 146 [D], 150 [D], 160 [D], 171 [D], 172 [D], 180 [D], 304, 305, 310 [D], 311 [D], 314, 323 [D], 327 [D], 332 [D], 333 [D], 340 [D], 341 [D], 346 [D], 351 [D], 355 [D], 356 [D]; 374 [D]; 375 [D]; HPR 107, 201L, 202L, 307; JOR 110 [D]; LAR 202 [D]; LET 151 approved topics [D]; NUR 360 [D]; PHL 101, 103, 204, 210 [D], 212 [D], 215, 217 [D], 235, 314, 316 [D], 321, 322, 323 [D], 325 [D], 328 [D], 331 [D], 346, 355; PSC 341, 342; PSY 310; RLS 111 [D], 125, 126, 131 [D]; WMS 220 [D], 315 [D]; 320 [D].

Mathematical and Quantitative Reasoning (MQ): BUS 111; CSC 101*, 201; HPR 108, 201M, 202M; MTH 107, 108, 109, 111, 131, 141; PSC 109; STA 220.

Natural Sciences (N): AFS 190, 210, 211; APG 201 [D]; AST 108, 118; AVS 101 [D]; BGS 391*; BCH 190; BIO 101, 102, 105, 106, 286 [D]; BPS 201*; CHM 100, 101, 103, 112; GEO 100, 102, 103, 110, 113, 120; HPR 109, 201N, 202N, 309; MIC 190; NRS 190; NFS 207; OCG 110, 123, 131; PHY 109, 111, 112, 140, 185, 186, 203, 204, 205, 273, 274, 275; PLS 150, 190, 233; TMD 113.

Social Sciences (S): APG 200 [D], 202, 203 [D], 301 [D]; BGS 390 [D]*; CPL 202 [D]; ECN 100 [D], 201, 202, 306, 381 [D]; EDC 102 [D]; EEC (REN) 105, 310, 356; GEG 101 [D], 104 [D]; 202 [D]; HDF 225; HPR 110 [D], 201S, 202S, 310; HSS 130 [D]; JOR 110 [D]; KIN 123 [D]; LIN 200 [D]; MAF 100, 220 [D]; NUR 150 [D]; PSC 113 [D], 116 [D], 201 [D], 274 [D], 288; PSY 103 [D], 113 [D], 232 [D], 235 [D], 254 [D],

* Courses not approved to meet general education requirements for Arts and Sciences students.

255 [D]; SOC 100 [D], 212 [D], 230 [D], 240 [D], 242 [D], 274 [D]; TMD 224 [D]; WMS 150 [D], 320 [D].

All 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 lists given for the various general education components. Therefore, students must refer to the requirements specified for their programs (see “Undergraduate Programs”).

In the colleges of Arts and Sciences, the Environment and Life 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 that serve as prerequisites for a major can be used to fulfill the general education requirements.

Students in the Honors Program can receive general education credit for honors sections of courses that have been approved for general education credit.

Transfer students can 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 URI.

Other Academic Requirements

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

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

Students who desire to accelerate their programs and receive credit for courses taken at other institutions must have prior approval from their academic deans. (The Board of Governors’ policy on articulation and transfer between state institutions of higher education defines exceptions to

this regulation. See “Transfer Policies,” Appendix F of the University Manual.)

Students desiring to take courses in the University’s five- or six-week Summer Session shall be limited to seven credits of course work. The limit may be exceeded only if approved in the case of a matriculating University student by the student’s academic dean or the Graduate Dean, if applicable, and in the case of any other student by the dean designated to oversee the Summer Session.

Capstone Experiences

A capstone experience integrates course work throughout the undergraduate major program. Capstone experiences include courses, internships, portfolios, senior theses, research/design projects, etc. They are scheduled for the senior year. Capstone experiences may be either required or simply recommended. See your program of study for more information.

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.

To declare a minor, a student must have the approval of the department chairperson of the minor field of study and the dean. Faculty sponsorship is required for the third option listed above. (Non-business students wishing to obtain a departmental minor in the College of Business Administration should expect to take the six courses over a period of two years. Admission is on a space-available basis only, and therefore not guaranteed.)

A minimum grade 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.

Interdepartmental Minors

Descriptions of approved *interdepartmental* minors follow. Descriptions of requirements for approved *departmental minors* may be found in the departmental sections of this catalog.

African and African-American Studies.

Students who declare African and African-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 360, 390, 410; APG 313; COM 333; ECN 386; ENG 247, 248, 362, 363, 364, 474; HIS 150, 384, 388; and PSC 408. 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.

For a description of the degree program for the major in African and African-American studies, see page 52.

Asian Studies. Students who declare a minor in Asian studies are required to complete 18 credits including at least two courses (6 credits) from the following: HIS 171, 172, 374, 375; PHL 331; PSC 377; RLS 131; THE 382. The remaining 12 credits may be selected from the preceding group or from the following: BUS 317/COM 354; CHN 101, 102, 103, 104; COM 361, 461, 491, 492; HIS 391, 481, 495; JPN 101, 102, 103, 104; LAN 191, 192, 193, 194, 205, 206; PSC 303, 455, 456. At least 12 of the 18 credits must be taken at the 200 level or above. Students interested in the minor should contact Professor Timothy George in the History Department. A member of the Asian Studies Advisory Committee will then be assigned as the advisor for the minor and will assist the student to fulfill its requirements.

Biological Sciences. Students who declare biology as a minor must take BIO 101, BIO 102, and MIC 211 or MIC 201. The remaining courses may be selected from BCH 311 and any BIO or MIC course. At least 18–20 credits are required, and at least 12 of the 20 credits must be taken at the 200 level or above.

For a description of the degree program for the major in biological sciences, see page 97.

Community Planning. The minor in Community Planning is for those students in all fields who wish to expand their knowledge of the processes of community planning and development while completing their education at URI. The minor is designed to encourage or improve the student's professional knowledge of community planning and development issues. The minor requires a total of 18 credits. Nine of the 18 credits are the required courses and the remaining are elective courses.

CPL 410 is the required introductory core course for the minor. In addition, each student is required to complete six credits from the following list: CPL 391, 434, 450, 485, and 538. A maximum of 3 credits of CPL 391 can be applied toward the required courses of the minor. Alternatively, three credits of CPL 391 can be applied toward the elective courses in the minor.

Successful completion of nine credits of elective courses from the following list is required in consultation with the community planning minor advisor, Professor Farhad Atash: AAF/PSC 410, 466; CPL 391, 392, 397; CVE 346; ECN 402; GEG 101, 104, 200, 203; HDF 418, 424, 434, 440; LAR 201, 202; MAF 465, 475, 484; NRS/CPL 300; NRS 415, 450; PHL 318; PSC 221, 402; and SOC 214, 240. These elective courses cannot be simultaneously counted toward a major.

The Department of Landscape Architecture in the College of the Environment and Life Sciences administers this minor. Interested students should contact Professor Farhad Atash in the West Tower Office of Rodman Hall (third floor), 401.874.2982 or fatash@mail.uri.edu.

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, 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 for the major in comparative literature studies, see page 55.

Film Media. See page 58.

Forensic Science. Students who declare a minor in forensic science must complete 18 credits including two credits of CHM 391, three credits of CHM 392 (Introduction to Criminalistics), and three credits of research or a practicum related to forensic science. The practicum can be in the form of participating in a Forensic Science Partnership research project or internship on or off campus. The remaining 13 credits may be selected from the following: APG 300*, 350*; APG/PSY 405*, APG 417; BCH/BIO/ASP/PLS 352*; BCH/MIC 403; BCH/BIO 437*, 451*; BCH 481*, 482*, 484*; BIO 242*, 244*; BIO 381/ENT 385*, BIO 382/ENT 386*; BMS 225*, 313, 322, 325, 326, 416, 525, 530*, 535*, 544, 546; CHE 332*, 333, 438*, 491, 539*, 576; CHM 226*, 228*, 412*, 414*, 425*; COM 215; DHY/CMD/PHT 440*; ENT 411 or 511*; GEO 103, 320*, 321*, 554*; PHP 316, 318, 324; PLS/ASP 355*; PLS 361*; PSC 472*; PSY 254*, 335*, 460, 466, 479; SOC 216, 230, 370, 420*; SOC/PSC 274*; TMD 303*, 313* (asterisked courses have prerequisites not included in this program; students are responsible for completing these prior to enrolling in the course). Courses required for a student's major cannot also be used to satisfy the minor requirements. It is suggested that no more than two courses in the minor be from any one department and that all students take at least one chemistry course in addition to CHM 391. Students interested in this minor should contact

Professor Jimmie Oxley, Department of Chemistry.

Geography. The minor in geography is designed to enhance student spatial skills. Global awareness is a fundamental component of many programs of study here at URI. It is a critical element in developing spatial literacy. The required courses for the minor include GEG 101 (3 credits) and three of the following (9 credits): GEG 104, 200, 203, and 511.

Six credits of electives are chosen from the following list in consultation with the geography advisor, Professor William Gordon: AAF/PSC 410, 466; APG 203; CPL 210, 410; GEG 202, 350; GEO 103, 210; HIS (a state, regional, or national history course); OCG 123; PSC 116, 377, 403, 407, and 408. These courses cannot be double-counted for a student's academic minor and major.

The Department of Landscape Architecture, within the College of the Environment and Life Sciences, administers this program. Interested students should contact Professor William Gordon in the East Tower Office of Rodman Hall (third floor), 401.874.5108 or wgordon@uri.edu.

Gerontology. The program in gerontology is a University-wide program that promotes study, teaching, and research in aging. It also maintains relationships with state and local agencies serving Rhode Island's older population. This affords opportunities for research, internships, and field experiences to students interested in the problems of aging.

The Bachelor of Science program in human development and family studies is the recommended major for gerontology. 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 no 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.

HDF 314 (Introduction to Gerontology) is required for either specialization. Undergraduate gerontology courses include NFS 395; HDF 431 and 440; and SOC 438. Also relevant are HDF 421, 450, 480; NUR 349, 360; BIO 242; and the Office of Internships and Experiential Education.

It is important to take courses that 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.

Hunger Studies. This minor intends to prepare students for leadership roles in understanding and eradicating hunger. Requirements include 18 credits (at least 12 at the 200-level or above), nine of which will be core courses, including the introductory course HSS 130; up to three 1–3-credit internships; and a 3-credit capstone course which will include one credit for portfolio development. No course may be used for both the major and minor. Courses in general education may be used for the minor.

All courses must be taken for a grade, except for the internship and portfolio credits, and a grade of 2.00 or better must be earned in each graded course. To declare this minor, a student must have the approval of a program advisor and an academic advisor. For more information, contact Professor Kathleen Gorman, Director, Feinstein Center for a Hunger Free America, Ranger Hall, 309, or Professor Lynn McKinney, Human Science and Services, Quinn Hall, Kingston.

Core courses: 9 credits; HSS 130 (3 credits), Internship (total of 3 credits), HDF 434 (3-credit capstone, 1 credit for portfolio development). Optional: URI 101 with a focus on hunger/social justice (1 credit).

Electives: 9 credits; may be focused on a particular theme. Approved electives include CPL 210; CPL/NRS 300; NFS 276, 394, 395; HDF 357, 489G; HSS 120; PHL 217; PLS 305; PSC 221, 485.

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

Students choosing this minor must complete 18 credits, with a maximum of six credits at the 100 or 200 level. Students must complete the following: 1) CPL/NRS 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 the University's Department of Modern and Classical Languages and Literatures in the following languages: French, Spanish, German, and Russian; the University 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 (CPL/NRS 487); and three credits of an advanced-level seminar (CPL 495 or NRS 496). See "Courses of Instruction" later in this catalog (or online at uri.edu/catalog) for descriptions of CPL/NRS 300, CPL 487 and 495, and NRS 496.

The College of the Environment and Life Sciences administers this program; interested students should contact Professor David Abedon in Natural Resources Sciences, Coastal Institute, Kingston, Room 113, 401.874.4655.

International Relations. The Department of Political Science has established a minor in international relations, designed to provide a basic grounding in the theory and practice of international affairs for students with an interest in global issues. Drawing upon upper-level courses in economics, history, and political science, the program integrates existing course offerings and provides a focused option in international affairs.

Students must complete a minimum of 18 credits, drawn from the required courses and options outlined below. Please note

that students are responsible for completing any necessary prerequisites before enrolling in these courses.

Requirements include ECN 338 and one of the following **capstone** courses: PSC 431 or 580.

In addition to the required courses, students must take **at least one** course from each of the following groups, for a total of 18 credits: international relations theory (PSC 350, 481, 487, 544, 546, 580, and 584); international political economy (ECN 305, 344, 363, 381; PSC 402, 403, 521, and 595); comparative government (HIS 332, 374, 375, 381, 382, 384, 388; PSC 201, 301, 321, 377, 401, 406, 407, 408, 410, and 434).

The Department of Political Science administers this program; interested students should contact Professor Nicolai Petro or Professor Richard McIntyre.

Justice, Law, and Society. Students declaring a minor in justice, law, and society must complete a minimum of 18 credits from among the courses listed below. At least three credits must be completed in each of the three groups. Several of the courses have prerequisites not included in this program; students are responsible for completing these prerequisites prior to enrolling in the course. Other courses, such as topics courses, may be approved for credit by the program coordinator. Interested students should contact Professor Leo Carroll in the Department of Sociology and Anthropology. *Criminal Justice:* HDF/SOC 437; PSC/SOC 274; PSY 254, 261, 335, 460, 465, 466; SOC 230, 330, 331, 370, 375, 420; SOC/PSC 476; WMS 370, 401. *Law:* ECN 337, 415; ENG 356; PHL 430; PSC 288, 369, 471, 472. *Social Justice:* AAF 201; APG 311, 322; ECN 305, 381, 386; HIS/AAF 150, 355, 356; HIS 328, 344, 346, 349, 352, 366, 367; PHL 210, 217, 314, 318; PSC 441, 485; PSY 480; SOC 240, 242, 413, 428, 438; WMS 150, 310, 402.

Labor Studies. The labor studies minor is available to students interested in employment issues and the problems faced by working people in the United States and abroad. Students declaring this minor are

required to complete 18 credits including LRS 480, Seminar in Labor Studies. The remaining 15 credits can be selected from HIS 349; BUS 344, 444; SOC 241, 336, 320, 350, and 432; PSC 369, 471, 472, and 498; ECN 338, 368, 381, and 386; and COM 460 or other courses approved in consultation with SLRC faculty. The labor studies minor is administered by the Schmidt Labor Research Center. Information can be obtained from Professor Richard Scholl in the center, Hart House, 36 Upper College Road, 401.874.2239.

Leadership Studies. The minor in leadership studies is based on a broad cross-disciplinary philosophy of leadership. The goal is to prepare students for leadership roles and responsibilities. The minor will provide students with opportunities to develop and enhance a personal philosophy of leadership that includes understanding of self, others, and community as well as the acceptance of responsibility inherent in community membership. The curriculum is focused on expanding students' knowledge, skills, and understanding of specific leadership theories, concepts, and models in applied settings.

The minor includes the following three areas: education that consists of exposure to leadership theories, concepts, and models; leadership training that is directed at skill areas in leadership; and developmental aspects that require academic and co-academic experiences and reflection intended to empower students to mature and develop greater levels of leadership complexity, integration, and proficiency.

To declare a minor in leadership studies, a student must first visit the Center for Student Leadership Development (CSLD) in the Memorial Union to begin the enrollment process, and then inform his or her major academic advisor. A program advisor will facilitate the student's process through the minor, and help assure that class, internship, and portfolio requirements are completed.

Leadership minors must complete 18 or more credits related to leadership offered by more than one department. Requirements

include a core of nine credits as follows: 1) a choice of an introductory course (HDF 190 or HDF 290); 2) a choice of a capstone course (BUS 441/COM 402 or HDF 412); 3) an internship with specific requirements including conceptual understanding, skill development through experience and feedback, and personal awareness, assessment, and growth; each internship requires 80 hours of fieldwork; the specific internship course will depend on the student's particular major or depend on the specific supervisor and/or advisor for the internship site; 4) a one-credit portfolio course. The portfolios are multidimensional collections of work that reflect the students' experiences in and out of the classroom as they relate to leadership knowledge, training, and experiences. The student's program advisor will work with the student on the development of the portfolio as an ongoing project.

Students will also choose nine elective credits from several approved courses. Other courses may be appropriate and may be added to this list with the approval of the Leadership Advisory Committee: AAF 300; BUS 340, 341, 342, 441, 442, 443; COM 100, 202, 208, 210, 220, 221, 302, 308, 322, 351, 361, 383, 385, 402, 407, 413, 421, 422, 450, 451, 461, 462; CSV 302; HDF 190, 290, 291, 412, 413, 414, 415, 416, 417, 437, 450; HPR 118, 203, 412; KIN 375; MSL 201, 202, 301; PSC 304, 369, 504; PHL 212; SOC 300/WMS 350; THE 221, 341; WMS 150, 310, 350.

Visit mu.uri.edu/leadership for a complete, up-to-date list.

For more information on this minor, contact the Center for Student Leadership Development, Memorial Union, room 210, 401.874.5282.

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. *Aesthetic Dimensions:* ENG 347. *Cultural Patterns:* APG 317; ENG 337; PSC 221. *Historical Dimensions:* HIS 335, 346, 362. *Physical Dimensions:* BIO 323, BIO 418; GEO 101; NRS 301, 302. Permission can 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. The minor in New England Studies is coordinated by the English Department. Interested students should contact Professor Ron Onorato at 401.874.2769 or ronorato@uri.edu.

Nonviolence and Peace Studies. Students who declare a minor in nonviolence and peace studies should complete a minimum of 18 credits, as follows: 1) NVP 200, a one-credit colloquium course on Nonviolence and Peace Studies; 2) a nonviolence training experience such as one of the two-day workshops offered by URI's Center for Nonviolence and Peace Studies (or training offered by the American Friends Service Committee, Fellowship of Reconciliation, or similar organization), combined with three credits of directed reading/independent study focused on the history, theory, and application of nonviolence. Credits may be earned in HDF 498, HIS 391, HPR 401 or 402, PHL 499, PSC 455 or 456, PSY 489, SOC 498 or 499, and should be chosen in consultation with the student's advisor for the minor and other faculty; 3) a minimum of one of the following three-credit courses in individual/interpersonal peace processes: COM 221, 422; HDF 450; HPR 107, 110; PSY 479Y, 479H; or SOC 408; 4) a minimum of one of the following three-credit courses in societal/global peace processes: AAF/PSC 380; COM 310, 361; ECN 386; HPR 411; PHL 217; SOC 318; or PSC 420; and 5) additional related courses totaling a minimum of 18 credits for the minor, such as AAF/SOC 240, 336; AAF/HIS 359, 366; AAF/SOC 428; COM 310, 322, 421, 461; ECN 381; HDF 230; HIS 328, 349; PSC 485; PSY 103, 334, 335; PSY/SOC 430; SOC 216, 230, 274, 330, 331, 370, 413, 420, 452; WMS 150, 310, 350, and 351. Students are responsible for meeting applicable prerequisites for courses in the minor, or for obtaining the instructor's permission to take a course.

Interested students should contact Professor Charles Collyer in the Department of Psychology (401.874.4227 or collyer@uri.edu).

Oceanography. The minor in oceanography is available to students interested in scientific understanding of the ocean, including its role in controlling the environment in which we live, its usefulness as a resource, and the importance of marine area protection and sustainability.

Students choosing this minor must complete 18 credits, at least 9 of which must be from OCG courses. Courses may not be taken on a pass-fail basis (except for OCG 493/494). The following course requirements must be met: 1) One OCG course and up to one other course from the following 100-level course list: CHM 100; GEO 103; MAF 100, 120; OCG 110, 123, 131. 2) One of these three general oceanography courses: OCG 123, 401, 451. 3) The remaining 7–12 credits from the following courses: APG 413; BIO 345, 360, 418, 455, 457, 469, 475, 495; EVS 366; GEO 277, 450, 465; MAF 330, 415, 461, 465, 471, 482, 484, 490, 511; MCE 354; OCE 215/216, 301, 307, 310, 311, 471; OCG 420, 480, 493/494, 501, 506, 517, 521, 540, 561. Permission of the program administrator is needed if OCG 493 or 494 is used to satisfy requirement 3 (above). Other courses may be substituted, at the request of the student and with permission of the program administrator. The Graduate School of Oceanography (GSO) administers this program. Interested students should contact GSO Associate Dean David Smith at 401.874.6172 or assoc_dean@gso.uri.edu.

Public Relations. Students can minor in public relations by completing one statistics course and 18 course credits from communication studies, journalism, and marketing, as specified. Applicable statistics courses are STA 220, 308, 409 and BUS 210. Communication studies majors take JOR 220, 345, JOR/PRS 340, BUS 365, and two additional marketing courses. Journalism majors take COM 210, 302, 320, BUS 365, and two additional marketing courses. Marketing majors take JOR 220, 345 and COM 210, 302, 320. Other majors take two applicable courses in communication studies, journalism, and marketing. The minor in public relations is coordinated by the Department of

Communication Studies. Interested students should contact Regina Bell (401.874.2489).

Special Populations. This interdepartmental minor gives students the opportunity to explore theory and gain practical experience through working with people who have special needs. This includes people who have disabilities (physical, emotional, mental, or educational) or are different socioeconomically, behaviorally, or culturally. A minimum of 18 credits may be earned by taking the required courses (HDF 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: Communication Studies; Education; Nutrition and Food Sciences; Human Development and Family Studies; Nursing; Kinesiology; Psychology; Sociology and Anthropology; Textiles, Fashion Merchandising, and Design; or Theatre. The College of Human Science and Services administers the program.

Sustainability. In addition to fulfilling all the basic requirements for a minor (see page 35), students declaring a minor in sustainability complete the following four requirements:

(1) A “synthesis course” selected from a series of courses that focus on principles of sustainability (AFS/BCH/MIC/NRS/PLS 190; BIO 262; COM 315; GEO 100; HPR 411; MAF 100, 220, 330, 465; NRS 100; OCG 110, 123; 3 credits).

(2) An internship that includes hands-on sustainability experience on campus or in the community. Course can include research, service learning, and/or leadership. Minimum of 3 credits. Course can be repeated for up to 6 credits. Students may elect to take an internship offered from within a given major. Some majors have generic internship courses in which students may seek approval for from 3–6 credits (e.g. COM 471/472; ITR 301/302; NRS/CPL 487); others would need to use the Office of Internships and Experiential Education

to arrange for an appropriate internship of from 3–12 credits, only 3 of which would be required for the minor. (For more information, see uri.edu/univcol/internships). Use of the internship activity to fulfill requirements of the minor requires approval by the sustainability minor coordinator(s).

(3) Elective courses selected from the following approved lists, with at least one course from each of the three core areas (9 credits): ECONOMICS: EEC 105, 205, 310, 345, 440, 441; ECN 201, 202. SOCIAL EQUITY/JUSTICE: APG 203; COM 410, 415, 462; HPR 319; NFS 207; SOC 242, 318, 350, 413, 438, 452, SOC/AAF 240, 336, 428. ENVIRONMENT: AFS 102, 120; BIO 101, 467; CHM 100; GEO 103; LAR 444, 445; NFS 276; NRS/CPL 300; NRS 223, 361, 401/501, 411/511, 414/514, 445/545; OCG 131; PLS 306, 311, 324; TMD 226.

(4) A **capstone** course requiring submission of a brief proposal describing the intended work and how it relates to sustainability, the associated course, and the faculty sponsor. The faculty member may well be simply signing off on a course that s/he teaches as part of a regular workload (COM 455/HPR319; MAF 472, 475; NRS 496/CPL 495; NRS/MAF 527; OCG 480/580; PSC 403), or may be agreeing to sponsor the student’s work in a special studies arrangement, which could be an add-on to the internship or could stand alone. The sustainability minor coordinator(s) must approve the proposed capstone course.

The Sustainability Minor Committee is consulted on the appropriateness of capstone courses, internships, and the addition of any new courses to the minor. For more information, contact Professor Judith Swift at jswift@uri.edu or 401.874.4739.

Thanatology (Death, Dying, and Bereavement). The interdisciplinary minor in thanatology provides a basic understanding of loss, death, dying, and grief.

Students are required to take 18 credits (12 of which are at the 200 level or above) in the following core areas: thanatology (minimum of 6 credits); communications, counseling, gerontology, and psychology (minimum of one course); and ethics,

philosophy, and religion (minimum of one course). Courses may be selected from the following approved list. *Thanatology*: HDF 450; HDF/THN 421, 471; HPR 119, 319; NUR 527; NUR/THN 360, 523, 524, 525, 526, 529; PHP 460; PSC 440. *Communications, Counseling, Gerontology, and Psychology*: COM 100, 221, 251, 324, 325, 361, 422; HDF 314, 430, 535; PSY 113, 232, 399. *Ethics, Philosophy, and Religion*: PHL 103, 212, 314, 328, 346, 401; RLS 111, 125, 126, 131, 151. *Other related courses*: Independent study related to thanatology, i.e. HDF 498, NUR/THN 390, 506 (check with faculty advisor). For additional information, see uri.edu/nursing and click on thanatology. For academic advisement and course approvals, and to declare intent to graduate with a thanatology minor, contact Professor Carolyn Hames (chames@uri.edu) in the College of Nursing.

Underwater Archaeology. To obtain a minor in underwater archaeology, students must take 18 credits in history, historical archaeology, anthropology, classical archaeology, oceanography, and marine policy, at least 12 of which must be at the 200 level or above. The required courses and options are outlined below.

Students must take HIS/APG 490, and either APG 417 or ARH 475 (six credits). Students are encouraged to take these required 400-level courses toward the end of their program of studies. In addition, students must take one course from each of the following four groups: classical archaeology/material culture (ARH 251, 354, 475; ARH/APG 465); anthropology (APG 202, 203, 302, 303, 319, 417; APG/MAF 413); history (HIS 130, 389, 390, 396); oceanography/marine policy (OCE 110, 123, 401, 451; MAF 100, 220).

Interested students should contact Professor Rod Mather in the History Department (401.874.4093 or roderick@uri.edu).

Women's Studies. See page 70.

Writing. See page 71.

Preprofessional Preparation

Competition for seats 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, students should consult the catalog of the professional school and then plan their undergraduate programs accordingly.

Those seeking careers as social workers can 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.

Communicative Disorders. Students who are interested in applying to the graduate program in communicative disorders, and who have not taken the undergraduate requirements, may wish to enroll as post-baccalaureate (non-matriculating) students to fulfill or begin to fulfill these requirements. The undergraduate requirements—courses needed prior to taking graduate courses—include CMD 272, 273, 274, 276, 278, 375, 377, and 465. Completion of these courses does not, however, assure admission into the graduate program, nor is completion of all the requirements essential for application to the program. Any required undergraduate courses not completed prior to graduate admission will be added to the graduate program.

Health Professions—Premedical, Predental, and Preveterinary Programs.

The URI Health Professions Advisory Committee (HPAC) helps students preparing for medical school, dental school, veterinary school, or physician assistant programs. URI's Health Professions Advisory Committee offers students academic counseling and information on the admissions process.

Students should select their undergraduate major based on their own interests and abilities, choosing one carefully with appropriate advice from the HPAC. They should also make sure that their major provides 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 completing required course work for entrance to postgraduate colleges of medicine, dentistry, or veterinary medicine or physician assistant programs must register with the HPAC secretary in the Biological Sciences Building, Room A-129; 401.874.2670.

General Requirements. For students preparing to apply to postgraduate programs of medicine, dentistry, physician assistantship, or veterinary medicine, the program of study includes courses in humanities, English and literature, basic sciences, mathematics, social sciences, and communication. These courses will fulfill 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, provided 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 (MCAT, DAT, VAT, or GRE) in the spring semester of junior year. Recommended courses for fulfilling the basic admissions requirements follow, with the minimum required number of credits shown: Biology, 8 credits from the following (or their equivalents)—BIO 101, 201, 302, 304, 327, 329, 341, 352, 437, 453; MIC 211; Chemistry, 16 credits, including general inorganic chemistry (CHM 101 with Lab 102 and CHM 112 with Lab 114) and organic chemistry (CHM 227, 228, 226 [lab]); Physics, 8 credits, including PHY 111, 185, 112, 186, or PHY 203, 273, 204, 274, or their equivalents; and Mathematics, 6 credits through calculus, MTH 131 and 132, or MTH 141 and 142.

Applying to Professional Schools. Prior to submitting an application to a professional school, each candidate's credentials are evaluated by the Health Professions Advisory Committee. By the second semester of junior year, each applicant must provide the HPAC with the following items in writing: a request from the applicant to the HPAC for a letter of evaluation in support of their application to a medical, dental, physician assistant program, or veterinary school; an official report of their SAT scores from the testing agency, high school, or secondary school; official, recent academic transcripts of all college courses taken at URI and elsewhere; official reports of scores on the appropriate admission test (MCAT, DAT, VAT, or GRE) sent directly to the HPAC from the testing agency; an autobiography with a commentary on the way the applicant's career goals have developed; a description of all extracurricular activities; a description of all honors bestowed on the student; a description of volunteer hospital, dental, veterinary, or other health-related work; and a minimum of five letters of evaluation written by persons who can evaluate candidly the applicant's experience and ability to engage in professional and scientific study. Personal interviews with HPAC members are also held in the spring semester of junior year and included in the candidate's final evaluation. As a result of this evaluation, the HPAC determines the level at which the candidate will be recommended for admission to professional school.

Premedical Studies. Candidates should become familiar with their prospective medical schools' admission requirements. 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 HPAC secretary. Medical schools generally require at least a 3.50 grade point average and high scores on the required Medical College Admission Test (MCAT), taken preferably in the spring semester of the third undergraduate year.

The URI–Brown Early Identification Program for Sophomores. This plan early identifies and accepts URI students into Brown University's School of Medicine. To be eligible, you must be a Rhode Island resident who is highly motivated, exceptionally qualified, a graduate of a Rhode Island high school, and a sophomore with a cumulative grade point average of at least 3.50 after completing at least three semesters of academic work at URI. In December of each year, eligible students must apply in writing to the URI Health Professions Advisory Committee for nomination to this program. In early February, the HPAC conducts a careful evaluation of each applicant's academic and personal qualifications. A completed application and the committee's letter of evaluation for each nominated student are forwarded to Brown's dean of medicine. Final decisions to accept applications are made by the admissions committee at Brown. Two URI students per year are usually accepted into the program. When these candidates are accepted, they assume the same status as their Brown counterparts, and continue their studies at URI. They can major in any field of study, so long as they continue to show academic excellence while completing the required premedical courses. They are also invited to take one or two of their premed courses at Brown with their future classmates, and are included in various events sponsored by the Brown Medical Student Society.

URI Postbaccalaureate Preprofessional Programs. Potential premedical, pre-dental, or preveterinary candidates who already have degrees from URI or other colleges must first consult with the URI health professions advisor. The HPAC secretary will arrange for an appointment, and candidates must register in writing at the secretary's office. They will be advised on completing the basic admission requirements prior to submitting an application. These students must be evaluated by the HPAC in the spring semester in order to be recommended to professional schools.

Prelaw Studies. For students who plan professional study of law, guidance and program advice are provided by the Pre-Law Advising Coordinator, Lawrence Rothstein (ler@uri.edu; 401.874.2730) and by several pre-law advisors. Students should contact Professor Rothstein as soon as possible after admission to the University to be placed on the Pre-Law Society email discussion listserve LAWURI.

In addition, students should consult the Law School Admissions Council (LSAC) Web site at lsac.org for information about law schools and the admissions process and visit the Pre-Law Home Resource Center on the second floor of Washburn Hall. LSAC 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."

Teacher Education Programs. The University of Rhode Island offers a variety of academic programs leading to teacher certification at both the undergraduate and the graduate levels. Undergraduate teacher education programs are offered by departments in the College of Arts and Sciences, the College of the Environment and Life Sciences, and the College of Human Science and Services. The School of Education and Office of Teacher Education provide 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, physical education, music education, and

secondary education. The University also allows students enrolled in the elementary or secondary education program to complete course work for a middle level endorsement. To find specific program descriptions and information, refer to the index at the back of this catalog.

Admission. Students interested in undergraduate teacher education programs are required to apply for admission to the Office of Teacher Education. Applications for admission to teacher education programs are normally submitted during the sophomore year. For early childhood, elementary, secondary, music, and physical education, students develop an application portfolio. 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) passing scores on the PPST: Reading 172, Writing 171, Math 171; or a score of 1100 on the SAT; 4) the student's academic record, including a cumulative grade point average of 2.50 or better. In addition, for the secondary education and music education programs, a grade point average of 2.50 in the Arts and Science major or specialization. Individual departments or programs may also require an interview.

Transfer students should be advised that academic work completed at URI is a primary factor in the admission decision. Therefore, students must complete one semester of work at the University before they can be considered for admission to the teacher education programs. This may extend the time required for degree completion.

Students in the School of Education graduate and undergraduate certification and licensure programs will be required to take and pass a content area exam(s) in their area of certification and any other exam required for state licensure prior to student teaching or final internship.

CCRI students majoring in early childhood education may apply to the URI Early Childhood Education Program directly from CCRI following the procedures outlined above. Acceptance into the program is contingent upon admission and enrollment at URI.

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

Students denied admission can petition for a review of the decision. In such cases, the departmental screening committee meets to consider the appeal. Only exceptional circumstances will lead the appeal committee to override the academic record criteria (2.50 cumulative grade 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.

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 this catalog's "Graduate Programs" section and departments regarding individual program requirements.

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. Students in the School of Education, graduate and undergraduate certification and licensure programs, will be required to take and pass a content area

exam(s) in their area(s) of certification and any other exam required for state licensure prior to student teaching or final internship. Contact the Office of Teacher Education for the passing scores required for each discipline.

Graduates of a state-approved teacher education program at the University are eligible to receive an initial teaching certificate in Rhode Island and in over 40 other states through the Interstate Certification Compact (ICC). However, states will grant certification through the ICC only for certifications 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 the University's program in early childhood education without reviewing the student's transcript to see if it meets that state's guidelines for elementary education. Therefore, students interested in applying for certification in states other than Rhode Island should always contact the department of education in that state and ask: 1) if the state has the area of certification the student is interested in pursuing at URI; and 2) if the state grants initial teacher certification under the ICC to students who have graduated from a Rhode Island state-approved teacher education program. Also, the student should ask the department to mail the state's 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, the applicant 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.

Special Academic Opportunities

English as a Second Language. English as a Second Language is not remedial at URI. Non-native-speaking students who want to continue to perfect their English so as to enhance their chances of success in their studies may do so by taking courses in the English Language Studies Program. ELS 112 and 122 are two regularly offered courses that count toward the written communication requirement in the general education program. Students who need these courses are strongly urged to take them in their freshman year. Students can also take ELS 312 and 322 to strengthen their oral English skills. For more information, contact issoff@etal.uri.edu or call 401.874.2395.

Feinstein Center for Service Learning. Established by a generous endowment from Rhode Island philanthropist Alan Shawn Feinstein in 1995, the Feinstein Center for Service Learning promotes the integration of service with academic study in order to enhance student learning and involvement with communities and their agencies. We believe that student involvement in meaningful activities will deepen civic responsibility and allow students to implement what they are learning in the classroom. Active involvement with community issues and concerns builds critical thinking and interpersonal skills and fosters an appreciation of larger social implications. Programs include Americorps: Scholarships for Service; Clearinghouse for Volunteers; Feinstein Enriching America Program; First Book URI; Jumpstart at URI; and Service Learning Courses. For more information contact the Feinstein Center for Service Learning at 401.874.7422.

Honors Program. The University Honors Program offers motivated students opportunities to broaden their intellectual development and strengthen their preparation in major fields of study. The program consists of courses in analytical thinking skills that prepare academically talented students to get the most from classes throughout their undergraduate years, a colloquium that 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 at the 100 and 200 levels treat general topics and usually count for general education credit in particular divisions. Those at the 300 and 400 levels are more specialized and often are used to fulfill the requirements of a major.

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 grade 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 that 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." To achieve this certification a student must complete a minimum of 15 honors course credits that 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 grade point average for honors courses and a 3.20 cumulative grade point average.

The Honors Program houses the National Scholarships Office, which prepares students for prestigious national and international scholarship competitions. To learn more about this and other Honors opportunities, please visit uri.edu/hpr.

Marine and Environment-Related Programs. Interest in marine science and oceanography at the University dates back to the mid-1930s. Over the past three decades, this strong emphasis on marine studies has extended to environmental topics, developing into an array of undergraduate programs in the natural, physical, and social sciences.

There are more than two dozen majors with a marine or environmental focus offered by three of URI's colleges. In the College of Arts and Sciences, the majors are chemistry and chemical oceanography, and physics and physical oceanography. In the College of Engineering, URI offers chemical engineering, chemical and ocean engineering, ocean engineering, civil engineering, and mechanical engineering. In the College of the Environment and Life Sciences, the majors are aquaculture and fishery technology, biological sciences, biology, environmental economics and management, environmental horticulture and turfgrass management, environmental science and management, geology and geological oceanography, geosciences, landscape architecture, marine affairs, marine biology, microbiology, resource economics and commerce, and wildlife and conservation biology. Several of the majors are offered jointly with the Graduate School of Oceanography. The Graduate School of Oceanography also offers undergraduates a minor in oceanography (see page 39).

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 University's 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.

Working with academic advisors, students can identify their majors and select the courses best suited to their individual academic objectives and career goals. A list of relevant courses appears under "Marine

and Environmental Topics” in the course descriptions later in this catalog.

National Student Exchange Program. The National Student Exchange (NSE) program offers URI students the opportunity to study at more than 180 participating colleges and universities in 55 states, U.S. territories, and Canadian provinces, 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 North America. Financial aid is available to participants. For further information, contact the Office of International Education and National Student Exchange in Taft Hall at 401.874.5546.

New England Land-Grant Student Exchange Program. Students with special academic interests can 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 and members of the University College staff have more information about this program and its requirements.

Office of Internships and Experiential Education (OIEE). The OIEE is an academic program that provides undergraduate students with opportunities for semester-long internships (fall, spring, and summer). The internship program is designed for motivated students who wish to apply classroom learning to field experiences in career related settings. Student interns are supervised by a qualified professional at their placement site and by a faculty advisor from their academic major. Students from most undergraduate curriculums may apply for part-time or full-time internships and may earn from 6–15 free-elective credits.

In order to apply to the program, a student must have a minimum GPA of 2.50 and junior or senior standing.

Students enrolled in internships are also required to participate in a seminar provided by the OIEE. The seminar is the graded portion of the internship experience based upon a portfolio project, a successful learning contract, a career/graduate school project, and other assignments used to help students connect their experience with their academic foundation. For more information, call the office at 401.874.2160.

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. Off-Campus Study and Feinstein College of Continuing Education Special Programs courses are not included in this program, nor are students who are taking courses only during Summer Session. Students interested in this arrangement should contact Enrollment Services.

Study Abroad. The Office of International Education and National Student Exchange 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 sponsors exchange programs with universities in Denmark, England, France, Germany, Japan, Korea, Mexico, Norway, and Spain, and URI is a member of several consortiums that enable URI students to participate in programs throughout the world. URI also participates in the New England–Quebec and New England–Nova Scotia exchange programs, making study available on an exchange basis at any of 21 English- and French-speaking universities in these Canadian provinces.

Many of these exchange programs make study abroad available to URI students at a modest cost. The study abroad director and advisors 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 URI during their absence from campus. Most forms of financial aid are applicable to study abroad. For more information, contact the Office of International Education and National Student Exchange, Taft Hall, room 107. Email: oie@etal.uri.edu. Web site: uri.edu/international.

Summer Sessions. The University provides a full range of undergraduate and graduate course offerings during two five-week sessions on the Kingston and Providence campuses. Courses begin immediately after Commencement and are offered during day and evenings as well as on-line. Summer intensives are offered at varying dates in the alternate session, and a number of special programs, including study in foreign countries, internships, and clinical placements, are available. Students may attend either or both campuses and enroll in any summer session. Students who are not matriculated at URI who are expecting to apply summer credit to their academic degree program are advised to obtain prior approval from their home campus 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.

Military Science and Leadership (Army Reserve Officers’ Training Corps or “ROTC”)

Military Science and Leadership (Army ROTC) is one of the nation’s top leadership programs, with many benefits to joining. Military Science and Leadership (Army ROTC) is an elective curriculum students take along with required college classes. It gives students the tools, training, and experience that will help them succeed in

any competitive environment. Along with great leadership training, Military Science and Leadership (Army ROTC) offers two-, three-, and four-year scholarships covering full tuition and fees, book money, and a monthly allowance ranging from \$300 for freshmen to \$500 for seniors.

Because Military Science and Leadership (Army ROTC) is an elective, students can participate during their freshman and sophomore years, known as the Basic program, without any obligation to join the Army.

Enrollment in any Military Science and Leadership (Army ROTC) course allows students to compete for off-campus training at the following U.S. Army schools: Airborne, Air Assault, Northern Warfare, and Cadet Troop Leadership Training (CTLT).

The Minor in Military Science and Leadership. Completion of 18 credits of MSL course work is required.

Interested students should contact Joanne LaChapelle at 401.874.5459.

Grades

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; NW, enrolled—no work submitted.

Grades are given grade 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, S, and NW are not calculated in the grade point average.

Final grade reports are made available to all students via the e-Campus system. Midsemester grade reports are made available to all freshmen via the e-Campus system 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 grade point averages.

A grade may be reported as “incomplete” only when course work has been passing but not completed due to illness or another reason that in the opinion of the instructor justifies the report of incomplete. Undergraduate students must make arrangements with the instructor to remove the incomplete by the following mid-semester. Incomplete grades not removed from an undergraduate student’s record by the end of two years 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.

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

Pass-Fail Grading Option. This plan encourages undergraduate matriculated students to increase their intellectual breadth and discover aptitudes in new areas of knowledge. A matriculated undergraduate 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. Nonmatriculating students are not eligible for the pass-fail grading option.

A student choosing to take a course under this plan must notify his or her advisor, academic dean, and the Office of Registration and Records, 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 grade 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 Registration and Records in writing before mid-semester.

A student may elect no more than three P-F courses a semester and no more than two P-F courses during a summer.

Second Grade Option. Students may exercise a second grade option by repeating a course in which the student earned a C- or lower. Only courses that fall within the student’s first 30 attempted credits taken at the University may be selected for this option. Students must exercise this option no later than the next two semesters for which the student registers after completing 30 credits. Transfer students may exercise the second grade option for courses taken during their initial semester at the University. This option must be exercised during the next two semesters for which they register after their initial semester. Only the grade earned when the course was repeated will be used in the calculation of a student’s grade point average, and only the credits earned for the repeated course will apply toward the graduation requirements. All grades earned for a given course shall remain on a student’s permanent academic record. To take advantage of this option, students must obtain approval from their academic deans and submit the appropriate form to Enrollment Services prior to mid-term of the semester in which the course is being repeated. The second grade option may be used only once per course.

Dean’s List

Undergraduate matriculated students who have achieved certain levels of academic excellence are honored at the end of each semester by inclusion on the Dean’s List. The Office of Registration and Records will publish lists of students who have attained the required grade 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 grade point average.

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

Probation and Dismissal

A student will be placed on scholastic probation if his or her overall cumulative grade point average falls below 2.00. For purposes of determining dismissal of part-time students, scholastic standing committees will consider an accumulation of 12 credits as the minimum standard for one semester's work.

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

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

Students are expected to be honest in all academic work. Instructors have the explicit duty to take action in known cases of cheating or plagiarism. For details, consult the *University Manual* at uri.edu/facsen.

Leave of Absence

Occasionally, students are forced to take a semester or two off because of 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 can apply for a leave of absence through Enrollment Services.

Withdrawal from the University

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 Enrollment Services. If the withdrawal process is completed satisfactorily and the student has cleared all financial obligations to the University, the date of withdrawal will be noted on the student's permanent academic record. No grades for the current semester will be recorded.

Students who withdraw from the University after the last day of classes but before a semester ends will be graded in all courses for which they are officially registered. If a student withdraws from the University after midsemester, grades will be recorded for any course that 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 will be readmitted only with approval of the Scholastic Standing Committee for the college or school in which registration is desired.

Graduation Requirements

To graduate, a student must have completed the required work for the curriculum in which he or she is enrolled with the minimum cumulative grade point average established by that curriculum. (If no minimum cumulative grade point average is specified by the curriculum, students must have an overall cumulative grade point average of at least a 2.00). In addition, students must abide by community standards as defined in the *University Manual* and *Student Handbook*.

The work of the senior year has to be completed 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 may be granted two bachelor's degrees and issued two diplomas.

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.

Each undergraduate college has specific procedures for student requests for exceptions to courses of study or to other degree requirements or academic rules. Undergraduate students who seek exceptions to any University rule pertaining to their academic circumstances, including degree requirements and courses of study, may contact the offices of their respective college deans.

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 grade point average. Those who attain a cumulative grade point average at the time of graduation of at least 3.30 are recognized as graduating cum laude. Those who achieve a cumulative grade point average of at least 3.50 graduate magna cum laude, and those who attain a cumulative grade point average of at least 3.70 graduate summa cum laude.

University Manual

University regulations governing matters such as conduct, grading, probation and dismissal, academic integrity, withdrawal from the University, and graduation requirements are fully explained in the *University Manual*, which is available for reference in the library and in the deans' offices or on the Web at uri.edu/facsen.

Such rights and responsibilities are also described in the *Student Handbook*, which is available from the Office of Student Life and on the Web at uri.edu/judicial/studenthandbook.

UNDERGRADUATE PROGRAMS

The University aims to provide students with a range of knowledge and skills which can, with appropriate motivation and initiative, be used in a variety of ways after graduation.

The following undergraduate programs offered at the University of Rhode Island are presented by college.

Study options vary from the traditional liberal education to programs that 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 Career Services. For students who are uncertain about their career choices, the Counseling Center also offers help.





UNIVERSITY COLLEGE

Jayne Richmond, *Dean*

Jessica Boisclair, *Coordinator, Students in Transition Center*

Dania Brandford-Calvo, *Director, International Education*

David Hayes, *Coordinator, Academic Enhancement Center*

Winifred Kelley, *Coordinator, Advising Programs for Student Athletes*

Linda Lyons, *Coordinator, Advising Programs*

Sarah Miller, *Coordinator, Feinstein Center for Service Learning*

Kimberly Washor, *Coordinator, Internships and Experiential Learning*

University 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 first-year students are enrolled in University College. Through its strong program of

academic advising by faculty, University College's purpose is to assist new students in making a smooth transition to the University and to provide special assistance, programs, and events for all students. Our "Early Alert" program provides early intervention services to students wanting help with various personal or academic challenges in the transition to college.

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 major. Advisors help students select and schedule the right courses, become familiar with University procedures and programs, and obtain whatever assistance they need. They also help student-athletes.

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 that have been declared "oversubscribed" by the vice president for academic affairs. Students who cannot be admitted to the program of their first choice can request entry into another program for which they have satisfied the entrance requirements, or they can spend one or two additional semesters in University College preparing to qualify for another program.

For more information, visit uri.edu/uc or call 401.874.2993.

COLLEGE OF ARTS AND SCIENCES

Winifred E. Brownell, *Dean*

Wilfred P. Dvorak, *Associate Dean*

Robert C. Bullock, *Associate Dean*

Earl N. Smith III, *Assistant Dean*

Jonathan L. Blaney, *Business Manager*

The College of Arts and Sciences has two main objectives: 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 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 prelaw, pre-physical therapy, premedical, pre dental, pre-veterinary, and teacher education programs, see pages 40–42.

Curriculum Requirements

In order to earn a degree in the College of Arts and Sciences, the student must meet requirements in three main areas: the major, Basic Liberal Studies, and electives. A description of these areas follows.

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

In order to meet graduation requirement, a student must maintain a 2.00 grade point average in all courses required for his or her major. This restriction applies in every case, unless a different policy is explicitly stated in the description of the degree program. 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 chairperson, a student will be permitted to modify the normal requirements of the major. The decision of the department chair is final. Requirements outside the major 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. Minimum grade point average and total credit requirements are not petitionable.

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 that 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 that characterizes an arts and sciences education.

The following courses are approved by the College of Arts and Sciences to fulfill Basic Liberal Studies requirements. For an explanation of course codes, see pages 165–166.

English Communication

Writing (ECw): ELS 112, 122; WRT 104, 105, 106, 201, 227, 235, 302, 303, 304 [D], 305 [D], 333.

General (EC): COM 100 [D], 110 [D]; LIB 120; PHL 101.

Fine Arts and Literature

Fine Arts: ARH 120 [D], 251 [D], 252 [D]; ART 101, 207; FLM 101 [D], 203 [D], 204 [D], 205 [D]; HPR 105, 124; LAR 201; MUS 101 [D], 106 [D], 111, 292, 293 [D]; PLS 233; THE 100, 181, 351 [D], 352 [D], 381, 382, 383.

Literature: AAF 247 [D], 248 [D]; CLA 391 [D], 395 [D], 396 [D], 397 [D]; CLS 160 [D]; ENG 110 [D], 160 [D], 241 [D], 242 [D],

243 [D], 247 [D], 248 [D], 251 [D], 252 [D], 260 [D], 262, 263 [D], 264, 265, 280 [D], 300 [D], 302 [D], 303 [D], 304 [D], 355 [D], 357 [D], 358 [D]; FRN 309 [D], 310 [D], 320 [D], 391 [D], 392 [D], 393 [D]; HPR 125; RUS 391 [D], 392 [D]; SPA 305 [D], 306 [D], 307 [D], 308 [D], 320 [D].

Foreign Language and Cross-Cultural Competence

See page 50, Basic Liberal Studies requirements.

Letters

AAF 150 [D], 201 [D], 355 [D], 356 [D]; APG 327; BGS 392 [D]; CLS 160 [D], 235; EGR 316; ENG 110 [D], 160 [D], 243 [D], 251 [D], 252 [D], 280 [D], 355 [D], 356 [D]; FRN 391 [D], 392 [D], 393 [D]; HIS 111, 112, 113 [D], 114 [D], 116, 117, 118 [D], 130 [D], 132 [D], 141 [D], 142 [D], 145 [D], 146 [D], 150 [D], 160 [D], 171 [D], 172 [D], 180 [D], 304, 305, 310 [D], 311 [D], 314, 323 [D], 327 [D], 332 [D], 333 [D], 340 [D], 341 [D], 346 [D], 351 [D], 355 [D], 356 [D], 374 [D], 375 [D]; HPR 107; JOR 110 [D]; LAR 202 [D]; LET 151L, 151Q, 151R [D]; NUR 360 [D]; PHL 101, 103, 204, 210 [D], 212 [D], 215, 217 [D], 235, 314, 316 [D], 321, 322, 323 [D], 325 [D], 328 [D], 331 [D], 346, 355; PSC 341, 342; PSY 310; RLS 111 [D], 125, 126, 131 [D]; WMS 220 [D], 320 [D].

Mathematical and Quantitative Reasoning

BUS 111; CSC 101, 201; HPR 108; MTH 107, 108, 111, 131, 141; MTH/PSC 109; STA 220.

Natural Sciences

AFS 190, 201, 211; APG 201 [D]; AST 108; AVS 101 [D]; BCH 190; BIO 101, 105, 106, 286 [D]; CHM 100, 101, 103, 112; GEO 100, 102, 103, 110, 120; HPR 109; MIC 190; NFS 207; NRS 190; OCG 110, 123, 131; PHY 109, 111, 112, 140, 185, 186, 203, 204, 205, 273, 274, 275; PLS 150, 190; TMD 113.

Social Sciences

APG 200 [D], 202, 203 [D], 301 [D]; CPL 202; ECN 100 [D], 201, 202, 306, 381 [D]; EDC 102 [D]; EEC (REN) 105, 310, 356; GEG 101 [D], 104 [D], 202; HDF 225;

Basic Liberal Studies Requirements

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

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

BACHELOR OF ARTS

English Communication: 6 credits

(3 must be in a writing course; the other 3 may be in another writing course at the 200 level or higher or may be selected from the general communication courses)

Fine Arts and Literature: 6 credits

(3 in Fine Arts; 3 in Literature)

Foreign Language/Cross-Cultural Competence: 6 credits

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
- Two-course sequence in a language not previously studied (or studied for less than two years in high school) through the beginning level (101, 102)
- Study abroad in an approved academic program for at least one semester. Summer programs, including the URI in England program, will not satisfy this requirement.

Letters: 6 credits* (Must be from multiple disciplines.)

Mathematical and Quantitative Reasoning: 3 credits

Natural Sciences: 6 credits* (Must be from multiple disciplines.)

Social Sciences: 6 credits* (Must be from multiple disciplines.)

BACHELOR OF SCIENCE, BACHELOR OF FINE ARTS, AND BACHELOR OF MUSIC

English Communication: 6 credits

(3 must be in a writing course; the other 3 may be in another writing course at the 200 level or higher or may be selected from the general communication courses)

Fine Arts and Literature: 6 credits

(3 in Fine Arts; 3 in Literature)

Foreign Language/Cross-Cultural Competence: 6 credits

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
- Two-course sequence in a language not previously studied (or studied for less than two years in high school) through the beginning level (101, 102)
- Study abroad in an approved academic program for at least one semester. Summer programs will not satisfy this requirement.
- Two courses in cross-cultural competence selected from the following list: CPL 300 [D]; FRN 309 [D], 310 [D], 320 [D]; HIS 132 [D], 171 [D], 172 [D], 180 [D], 311 [D], 327 [D], 374 [D], 375 [D]; LET 151L,Q,R; NRS 300; PHL 331 [D]; RLS 131 [D]; SPA 320 [D]; TMD 224 [D]. Six credits of a full-semester approved Intercultural Internship in a foreign country through the Office of Internships and Experiential Education may be substituted for cross-cultural competence courses.

Letters: 6 credits

Mathematical and Quantitative Reasoning: 3 credits

Natural Sciences: 6 credits

Social Sciences: 6 credits

* Students may use only *one course per discipline* (as identified by the course code) to fulfill requirements in Letters, Natural Sciences, and Social Sciences, except that students earning both a B.A. and another degree are exempt from this rule. For an explanation of course codes, see pages 165–166.

HPR 110 [D], 201 [D]; HSS 130 [D]; JOR 110 [D]; KIN 123 [D]; LIN 200 [D]; MAF 100; NUR 150 [D]; PSC 113 [D], 116 [D], 274 [D], 288; PSY 103 [D], 113 [D], 232 [D], 235 [D], 254 [D], 255 [D]; SOC 100 [D], 212 [D], 230 [D], 240 [D], 242 [D], 274 [D]; TMD 224; WMS 150.

3. Electives. Electives are courses that are not included in the Basic Liberal Studies or major requirements, and that students may freely select to earn the total number of credits required for graduation. Many students use their elective credits to develop a second major or a minor field of study (see page 35).

Course Load. No student may take more than 19 credits per semester without permission from the dean. Students on academic probation are limited to 15 credits.

Repeating Courses for Credit. Unless otherwise stated in the course description, a course may not be repeated for credit. Credit can be counted only once toward the total credits required for graduation.

Study Abroad. Students eligible for the Study Abroad option to fulfill the Basic Liberal Studies Foreign Language and Culture requirement must enroll for full-time study in an approved academic program for one semester. Summer programs are not approved for this option. Students must successfully complete a minimum of six credits to have their requirement satisfied.

Graduation. *It is the responsibility of the student to be familiar with University and College requirements and to file for graduation with the Office of the Dean.* Deadlines for filing are as follows:

May Graduation—October 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 and should file for graduation before leaving campus.

Bachelor of Arts

The Bachelor of Arts curriculums provide a general cultural background and an opportunity to major in any one of 36 fields of study.

Each candidate for a B.A. degree must meet certain minimum curricular requirements in quantity and quality. These requirements include at least 120 passed credits, with at least 42 credits in courses numbered 300 or above, and an overall grade point average of at least 2.00. 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 27–36 credits.

The B.A. major is the discipline or subject area in which the degree is granted. It may include not only required courses within the major department but also courses in related subjects. Students should declare this major before the end of their fourth semester.

The major comprises no fewer than 27 nor more than 36 credits. These, however, are exclusive of any credits that are outside the major department but may be required by that department as prerequisites. Including such prerequisites, the major may not exceed 39 credits.

Students may earn up to 15 credits in their major department in addition to those required for the major as identified by course code, counting as electives those credits earned in excess of the major requirements. Any credits in excess of this number in the major will not count toward the 120 credits required for graduation.

At least half of the credits in the major must be earned at URI.

Majors include: African and African-American studies, anthropology, art (history and studio), chemistry, classical studies, communication studies, comparative literature studies, computer science, economics, English, film media, French, German, history, Italian, journalism, Latin American studies, mathematics, music (music, jazz studies, and music history and literature),

philosophy, physics, political science, psychology, public relations, sociology, Spanish, women's studies, and writing and rhetoric.

Bachelor of Science

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

All candidates for the B.S. degree must fulfill the requirements of the Basic Liberal Studies program and complete a major of 30–55 credits within a department or program. In addition, a department may require for its major certain courses in other departments, with the stipulation that these courses may still be applied to the Basic Liberal Studies program requirements. Students must earn an overall grade point average of at least 2.00. No more than 130 credits can be required in a program. At least half the credits in the major must be earned at URI. Each major within the B.S. curriculum has certain more specific requirements, as listed on the following pages in this section.

Majors include: chemistry, chemistry and chemical oceanography, chemistry and forensic chemistry, computer science, economics, mathematics, physics, physics and physical oceanography, and sociology.

Bachelor of Fine Arts

URI's Bachelor of Fine Arts 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. Further details and appointments may be obtained through the Office of Admission.

All candidates for the B.F.A. degree are required to meet the requirements of the Basic Liberal Studies program and to earn an overall grade point average of at least 2.00. At least half the credits in the major must be earned at URI.

Majors include: art and theatre.

Bachelor of Music

The Bachelor of Music curriculum is designed to prepare qualified students for careers in the field of music. Students may select one of three majors depending on their aims and abilities. Admission requirements for the music education program are described on page 42.

All candidates for the B.M. degree are required to meet the Basic Liberal Studies requirements and to earn an overall grade point average of at least 2.00. At least half the credits in the major must be earned at URI. Students are expected to attend department-sponsored events each semester.

Majors include: music composition, music education, and music performance (see pages 61–65).

All areas provide for a good background in academic subjects, and each curriculum contains courses for the development of sound musicianship and excellence in performance. An audition conducted by members of the Music Department is required for permission to register for work toward the B.M. degree. The music education curriculum includes courses in educational psychology, conducting, methods, and a teaching internship that leads to state certification for teachers.

The total number of credits required for graduation is 124 for music composition, 128 for music education, and 124 for music performance.

African and African-American Studies

Faculty: Professor Quainoo, *interim director*. Professors Dilworth, Okeke-Ezigbo, and Weisbord; Associate Professors Harris, and Schwartz; Assistant Professor Ferguson; Adjunct Faculty Barber, Lafayette, and McCray.

The African and African-American studies program is an interdisciplinary program offered jointly by URI and Rhode Island College. Students in this program may take courses at either institution to fulfill major

requirements. The program's objective is to broaden students' intellectual and global experiences through the study of Africa and African diaspora.

Students selecting this major must complete a minimum of 30 credits including AAF 201 and 202. Six credits must be selected from each of the following areas: *history and politics* (AAF 290, 300; AAF/HIS 150, 359, 388; AAF/PSC 380, 408, 410, 415, 466; PSC 372; WMS 351); *arts and humanities* (AAF/ARH 330, 331; AAF/ENG 247, 248, 360, 362, 363, 364, 474); and *social and behavioral science* (AAF 300; AAF/COM 333; COM 310A, 465). The remaining 6 credits must be chosen from courses approved for the above groups.

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

A minor is also available (see page 35).

Anthropology

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

Faculty: Professor Loy, *chairperson*. Professor Poggie; Assistant Professors Bovy and Garcia-Quijano; Professor Emerita LaVelle.

Students desiring to major in anthropology must complete a total of 30 credits (maximum 45 credits) in anthropology including *introductory courses*: APG 200, 201, 202, and 203 (12 credits); *methods courses*: APG 300, 302, 412, or 417 (3 credits); *theory courses*: APG 401 (3) and APG 327 or 417 (3), for a total of six credits. *Note:* APG 417 may be taken to fulfill either the *methods* or *theory requirement*, but not both. The remaining nine credits may be any APG course. No more than six credits in independent study and/or field experience courses may be used toward the 30 credits required for the major.

It is strongly recommended that anthropology majors take at least one course in inferential statistics (e.g., STA 308 or 409), complete a foreign language through the intermediate level, and gain computer proficiency. Early in the junior year, students

who plan to go on to graduate school should meet with their advisor for curricular counseling.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above. In order to transfer into the anthropology program from University College, a student must have completed at least 24 credits and have earned a minimum of a 2.00 GPA.

Art and Art History

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

Faculty: Professor Dilworth, *chairperson*. Professors Klenk, Matthew, Onorato, Pagh, Richman, Roworth, and Wills; Associate Professors Hollinshead and Hutt; Assistant Professors Anderson and Warner; Professors Emeriti Calabro, Fraenkel, Holmes, Leete, Parker, and Rohm.

BACHELOR OF ARTS

Art. It is recommended that students intending to major in art plan to complete foundation studio courses (ART 101, 103, 207) and one art history course (ARH 251 or 252) in the freshman year. For graduation, a minimum of 36 credits in the major (maximum 51) must be completed, including: studio courses ART 101 (3), 103 (3), and 207 (3); art history courses ARH 251 (3), 252 (3); and two art history electives (6) at the 300 level or above, one of which must be selected from the following modern or contemporary art courses: ARH 331, 363, 364, 374, 375, 376, 377, 380 (with topic approved by chair), 461, 462, 480 (with topic approved by chair).

During the first semester of the sophomore year, all B.A. candidates in art must participate in ART 002 Sophomore Review. To participate, students must have a 2.30 grade point average in the foundation courses (ART 101, 103, 207) and submit a one-page statement of purpose.

An additional six (6) credits must be selected from one of the following sequences of studio courses: ART 204, 304; 208, 309; 213, 314; 215, 316; 221, 322; 231, 332; 233, 334; 243, 344. This sequence must be completed by the end of the junior year. An additional three (3) credits of studio art on the 200- or 300-level must be selected.

In the senior year, an additional six (6) credits must be selected from 300- or 400-level studio courses (except 301).

A total of 120 credits is required for graduation. Students must fulfill the requirements of the Basic Liberal Studies program and take 24–39 credits in art and 12 credits in art history. Of the 120 credits required for graduation, 42 credits must be in courses numbered 300 or above.

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 a minimum of 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 200 or 300 level ARH courses except ARH 300, 371, or 372. An additional six credits must be taken at the 400 level. At least three of these credits must be taken from ARH 461, 462, 475, 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 an approved course 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.

BACHELOR OF FINE ARTS

It is recommended that students intending to enter the B.F.A. program complete foundation courses (ART 101, 103, 207) and one art history course (ARH 251 or 252) in the freshman year. B.F.A. majors should complete a minimum of 24 credits in ART courses by the end of the sophomore year.

Students in the B.F.A. program must complete a minimum of 72 credits in the major. Art courses required of all majors include ART 101 (3), 103 (3), 207 (3), 208 (3), either 213 or 215 (3), 405 (3), 406 (3) (with departmental permission) or six credits of ART at the 400 level (6). An additional 12 credits must be selected from 200-level ART courses, and an additional 24 credits must be selected from 300- or 400-level ART courses.

During the first semester of the sophomore year, all B.F.A. candidates must participate in ART 002 Sophomore Review. To participate, students must have a 2.30 grade point average in the foundation courses (ART 101, 103, 207) and submit a one-page statement of purpose.

B.F.A. students must take 15 credits in art history, including ARH 251, 252, an additional three (3) credits at the 200 or 300 level, and six (6) credits at the 300 level or above, three of which must be selected from the following modern or contemporary art courses: ARH 331, 363, 364, 374, 375, 376, 377, 380 (with topic approved by chair), 461, 462, 480 (with topic approved by chair). Note: Only 3 credits from ARH 374, 376, or 377 may be used toward the 72 credits required for the major.

A minimum of 120 credits is required for graduation, including the following: major requirements in art (57), and art history (15). Students must meet the requirements of the Basic Liberal Studies program and may not use an ARH or ART course to fulfill the Fine Arts category of this requirement.

Chemistry

The Department of Chemistry offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in chemistry.

Faculty: Professor Euler, *chairperson*. Professors C. Brown, Dain, Freeman, Kirschenbaum, Oxley, Rosen, Smith, and S. Yang; Associate Professor Lucht; Assistant Professors DeBoef, Major, and Narayanan; Professors Emeriti P. Brown, Cheer, Cruickshank, Fasching, Goodman, Nelson, Rosie, Traficante, and Vittimberga.

BACHELOR OF ARTS

Students in this program must complete a minimum of 31 credits (maximum 45) in chemistry by taking either 10 credits as CHM 191, 192 or 8 credits as CHM 101, 102, 112, 114; and 20 credits as CHM 212, 226, 227, 228, 335, 431, and 432. One additional course must be chosen from CHM 401, 412, 427, or 441. CHM 191 can be substituted for CHM 101 and 102. CHM 229 and 230 may be substituted for CHM 226.

MTH 141 and 142 and one year of physics (PHY 111, 112, 185, and 186, or PHY 203, 204, 273, and 274) are required.

A total of 120 credits is required for the B.A. 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 theory and practice in the fields of analytical, physical, organic, biochemistry, and inorganic chemistry. Those who complete this curriculum are prepared to practice as a chemist, pursue graduate studies in chemistry, or enroll in a professional school in a related area such as medicine, dentistry, or pharmacy. Preprofessional studies can be focused through the use of electives.

The B.S. degree is accredited by the American Chemical Society Committee on 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 104, 105, or 106 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. Six credits of "curriculum requirements" shall include either CHM 353 or any 500-level courses with department approval.

B.S. students desiring the American Chemical Society option in chemistry/biochemistry must take BCH 581, 582. Six additional credits in undergraduate research (CHM 353) are also required to satisfy requirements for advanced laboratory. CHM 353 will be supervised by faculty with expertise in biochemistry. Students electing the chemistry/biochemistry option may wish to take additional courses in molecular biology as electives.

A total of 130 credits is required for the B.S. degree. Accreditation guidelines require chemistry majors to take 55 credits toward the chemistry major.

Freshman Year

First semester: 16–18 credits

CHM 191 (5) (or CHM 101, 102 [4]); MTH 141 (4), language or free elective (3), Basic Liberal Studies requirements (5–6).

Second semester: 16–18 credits

CHM 192 (5) (or CHM 112, 114 [4]); MTH 142 (4), language or free elective (3), Basic Liberal Studies requirements (5–6).

Sophomore Year

First semester: 17 credits

CHM 212 (4), 227 (3); MTH 243 (3); PHY 203, 273 (4), language or Basic Liberal Studies requirements (3).

Second semester: 18 credits

CHM 226 (2), 228 (3); MTH 244 (3); PHY 204, 274 (4), language or Basic Liberal Studies requirements (6).

Junior Year

First semester: 15 credits

CHM 335 (2), 431 (3); PHY 205, 275 (4); Basic Liberal Studies requirement (3), free elective (3).

Second semester: 17 credits

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

Senior Year

First semester: 14–19 credits

CHM 401 (3), 425 (2), 427 (3), curriculum requirements (3–6), free electives (3–5).

Second semester: 15 credits

CHM 492 [capstone] (1), 402 (2), 441 (3), free electives (9).

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. The faculty consists of the members of the department and the GSO's chemical oceanography faculty. *As of June 2009, new admissions to this program have been suspended.*

Coordinator: Professor Euler (Chemistry).

The program is designed to prepare students for careers in chemistry or 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. It is strongly recommended that WRT 104, 105, or 106 be taken in the freshman year.

A total of 130 credits is required for graduation.

Freshman and Sophomore Years follow the same program as B.S. in chemistry (see previous section).

Junior Year

First semester: 14 credits

CHM 335 (2), 431 (3); OCG 451 (3), Basic Liberal Studies requirement (3), free elective (3).

Second semester: 15 credits

CHM 432 (3); OCG 494 (3), Basic Liberal Studies requirements (6), free elective (3).

Senior Year

First semester: 16 credits

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

Second semester: 17 credits

CHM 412 (3), 414 (2); OCG 521 (3), free electives (9).

Chemistry and Forensic Chemistry

The Department of Chemistry offers a Bachelor of Science degree in chemistry and forensic chemistry.

Coordinator: Professor Euler

Students who earn a degree in chemistry and forensic chemistry have a number of potential career opportunities. Most forensic chemists work in government laboratories, typically affiliated with a medical examiner's office. Students wishing to earn an American Chemical Society accredited degree need to take only CHM 402 and 492 and PHY 205 and 275.

The course sequence given below is the typical curriculum for majors in chemistry and forensic chemistry, but modifications in the timing of upper level courses are acceptable. The degree emphasizes a strong preparation in chemistry supplemented by an introduction to the field of forensic science. In addition to the required courses, students are encouraged to take SOC 230, Crime and Delinquency, to meet one of their social science general education requirements.

A total of 130 credits is required for graduation.

Freshman and sophomore years follow the same program as the B.S. in chemistry (see above).

Junior Year:

First semester: 15 credits

CHM 335 (2), 354 (3), 391 (1), 431 (3), Basic Liberal Studies requirement (3), free elective (3).

Second semester: 17 credits

CHM 392 (3), 412 (3), 414 (2), 432 (3), Basic Liberal Studies requirement (6).

Senior Year:

First semester: 15 credits

CHM 391 (1), 401 (3), 425 (2), 427 (3), free electives (6).

Second semester: 16 credits

CHM 354 (3), 391 (1), 441 (3), free electives (9).

For more information see chm.uri.edu.

Classical Studies

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

Faculty: Professor Suter, section head.

Students selecting classical studies as a major must complete a minimum of 30 credits. Twenty-four of the 30 credits must be in Latin and Greek (only six credits of either LAT 101, 102, or GRK 101, 102 may count toward the required 24 credits) as follows: a) a minimum of six credits in each language (12); b) the balance of 12 credits in either or both language(s) (12). The remaining six credits must be from the following: ARH 354; CLA 391, 395, 396, 397; HIS 300, 303; PHL 321 (6).

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.

Communication Studies

The Department of Communication Studies offers the Bachelor of Arts (B.A.) degree in communication studies.

Faculty: Associate Professor Derbyshire, *chairperson.* Professors Brownell, Chen, DiCioccio, Ketrow, Logan, N. Mundorf, Salazar, Swift, Torrens, and Wood; Associate Professors Leatham, K. McClure, and Quainoo; Assistant Professors Healey Jamiel, Petronio, and Ye; Instructors Alfano, August, S. Brown, Cabral, Fonseca, Greenwood, J. Mundorf, Proulx, Waitkun, and Wales; Professors Emeriti Anderson, Devlin, and Doody.

URI's program in communication studies provides maximum flexibility in planning for a variety of academic and occupational goals. The 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 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 communication studies 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, public relations, radio and TV advertising, and similar career goals.

Students must achieve a minimum grade of B- in COM 100 or COM 110 in order to transfer to the College of Arts and Sciences with a major in Communication Studies. The program requires a

minimum of 36 credits (maximum 51) in the major, including COM 202, 221, 381, 382, and 383. The remaining credits will be distributed as follows: at least two courses (6 credits) of COM 200 level; at least two courses (6 credits) of COM 300 level; and at least three courses (9 credits) of COM 400 level. A student must maintain a 2.00 grade point average in her or his major to meet graduation requirements. Courses of independent study (COM 471, 472, 491, 492) and internships do not fulfill the requirements for the major or minor.

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

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 with a major in comparative literature studies.

Coordinator: Professor Leo (English and Film Media).

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 filed with the dean's office.

Students in the comparative literature studies program fulfill the Basic Liberal Studies Fine Arts and Literature requirement by taking three credits in Fine Arts and three credits in Literature over and above their major literature requirements.

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

1. 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/ENG 350 or ENG 302). The remaining credits are to be taken from the comparative literature core courses or the literature courses in English or Modern and Classical Languages and Literatures departments.

2. Two Foreign Literatures in the Original Language. Nine credits in each of two foreign literatures; three credits in literary theory or criticism (CLS/ENG 350 or ENG 302). The remaining courses are to be taken from the comparative literature core courses or the literature courses in the English or Modern and Classical Languages and Literatures departments.

3. World Literature in English Translation. Three credits in the nature of language from APG/LIN 200 or APG/LIN 220; three credits in literary theory or criticism (CLS/ENG 350 or ENG 302); at least one foreign literature in translation course. In addition, the student must take 12 credits in a language beyond the 102 level. The remaining credits are to be taken from the comparative literature core and/or literature courses offered by the English and Modern and Classical Languages and Literatures departments.

Up to 6 credits of film media courses may be applied toward the major for any of the three options described above, providing the film media courses have an international scope.

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 Arts (B.A.) and the Bachelor of Science (B.S.) degree in computer science. The department also co-sponsors the B.S. in computer engineering (described in the College of Engineering section). At the graduate level, the department offers the Master of Science (M.S.) degree in computer science, the Doctor of Philosophy (Ph.D.) in computer science, and the Doctor of Philosophy (Ph.D.) in applied mathematical sciences with a specialization in computer science.

The department also offers a 24-credit minor in computer science.

Faculty: Professor Kowalski, *chairperson*. Professors Fay-Wolfe, Lamagna, and Peckham; Associate Professors Baudet and DiPippo; Assistant Professors Hamel and Hervé;

Adjunct Assistant Professors Encarnação, Henry, Ravenscroft, and Stephenson; Professors Emeriti Carney and Carrano.

Students majoring in computer science who leave URI 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 chairperson and approved by the dean.

BACHELOR OF ARTS

The B.A. curriculum is designed to provide a solid foundation in the fundamentals of computer science.

In order to transfer from University College to the College of Arts and Sciences as a B.A. computer science major (or to be coded as such in the College of Arts and Sciences), a student must have completed CSC 211, CSC 212, and MTH 141, and must have at least a 2.00 GPA in *all* CSC and MTH courses required in the B.A. program that have been completed at the time of the application for transfer.

Students in the B.A. curriculum must complete a minimum of 36 credits (maximum 51) as follows: CSC 110 (4), 211 (4), 212 (4), 301 (4), 305 (4), 320 (4); one of 411 or 412 (4); two additional CSC courses at the 300-level or above, except that CSC 491, 492, and 499 may be used only with prior departmental approval. Also required are MTH 141 (4) and 215 (3); one COM course (3); and two WRT courses from among WRT 104, 105 (but not both), 201, or 333 (6).

A total of 121 credits is required for graduation; at least 42 of these credits must be at the 300 level or above.

BACHELOR OF SCIENCE

The B.S. curriculum is designed to provide a broad introduction to the fundamentals of computer science 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 careers or graduate study in computer science.

In order to transfer from University College to Arts and Sciences as a B.S. computer science major (or to be coded as such in the College of Arts and Sciences), a student must have completed CSC 211, CSC 212, MTH 141, and MTH 142 and must have at least a 2.00 GPA in *all* CSC and MTH courses required in the B.S. program that have been completed at the time of the application for transfer.

Students in the B.S. curriculum must complete a minimum of 56 credits as follows: CSC 110 (4), 211 (4), 212 (4), 301 (4), 305 (4), 340 (4), 411 (4), 412 (4), 440 (4), 499 (8); at least one of CSC 350 (4) and 445 (4); any two additional CSC courses at the 300-level or above, except that CSC 491, 492 may be used only with prior departmental approval.

Students also complete MTH 141 (4), 142 (4), 215 (3), 243 (3); PHY 203, 273 (4), 204, 274 (4) or PHY 213, 285 (4), 214, 286 (4); one COM course (3); and two WRT courses from among WRT 104, 105 (but not both), 201, or 333 (6).

A total of 129 credits is required for graduation. A possible course of studies follows.

Freshman Year

First semester: 15 credits

CSC 110 (4); MTH 141 (4); URI 101 (1); WRT 104 (3), Basic Liberal Studies requirements or electives (3).

Second semester: 17 credits

COM 101 (3); CSC 211 (4); MTH 142 (4), Basic Liberal Studies requirements (3), electives (3).

Sophomore Year

First semester: 17 credits

CSC 212 (4); MTH 243 (3); PHY 203, 273, (4), Basic Liberal Studies requirements or electives (6).

Second semester: 17 credits

CSC 301 (4); MTH 215 (3); PHY 204, 274, (4); WRT 333 (3), Basic Liberal Studies requirements or electives (3).

*Junior Year**First semester: 15 credits*

CSC 305 (4), 411 (4), CSC elective (4), Basic Liberal Studies requirement (3).

Second semester: 15 credits

CSC 340 (4), 412 (4), CSC elective (4), Basic Liberal Studies requirement (3).

*Senior Year**First semester: 17 credits*

CSC 440 (4), 499 (4), Basic Liberal Studies requirement (3), electives (6).

*Second semester: 16 credits*CSC 499 [**capstone**] (4), CSC elective (4), electives (8).**MINOR IN COMPUTER SCIENCE**

Students declaring a minor in computer science must earn 24 credits including CSC 211 (4), 212 (4), 301 (4), and two other CSC courses at the 300-level or above (8). In addition, students are expected to complete MTH 141 (4).

INTERNATIONAL COMPUTER SCIENCE PROGRAM

The Computer Science Department, under the auspices of the International Engineering Program (IEP) and the Department of Languages, also provides students the opportunity to participate in the International Computer Science Program (ICSP).

Students who complete the five-year program will earn two degrees: a B.S. or B.A. degree in computer science and a B.A. degree in German, French, or Spanish. In addition to computer science courses, students study the language, business, and culture of one or more countries in which the language predominates. Additionally, students will spend six months abroad in a professional internship in a European, Latin American, or Caribbean country, and can extend the stay by completing a semester of course work at a participating university. Upon graduation, students will be well prepared to participate at an international level in computer technology and to compete in the international technological marketplace.

Economics

The Department of Economics offers a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.) degree in economics.

Faculty: Professor Bodah, chairperson.

Professors Burkett, Lardaro, McIntyre, Mead, Miller, and Ramsay; Assistant Professors Van Horn and Zhang; Professors Emeriti Sharif, Starkey, and Suzawa.

BACHELOR OF ARTS

Students selecting this field must complete a minimum of 30 credits (maximum 48) in economics, including ECN 201 and 202 (6), 305 and 306 (6), 324 or 327 (3), and 323 or 328 (3).

In addition, at least 12 credits must be completed from economics courses numbered 300 or above. Students may substitute up to six credits from related courses taught by other departments. These substitutions must be approved by the economics department chairperson and filed with the Office of the Dean. Three of these credits can be from statistics—BUS 210, 212, STA 308, 409, or 412—and do not require departmental approval. 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

Students in this curriculum may elect one of two options, *applied economics* or *economic theory and methods*, and must inform the dean's office of the option.

Applied Economics. A minimum of 31 credits in economics including ECN 201, 202, 305, 327, 328, 375, and 376. In addition, students must complete COM 100; BUS 212 or MTH 451 or STA 308.

Economic Theory and Methods. A minimum of 31 credits in economics including ECN 201, 202, 305, 327, 328, and 376. In addition, students must complete MTH 141, 142, 215, 243, 307, and 244 or 442

or 435. This option is recommended for students preparing for graduate study in economics.

A total of 120 credits is required for graduation.

English

The Department of English offers a Bachelor of Arts (B.A.) degree. The department also offers the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) in English. The Department of English offers (with the Department of Modern and Classical Languages and Literatures) the B.A. degree with a major in comparative literature studies (see page 55).

Faculty: Associate Professor Barber, chairperson. Professors Arakelian, Campbell, Cappello, Donnelly, Dvorak, Gititi, Leo, Okeke-Ezigbo, Stein, and Walton; Associate Professors Durand, Karno, Mandel, and Trimm; Assistant Professors Betensky, Covino, Davis, Dunson, Frankel, Jones, Rojas, Valentino, and Williams; Professors Emeriti Burke, Cuddy, Neuse, and Pearlman; Associate Professors Emeriti Cane, Swan, and Vaughn.

Students selecting this field must complete a minimum of 36 credits (maximum 51), 18 of which must be at the 300 level or above. All students must complete ENG 201 and 202 (6). The remaining 30 credits must include one course from each of the following five periods (15): *pre-1500* (ENG 251, 366, 367, 368, 381, 382); *1500–1660* (ENG 251, 280, 373, 382, 472); *1660–1800* (ENG 241, 251, 374, 480, 482); *19th century* (ENG 241, 242, 252, 347, 348, 375, 448); *20th century* (ENG 242; ENG/AAF 248; ENG 252, 348; ENG/AAF 362, 363, 364; ENG 317, 378, 379, 383, 387, 446, 447, 448, 469).

The remaining 15 credits may be fulfilled by taking any English courses at the 200–400 level that have not been counted toward a period requirement. If they wish, students may choose to emphasize a 12-credit focus area by completing 12 credits in one of the following focus areas: *identity studies* (ENG/AAF 247, 248; ENG

260, 337, 338; ENG/AAF 363, 364; ENG 385 387); *genre studies* (ENG 243, 262, 263, 264, 265, 300, 304, 336, 339; ENG/AAF 362; ENG 446, 447, 448, 469); *creative writing and publishing studies* (ENG 205A, 205B, 205C, 305, 330; WRT 201, 235, 333); *cultural studies with period emphasis* (ENG 302, 332, 347, 348; ENG/CLS 350; ENG 351, 374, 375, 474; or any one 300- or 400-level course approved for one of the five periods). ENG 499, an optional **capstone** senior seminar (in which a senior thesis is written), may be taken for three of the 15 credits required to complete the major.

Note: Freshmen are not admitted to 300- or 400-level courses without permission of the instructor. Sophomores are discouraged from taking 100-level courses.

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

Film Media

The Film Media Program offers a Bachelor of Arts (B.A.) degree and a minor.

Faculty: Associate Professor Wills, *interim director*. Professors Durand, Leo, Manteiga, Swift, Vocino, Walton, and Wood; Associate Professors Hutt, Trimm, and Wills; Assistant Professors Echevarría, Healy, Meagher, and Moore; Adjunct Professor DeSchepper; Adjunct Assistant Professors Bergstrom, Neugent, Smith, Tierney, and Zorabedian; Lecturer Romanow.

The Major. This interdisciplinary major offers students a curriculum that reflects developments in the field of film and film-related media: the expanding and often overlapping technologies involved in the production of moving images (filmic, electronic, and/or cybernetic); the broadening of their cultural and aesthetic contexts (where cinematic practices extend into television, video games, computer imagery, and virtual reality); and the increasingly cross-disciplinary nature of the theoretical responses to these developments. A wide range of courses is offered to acquaint students with the ways and means of production, distribution, and exhibition of

moving images—courses that examine the historical, theoretical, and technological approaches to this field of study. A broad understanding is seen as essential because film and film-related media have become increasingly international and global enterprises.

Students majoring in film media must complete a minimum of 30 credits (maximum 45) in approved courses toward the major. All students must complete the core courses: FLM 101 or 101H, FLM 203 (or ENG 302), FLM 204 (or FLM 205), including the senior-level seminar FLM 495; a minimum of 6 credits from the *production and technique* category and 6 credits from the *critical studies* category (following). This wide range of choices in film media courses permits students to design a major that will meet both personal and professional goals. Students must have a plan of study approved by an academic advisor in the film media program before beginning their coursework in the major.

Production & Technique: These courses focus on the different approaches to and practices of film/video production—how moving images are created, designed, and used to serve a variety of functions: ART 204, 215, 303, 304, 316, 404, 417; COM 341, 342, 445; FLM 110, 352, 401, 445X; JOR 230 and 331.

Critical Studies: These courses emphasize the important traditions of genre and the literary and aesthetic approaches toward understanding and valuing film media, and integrates them into their broad historical, cultural, and ideological contexts: AAF 352; ARH 374, 376, 377; CLS 450 and 451; COM 346, 414; ENG 205 D, 300, 302, 303, 304, 352, 451; FLM 203, 204, 205, 352X, 444X, 451, 491, and 495; FRN 320; HIS 358; ITL 315; JOR 110, 311; PHL 256X; SPA 320; and THE 182. FRN 320, ITL 315, and SPA 320 are taught in English. Other courses may be used for this category with prior approval of the program director. The following topics courses have been pre-approved: CLS 450 *Hispanic Stereotypes in Fiction and Film*, HPR 311 *Images of Masculinity in American Cinema*, HPR 311 *Rebel*

Images in American Films, HPR 411 *Money & Misery*, HPR 411 *War Stories*, HPR 411 *Film and Video Practicum*, and WMS 350 *Women and Film*. Other film-based courses may count toward the major or the minor with the permission of the film media program director.

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

The Minor. Students who declare a minor in film media must complete 18 credit hours (at least 12 at the 200-level or higher) from those courses currently eligible to count toward the major. Courses in general education may count toward the minor. All courses must be taken for a grade except for the internship (Field Experience). It is strongly suggested that at least one course in the minor be from each of the following two approaches to film and media study:

Production. These courses focus on the practices of film/video/media production, the design and creation of moving images.

Criticism. These courses address critical and theoretical approaches to film media and the broader contexts of international film history, genre, and ideology in which they are situated.

French

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

Faculty: Professor Durand, *section head*. Professors Hammadou, Morello, and Rogers; Associate Professor Erickson; Assistant Professor De Bruin.

Students selecting this field are required to complete at least 30 credits (maximum 45) in French, not including FRN 101, 102, 391, 392, 393. They must take three credits from FRN 412, 473, or 474. Students must also complete a minimum of three additional FRN credits at the 400 level.

Additionally, students with proven competence in French language and literature, with permission of the advisor, section

head, department chairperson, and dean of the college, may take courses toward their concentration in related fields such as history, linguistics, art, or philosophy. Approval must be filed with the Office of the Dean.

Students completing the International Engineering Program or the International Business Program and the B.A. with a major in French simultaneously may use three credits of French literature toward the Fine Arts and Literature Basic Liberal Studies requirement. In addition, students in these programs are exempt from the one-course-per-discipline rule in Letters, Social Sciences, and Natural Sciences.

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

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 Hedderich, *section head*. Professor Grandin; Associate Professors Kirchner and von Reinhart; Assistant Professor Rarick.

Students selecting this major complete at least 30 credits (maximum 45) in German, not including GER 101, 102, or 392. Students must complete six credits in literature, at least three of which must be taken at the 400 level, and must complete one additional 400-level German course. Students in the International Engineering Program must complete GER 411.

Students completing the International Engineering Program or the International Business Program and the B.A. with a major in German simultaneously may use three credits of German literature toward the Fine Arts and Literature Basic Liberal Studies requirement. In addition, students in these programs are exempt from the one-course-per-discipline rule in Letters, Social Sciences, and Natural Sciences.

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 department also offers the Master of Arts (M.A.) degree in history.

Faculty: Professor Schwartz, *chairperson*. Professors Cohen, Honhart, Mather, Rollo-Koster, Strom, Thurston, and Weisbord; Associate Professors Ferguson, George, Pegueros, Rusnock, and Sterne; Assistant Professors Buxton and Widell; Adjunct Assistant Professors Greenburg, Jensen, Reumann, and Rose; Professors Emeriti Findlay, Gutchen, Kim, and Klein.

Students selecting this field must complete a minimum of 30 credits (maximum 45) 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 (1) HIS 401 or 441 or 481 and (2) HIS 495. The two 400-level courses should be taken in consecutive semesters with the same instructor. 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. **Capstone** courses in this major are HIS 401, 441, 481, and 495.

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

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: Associate Professor Sama, *section head*. Associate Professor LaLuna.

Students selecting this major must complete at least 30 credits (maximum 45), including at least two 400-level courses. ITL 101, 102, and 111 may not be used toward the 30 credits required for the major.

Students may use up to three credits from ITL 391, 392, or 395 toward the 30 credits required for the major.

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: Professor Levin, *chairperson*. Professor Luebke; Assistant Professors Meagher and Moore; Lecturer Pantalone; Instructors Algier, Corey, Cyr, LaRoche, Lord, and Phipps; Adjunct Assistant Professors Markin and Ward.

The study and practice of journalism require the acquisition and application of a broad base of knowledge, so journalism majors at URI pursue a course of study that is strongly grounded in the liberal arts. Along with general education and elective courses from other disciplines, the major requires students to explore the concepts and professional practices of contemporary journalism in a diverse society. While studying the social, historical, legal, and ethical contexts of journalism, students also learn how to gather, synthesize, and critically assess factual information and communicate it clearly to a variety of audiences. Journalism “skills courses”—through individual and collaborative assignments—focus on reporting, writing, editing, and producing news. “Conceptual” courses provide students the intellectual foundation and framework to be responsible journalists. And through its general education course offerings, the Department of Journalism provides nonmajors a forum for studying the importance of journalism and the role of the mass media in society.

Students majoring in journalism must complete a minimum of 30 credits (maximum 45) in journalism. All journalism majors must complete JOR 115, 220, 310, 410, and 411. In addition, students must select nine credits from skills courses: JOR 230, 320, 321, 330, 331, 340, 341, 420, 430, 441, 442; and three credits from

conceptual courses: JOR 210, 211, 215, 311, 313, 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 important preparation for students to both study and practice journalism.

Fine Arts and Literature (select one from each list) **List A:** ARH 120, 252; MUS 101; THE 100. **List B:** ENG 110, 241, 242, 251, 252; AAF/ENG 248; CLA/ENG 160. **Letters** (select one from each list) **List A:** HIS 142, 146, 150, 346; AAF 201. **List B:** PHL 103, 204, 212, 217; RLS 111. **Social Sciences** (select one from each list) **List A:** PSC 113, 288; CPL 200; ECN 100; GEG 104; PSC/SOC 274. **List B:** APG 203; SOC 240, 242; WMS 150. **Natural Sciences** Select one of the following *and* any course from the College of Arts and Sciences BLS Natural Sciences list (see page 49): AFS 210, 211; BIO 105; CHM 101, 102, 103, 105; PHY 111, 112, 185, 186. **Foreign Language/Cross-Cultural Competence** Students must meet the College of Arts and Sciences BLS Foreign Language/Cross-Cultural Competence requirements (see page 50). **Mathematical and Quantitative Reasoning** Select any course from the College of Arts and Sciences BLS Mathematical and Quantitative Reasoning list (see page 49). **English Communication** PHL 101 *and* complete any 3-credit WRT course from the College of Arts and Sciences BLS list (see page 49) with a grade of B or better.

The only journalism courses open to freshmen are JOR 110 (for nonmajors), 115 (for majors), and 220. Journalism majors are urged to concentrate on their Basic Liberal Studies requirements during their freshman and sophomore years. In addition to these required courses, other BLS 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.

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

Journalism majors are transferred from University College to the College of Arts and Science upon completion of JOR 115 and JOR 220 with a grade of C or better.

Latin American Studies

The Departments of Sociology and Anthropology, History, and Modern and Classical Languages and Literatures offer a Bachelor of Arts (B.A.) degree in Latin American Studies (LAS). *As of June 2009, new admissions to this program have been suspended.*

Faculty: Professor Morín, *LAS committee chairperson.* *Committee members:* Professors Gititi and Poggie; Associate Professors de los Heros, Pegueros, and C. White; Instructor Pisa; Professor Emeritus McNab. (Some Arts and Sciences faculty members not listed here offer courses that can fulfill the requirement for this B.A.)

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 dean's office.

Credits leading to this B.A. may also be taken at foreign universities or other universities in the U.S. that offer programs in Latin American studies with the approval of the LAS 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 courses acceptable for this program can be found on page 244. 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 LAS Committee will assist students in the formulation and approval of their programs. The current coordinator is Thomas Morín, 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 a number of undergraduate courses in linguistics. A minor in linguistics is also available.

Faculty: Professor K. Rogers, *section head.*

Mathematics

The Department of Mathematics offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

For information on URI's minor in mathematics, see the end of this section.

Faculty: Professor Eaton, *chairperson.* Professors Beauregard, Finizio, Grove, Kaskosz, Kulenovic, Ladas, Lewis, Merino, Montgomery, and Pakula; Associate Professors Baglama, Kook, Thoma, and Wu; Assistant Professors * Comerford and Medina-Bonifant; Professors Emeriti Clark, Datta, Driver, Fraleigh, Roxin, Schwartzman, Suryanarayan, and Verma.

BACHELOR OF ARTS

Students in the B.A. 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,

*** Please see "Addendum to 2009–2010 URI Catalog" for an addition or correction to this information.**

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) in mathematics, and include MTH 141, 142, 215, 243, and 316, plus 15 or more additional credits in mathematics, at least three credits of which must be at the 400 level.

Credits earned in MTH * 107, 108, 109, 110, 111, 208, or 362, cannot be applied toward this degree.

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 the B.S. curriculum may elect either the general program or the applied mathematics option. The Office of the Dean must be informed of any substitutions.

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 30 credits in mathematics, including MTH 316, 425, 435, 436, and 462. Credits earned in MTH *107, 108, 109, 110, 111, 208, 362, or 420 cannot be applied toward this degree.

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 with 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 an additional 18 credits in mathematics including one of the

sequences MTH 435, 436 or 437, 438, and nine credits from Group I (Mathematics). Also, the student must complete an additional four courses, one of which must be chosen from CSC 200, 201, 211, 212, PHY 410, or CHE 272, and three other courses chosen from Group II (Applications). At least nine math credits must be at the 400 level or above.

Group I: MTH 244, 316, 322, 418, 441, 442, 447, 451, 452, 462, 471, and 472. Other courses may be used for this group with prior permission of the chairperson.
Group II: *CHE 272, 313, 314; CHM 431, 432; CSC 340, 350, 440, 445; ECN 323, 324; ELE 313, 314, 322, 457; IME * 412, 432, 433; MCE 341, 354, 366, 372, 466; PHY 306, 322, 331, 410, 420, 451; STA 409, 412. Other courses may be used for this group with prior permission of the chairperson.

Both B.S. programs require 130 credits for graduation.*

MINOR IN MATHEMATICS

Students declaring a math minor must earn credit for MTH 141, 142, 215, and 243, and two three-credit math 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. Substitutions may be made with permission of the chairperson.

Military Science and Leadership (Army ROTC)

The Department of Military Science and Leadership (Army ROTC) is recognized as one of the best leadership programs in the country and is part of the University of Rhode Island curriculum. During classes and field training, students learn first-hand what it takes to lead others and motivate groups, as well as how to organize information to create executable tasks for others to follow. The experience is similar to being a vital manager in a corporation. Students learn to achieve success as team members or leaders in various situations.

Students may participate in the basic program (MSL 101, 102, 201, and 202) without obligation to the United States Army.

Students desiring a minor in Military Science and Leadership may request approval from the dean of the College of Arts and Sciences upon beginning the program. Completion of 18 credits of MSL course work is required to complete the minor.

Along with providing leadership training, Military Science and Leadership (Army ROTC) can pay for college tuition. Scholarships are awarded based on a student's merit and grades, not financial need. Two-, three-, and four-year scholarships covering full tuition and fees are available. Scholarship recipients also receive book money to cover the expense of textbooks, as well as a monthly allowance ranging from \$300 for freshmen to \$500 for seniors, to assist with room and board.

Faculty: Professor Wilson (Lt. Col., U.S. Army), *chairperson*. Assistant Professors MSG Ferrara, MAJ Kennedy, MSG Pitts, and CPT Poland.

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, and Spanish (described in alphabetical order), as well as course work in Arabic, Chinese, modern Greek, Hebrew, Japanese, Portuguese, and Russian.

The department offers jointly with the Department of English the Bachelor of Arts (B.A.) degree in comparative literature studies (see page 55).

Faculty: Professor Morello, *chairperson*.

Music

The Department of Music offers a Bachelor of Arts (B.A.) degree with options in music, music history and literature, and jazz studies, and Bachelor of Music (B.M.) degrees in composition, music education,

* Please see "Addendum to 2009–2010 URI Catalog" for an addition or correction to this information.

and performance. Programs are also available leading to double majors in music with communication studies, elementary education, or psychology; and double degrees in music with computer science or business administration. The department also offers Master of Music (M.M.) degrees in music education or performance.

Faculty: Professor R. Lee, *chairperson*. Professors Dempsey, Kent, Ladewig, and Pollart; Associate Professors Conley, Danis, Parillo, and Takasawa; Assistant Professors Aberdam and A. Cardany; Professors Emeriti Gibbs and Livingston; Lecturers de la Garza, Frazier, and Thomas; Director of Athletic Bands and Lecturer B. Cardany; Guest Artists/Teachers Acosta, Berney, Buttery, Caufield, Ceo, Gates, Gendron, Hofbauer, Kiefer, Kim, Monllos, Murray, O'Connor, Platz, Porter, Sims, Sparks, Stabile, Uricco, Youmans, Zinno, and Zullinger; Music Resources and Facilities Coordinator Heroux; Concert Manager Devine, Preparatory Division Coordinator Murray; Coordinator of Music Education A. Cardany; Accompanists Beaton, Maxon-Carpenter, Uricco, and Zullinger; Piano Technician Flanders; Publicist and Editor Eastwood-Stokes and Tavares.

For information on the music minors, see the end of this listing.

BACHELOR OF ARTS

Students selecting music as a major have three options: *jazz studies*, *music*, or *music history and literature*.

Transfer credits in music theory, music history, and performance must be validated by placement examination.

Music majors interested in a career in communication studies and music may complete a second major in communication studies. Bachelor of Arts degree candidates in music can also complete a double major with psychology or elementary education. The music department offers a double degree combining music (B.A. degree) with computer science or business administration (B.S.). Contact the music department chair for more information.

Jazz Studies. Students selecting this option must complete 43 credits in musicianship and music performance as follows: *Musicianship:* MUS 119 (1) (fulfills URI 101 requirement), 120 (2), 121 (2), 122 (2), 225 (2), 226 (2), 424 (3), 106 (3), 221 (World Music Unit) (1), 222 (3), 322 (Jazz and Popular Music Units) (2), 280 (0), 480 (1). *Music Performance: A:* Six semesters of applied music study in the student's principal area of jazz instrumental performance, (MUS 110W, 210W, and 310W) at 2 credits per semester (12). A successful audition is required prior to study in the principal applied area of jazz instrumental performance. Applied study for the B.A. in music with a jazz option is limited to the following instruments: saxophone, trumpet, trombone, piano, string bass, guitar, and drum set. **B:** Two semesters of major ensembles MUS 291, 292, 293, 394, 395, 397, and 398G (2). **C:** Two semesters of MUS 391 (2) and three semesters of MUS 396 or 398J (3). A successful audition is required prior to participation in jazz ensembles. **D:** MUS 350 with emphasis on jazz styles (0). **E:** Seven semesters of MUS 300 (0). *Electives:* 38 credits, of which a minimum of 30 must be in non-music courses. The department recommends that eight credits of electives be taken in music. At least six of these should be in upper-division music courses. Students who are deficient in keyboard skills must take MUS 171 (1) and 172 (1). MUS 171 and 172 may count as two of the recommended music electives.

A minimum of 120 credits is required for graduation. At least 42 of these credits must be in courses at the 300 level or above.

Music. Students selecting this option must complete 36 credits in musicianship and performance as follows: *Musicianship:* MUS 119 (1); 120, 121, 122, 225, 226, 227, 228 (14); 221, 222 (6); 322 or upper-division music history course (3); 280 (0) and 480 [capstone] (1). Students who are deficient in keyboard skills must take MUS 171 (1). *Performance:* four semesters of the principal applied music area, at two credits per semester (8); three semesters of ensembles

appropriate to the principal applied music area, MUS 291, 292, 293, 394, 395, 396, 397, or 398G (3); seven semesters of MUS 300 (0). A successful audition is required prior to study in the principal applied music area. *Electives:* 45 credits, of which a minimum of 30 credits must be in non-music courses. The department strongly recommends that 15 credits of electives be taken in music. At least six of these credits should be in upper-division music courses.

A minimum of 120 credits is required for graduation. At least 42 of these must be at the 300 level or above.

Music History and Literature. Students choosing this option must complete 43 credits in musicianship and performance, as follows: *Musicianship:* MUS 119 (1); 120, 121, 122, 225, 226, 227, 228 (14); 221, 222, 322 (9); three upper-division music history courses (9); 280 (0) and 480 [capstone] (1). Students who are deficient in keyboard skills must take MUS 171 (1). *Performance:* four semesters of the principal applied music area, at two credits for two semesters and one credit for two semesters (6); three semesters of major ensembles appropriate to the principal applied music area MUS 291, 292, 293, 394, 395, 396, 397, or 398G (3); seven semesters of MUS 300 (0). A successful audition is required prior to study in the principal applied music area. *Electives:* 38 credits, of which a minimum of 30 must be in non-music courses. The department strongly recommends that eight credits of electives be taken in music. At least six of these credits should be in upper-division music courses. *Other:* nine credits of foreign language and proficiency through 103 in either French or German.

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

BACHELOR OF MUSIC

Students selecting the Bachelor of Music degree program have three options: *music composition*, *music education*, or *music performance*.

Students can be admitted to the B.M. degree program only after a successful audition in the principal applied music area and should contact the Department of Music for specific requirements. Transfer credits in music theory, music history, and performance must be validated by placement examination.

All Bachelor of Music students must successfully complete Option I or Option II of the piano proficiency requirement. In Option I, students must pass all seven piano proficiencies by the end of their junior year. Piano proficiency examinations before the faculty examination committee are scheduled on a regular basis during the fall and spring semesters. In Option II students take MUS 171, 172, 271, and 272 and successfully pass each course with a grade no lower than a C. Failure to pass either option will require re-examination in succeeding semesters. The B.M. degree will not be granted until this requirement is fulfilled.

Students selecting Option I will need to demonstrate the following seven piano proficiencies: 1) *nomenclature*, answering questions which deal with nomenclature concerning the piano as well as nomenclature which may concern tempo, dynamics, and/or other musical elements; 2) *scales*, performing all major scales two octaves, hands together, by memory at a tempo of M.M.=144 per note; 3) *harmonizing at sight*, by reading two melodies taken from any major or minor key chosen by the examination committee, improvising suitable accompaniments for the melodies by using diatonic triads and secondary dominants, and reading from chord symbols; 4) *transposition*, by transposing at sight two melodies selected by the examination committee; students will be asked to transpose the melodies up or down by either a half step or whole step; 5) *patriotic songs*, by playing *America* and *The Star-Spangled Banner* in a manner suitable for accompanying community or school singing; these accompaniments are to be prepared in advance; 6) *sight-read accompaniments*, by playing at sight a four-part song and an accompaniment for a vocal or instrumental soloist;

and 7) *repertoire*, by playing two prepared piano pieces by contrasting composers; each piece must be approved in advance by a member of the piano faculty or an instructor of class piano.

No student should participate in more than three major ensembles in a single semester.

In addition, students select one of the following options.

Music Composition. Students selecting the music composition option must complete seven semesters of applied composition (MUS 110V, 210V, 310V, 410V), one or two credits per semester (10); seven semesters of the principal applied music area, two credits per semester (14); seven semesters of MUS 300 (0); and four semesters of secondary applied music areas, one credit per semester (4); MUS 171 and 172 are required as secondary applied music areas if students select piano proficiency option II. Students who have not passed the piano proficiency examination by the end of MUS 172 will be expected to take MUS 271 and 272, which can count as secondary applied music areas. Other secondary applied credits as needed must come from MUS 110–410 (in an applied area other than the principal applied music area) or MUS 169, 170, 173, 175, 177, or 179. Also required are six semesters of major ensembles MUS 292, 293, 394, 395, or 397 appropriate to the principal applied music area (6). For the studio composition specialization, credits in MUS 396 may be included. Also required are MUS 119 (1); MUS 120, 121, 122, 225, 226, 227, 228, 416 (17); 221, 222, 322 (9); 235 (2) and 311 (2); 417, 420, and 421 (9) (for students wishing to specialize in studio composition, three credits of MUS 424 may be substituted for MUS 420); an upper-division music history course (3); MUS 450 Senior Composition Recital [capstone] (0); MUS 280 (0) and 480 [capstone] (2); and six credits of electives, at least three of which should be in upper-division music courses.

A minimum of 124 credits is required for graduation.

Music Education. See pages 41 and 107 for admission requirements for teacher education programs. Completing all requirements in the music education option leads to an initial teaching certificate for music in grades K–12. Students selecting this option must complete 89 credits in *Studies in Music* and *Professional Education*, as follows:

Studies in Music (64 credits): seven semesters of the principal applied music area (instrument or voice must be selected from MUS 110–410 A–U only; applied study in jazz as the principal applied music area is not acceptable for the music education option), two credits per semester (14). Seven semesters of MUS 300 (0); senior recital MUS 450 [capstone] (0). Four semesters of secondary applied music areas, one credit per semester (4); MUS 171 and 172 are required as secondary applied music areas if students select piano proficiency option II. Students who have not passed the piano proficiency exam by the end of MUS 172 will be expected to take MUS 271 and 272, which can count as secondary applied music areas. Other secondary applied credits as needed must come from MUS 110–410 (in an applied area other than the principal applied music area) or MUS 169, 170, 173, 175, 177, or 179. Seven semesters of major ensembles appropriate to the principal applied music area, at 0–1 credit per semester (6). Major ensembles include MUS 292, 293, 394, 395, and 397; no more than two semesters of MUS 291 and/or 396 can count toward the major ensemble requirement. MUS 119 (1); 120, 121, 122, 225, 226, 227, 228 (14); 416 or 417 (3); 221, 222, 322 (9). MUS 169, 170, 173, 175, 177, 179 at a minimum of one credit each (6); 235 (2); 311, 312 (5).

Professional Education (25 credits): Students pursuing the music education option must apply for admission to the Office of Teacher Education in the School of Education; see pages 41 and 42 for admission requirements. MUS 280 (0), 480 [capstone] (2); MUS 238, 339, 340, 341 (10); EDC 250 (1), 484 (12). PSY 113 (3) is required as a *Professional Education* course but also counts to-

ward the Social Science requirement in the Basic Liberal Studies program. The piano proficiency examination Options I or II, the Praxis II: Principles of Learning and Praxis II: Music Content Knowledge, and all courses required for the music education option, with the exception of MUS 480 [capstone], must be completed before supervised student teaching (EDC 484). The passing score for Praxis II: Principles of Learning is 167, and for Praxis II: Music Content Knowledge is 153. Students may wish to enroll in EDC 312 (3) in order to prepare the Praxis II: Principles of Learning.

A minimum of 128 credits is required for graduation.

Music Performance. All students in the music performance option must take the following music courses: eight semesters of MUS 300 (0); MUS 350 (0) and 450 [capstone] (0); MUS 119 (1); 120, 121, 122, 225, 226, 227, 228, 416 (17); 221, 222, 322 (9). MUS 235 (2) and 442 (2); 311 (2); 280 (0); 480 [capstone] (2).

A minimum of 124 credits is required for graduation. In addition, students must select one of the following five sub-options.

Classical Guitar: eight semesters of the principal applied music area. Two semesters of MUS 110T at two credits in the first semester and three credits in the second (5); two semesters of MUS 210T at three credits each (6); two semesters of 310T and 410T at four credits each (16). MUS 171 and 172 (2). Students who have not passed the piano proficiency examination by the end of MUS 172 will be expected to take MUS 271 and 272. Four semesters of major ensembles MUS 292, 293, 394, 395, 396, or 397 (4). Four semesters of guitar ensemble (MUS 398G) and three semesters of playing guitar in chamber music ensembles (MUS 398) (7). An upper-division music history course (3); an upper-division music theory course (3). Four credits of electives, at least three of which should be in upper-division music courses.

Jazz (limited to saxophone, trumpet, trombone, piano, guitar, string bass, and drum set): eight semesters of the principal jazz applied music area. Two semesters of MUS

110W at two credits in the first semester and three credits in the second (5); two semesters of MUS 210W at 3 credits each (6); two semesters of 310W and 410W at four credits each (16). MUS 171 and 172 (2). Students who have not passed the piano proficiency examination by the end of MUS 172 will be expected to take MUS 271 and 272. Four semesters of major ensembles MUS 291, 292, 293, 394, 395, or 397 (4). Two semesters of jazz studio ensemble (MUS 396), two semesters of jazz studio lab (MUS 391), and four semesters of chamber music ensembles/jazz (MUS 398I) (8). An upper-division music history course or an upper-division music theory course (3). Three credits of electives which should be in upper-division music courses.

Orchestral Instrument: eight semesters of the principal applied music area. Two semesters of MUS 110 at two credits in the first semester and three credits in the second (5); two semesters of MUS 210 at three credits each (6); two semesters of 310 and 410 at four credits each (16). MUS 171 and 172 (2). Students who have not passed the piano proficiency examination by the end of MUS 172 will be expected to take MUS 271 and 272. Eight semesters of major ensembles MUS 292, 394, or 397 (8). Three semesters of secondary or chamber music ensembles (3). An upper-division music history course (3); an upper-division music theory course (3). Four credits of electives, at least three of which should be in upper-division music courses.

Piano or Organ: eight semesters of the principal applied music area. Two semesters of MUS 110B or C and 210B or C at three credits each (12); two semesters of 310B or C and 410B or C at four credits each (16). All students pursuing this sub-option must pass the piano proficiency examination by the end of the second semester of the junior year. Keyboard majors can waive MUS 171, 172, 271, and 272, courses normally taken to develop the skills necessary to pass the piano proficiency examination. Four semesters of major ensembles MUS 292, 293, 394, 395, or 397 (4). Six semesters of piano accompanying (MUS 371) or playing

piano in chamber music ensembles (MUS 398) (6). MUS 420 (3). An upper-division music history course (3). Six credits of electives, at least three of which should be in upper-division music courses.

Voice: eight semesters of the principal applied music area. Two semesters of MUS 110A at two credits in the first semester and three credits in the second (5); two semesters of MUS 210A at three credits each (6); two semesters of 310A and 410A at four credits each (16). MUS 171, 172, 271, and 272 (4). Eight semesters of major ensembles MUS 293 or 395 at zero or one credit per semester (7). Two semesters of chamber or other music ensembles (2). MUS 283 (3). Four credits of electives, at least three of which should be in upper-division music courses.

Students selecting voice must also take nine credits of foreign language in two or more languages. This requirement may be modified or satisfied by advanced placement.

MINORS IN MUSIC

Jazz Studies. Students who wish to declare a minor in music using the jazz studies option must complete 19 credits in musicianship, performance, and electives as follows: Musicianship: MUS 106 (3), 120 (2), 121 (2), 122 (2), 171 (1), 221 (World Music Unit) (1), 322 (Jazz and Popular Music Units) (2), and MUS 300 for a minimum of two semesters (0). Music Performance: a minimum of four credits in the principal applied music area (MUS 110W, 210W, at one or two credits per semester) (4), and two semesters of MUS 391, 396, or 398J (2). Applied study in MUS 110W and 210W for the minor in jazz option is limited to the following instruments: saxophone, trumpet, trombone, piano, bass, guitar, and drum set. *Electives:* The department strongly suggests that 3 credits be taken in MUS 101. Participation in other major ensembles is also encouraged. Major ensembles include MUS 291, 292, 293, 394, 395, 397, and 398G, pending audition. A successful audition is required prior to study in the

principal applied music area and prior to participation in ensembles.

Music. This option gives students a broad-based background in music. Course work in this option is similar to that taken by students starting work toward a B.A. or B.M. degree in music. Students who wish to declare a minor in music using the music minor option must earn credit for MUS 111 (3) or 120 (2); 171 (1), 121 and 122 (4), 300 for a minimum of two semesters (0), and two 3-credit music history and literature courses selected from MUS 221, 322, 408, 430, 431, 433, 434 (or 222, if the student has the additional pre-requisites) (6). Additionally, students must earn a minimum of four credits in their principal applied music area (MUS 110–410, at one or two credits per semester) and four credits in major ensembles* appropriate to the principal applied music area (8). The minimum number of credits required for this option is 21–22. Students must pass an audition in their principal applied music area prior to registration for applied study in voice or on an instrument.

Music Performance. This option gives students the opportunity for a more concentrated study in voice or on an instrument. Students who wish to declare a minor in music using the music performance minor option must earn credit for MUS 111 (3) or 120 (2); MUS 121 and 122 or a music history course selected from MUS 101, 106, 221, 322, 408, 430, 431, 433, 434 (3–4); MUS 300 for a minimum of two semesters (0). Additionally, students must earn a minimum of eight credits in their principal applied music area (MUS 110–410 at one or two credits per semester) and six credits in major ensembles* appropriate to the principal applied music area (14). The minimum number of credits required for this option is 19–21. Students must pass an audition in their principal applied music area prior to registration for applied study in voice or on an instrument.

Individual Music. This option gives students more flexibility. These students design and develop their music minor program

under the advisement and sponsorship of a full-time music faculty member. Petitions outlining and justifying the desired music minor program must be presented by the faculty sponsor to the music faculty for approval. A minimum of 18 credits is required. Petitions should be submitted as early as possible in a student's undergraduate program.

**Music ensembles include MUS 291, 292, 293, 394, 395, 396, and 397. Up to one semester of MUS 291 can count toward the major ensemble requirement in the music minor option; up to two semesters of MUS 291 can count toward the major ensemble requirement in the music performance option. Those with a major applied area in guitar can count MUS 398 for guitar ensemble as a major ensemble. Those with a major applied area in piano can count additional applied music credits (MUS 110–410) and/or accompanying (MUS 371) in lieu of the major ensemble requirements.*

Philosophy

The Department of Philosophy offers a Bachelor of Arts (B.A.) degree.

Faculty: Professor Zeyl, *chairperson*. Professors Foster, Johnson, Pasquerella, J. Peterson, and Wenisch; Assistant Professors Krieger, Meghani, and Mollgaard; Professors Emeriti Y. Kim and Schwarz.

Students selecting this major must complete no fewer than 33 credits (maximum 48) in philosophy. Students are required to take PHL 205; at least one from PHL 101, 451 (logic); at least one from PHL 212, 314 (ethics); at least one from PHL 341, 342, 452; both PHL 321 and 323; at least one from PHL 204, 318, 324, 346; and PHL 490 [capstone]. The remaining nine credits may be chosen freely from the list of PHL courses offered by the department. At least 18 credits in course work 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.

Physics

The Department of Physics offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

Faculty: Professor Northby, *chairperson*. Professors Heskett, Kahn, Kaufman, Malik, Meyerovich, Muller, Nightingale, Nunes, and Steyerl; Assistant Professors Andreev and Reshetnyak; Adjunct Professors Kemp, McCorkle, and Yoon; Adjunct Associate Professors Bozyan, Karbach, and Ruffa; Adjunct Assistant Professor Briere; Professors Emeriti Desjardins, Hartt, Letcher, Penhallow, Pickart, Stone, and J. Willis.

BACHELOR OF ARTS

As of June 2009, new admissions to this program have been suspended.

Students selecting this program must complete a minimum of 41–42 credits (maximum 45) in physics, mathematics, and computer science, including PHY 203, 204, 205, 273, 274, 275 (12), 306 (3), 322 (3), 331 (3), 381, 382 (6), 401 or 402 (1), 451 (3), 491 or 492 (3), MTH 244 (3), CSC 211 (4), and one course from PHY 410 or CSC 212 (3–4). It is strongly recommended that students take MTH 141 and 142 in the freshman year.

Students in this program are encouraged to broaden their opportunities by using the block of electives to minor in business, education, engineering, medicine and molecular biology, language, or other physics-related interdisciplinary areas as listed under the B.S. program.

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

For students completing both the B.A. in physics and the B.S. in electrical engineering at the same time, the requirements of CSC 211, PHY 331, and PHY 410 for the physics majors are waived.

For students completing both the B.A. in physics and the B.S. in mechanical engineering at the same time, the requirements of CSC 211 and PHY 410 for the physics majors are waived.

Students in both of the above groups (B.A. physics/B.S. electrical engineering and B.A. physics/B.S. mechanical engineering completing both degrees at the same time) may use one course in physics toward fulfilling the Natural Sciences Basic Liberal Studies requirement.

BACHELOR OF SCIENCE

This curriculum provides a general background in both theoretical and experimental physics. It forms a 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 on page 35) 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, engineering physics, business, education, medicine and molecular biology, and languages. As with any minor, it will be recorded on the student's final transcript.

The following courses are required for the B.S., but exceptions and/or substitutions are possible and can be arranged by consulting the department chairperson.

A total of 129 credits is required for graduation. PHY 483 and 484 are the **capstone** courses in this program.

Freshman Year

First semester: 17 credits

MTH 141 (4); PHY 203, 273 (4), Basic Liberal Studies requirements and electives (9).

Second semester: 16 credits

MTH 142 (4); PHY 204, 274 (4), Basic Liberal Studies requirements and electives (8).

Sophomore Year

First semester: 17 credits

CSC 211 (4); MTH 243 (3); PHY 205, 275 (4), Basic Liberal Studies requirements and electives (6).

Second semester: 17 credits

MTH 244 (3); PHY 306 (3), 410 (3), Basic Liberal Studies requirements and electives (8).

Junior Year

First semester: 17 credits

PHY 322 (3), 381 (3); MTH 215 (3), Basic Liberal Studies requirements and electives (8).

Second semester: 17 credits

Mathematics elective at the 300 or 400 level (3), PHY 331 (3), 382 (3), Basic Liberal Studies requirements and free electives (8).

Senior Year

First semester: 13 credits

PHY 401 (1), 420 (3), 451 (3), 483 [**capstone**] (3), Basic Liberal Studies requirements and free electives (3).

Second semester: 15 credits

PHY 452 (3), 455 (3), 484 [**capstone**] (3), 510 (3), Basic Liberal Studies requirements and electives (3).

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.

Coordinators: Professors Heskett and Muller (Physics). The faculty consists of the members of the Department of Physics and the GSO's physical oceanography faculty.

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 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 are well prepared to pursue careers in conventional physics or 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 Dynamics); 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: 17 credits

MTH 141 (4); OCG 110 (3); PHY 203, 273 (4), Basic Liberal Studies requirements and electives (6).

Second semester: 16 credits

CHM 101, 102 (4); MTH 142 (4); OCG 123 (4); PHY 204, 274 (4).

Sophomore Year

First semester: 17 credits

CSC 211 (4); MTH 243 (3); PHY 205, 275 (4), Basic Liberal Studies requirements and electives (6).

Second semester: 17 credits

MTH 244 (3); PHY 306 (3); 410 (3), Basic Liberal Studies requirements and electives (8).

Junior Year

First semester: 17 credits

PHY 322 (3), 381 (3); MTH 215 (3), Basic Liberal Studies requirements and electives (8).

Second semester: 17 credits

MCE 354 (3); PHY 331 (3), 382 (3), Basic Liberal Studies requirements and electives (8).

Senior Year

First semester: 16 credits

OCG 501 (3); PHY 401 (1), 420 (3), 451 (3), 483 (3), Basic Liberal Studies requirements and electives (3).

Second semester: 12 credits

OCG 510 (3); PHY 425 (3), 484 (3), and 510 (3).

Political Science

The Department of Political Science offers the Bachelor of Arts (B.A.) degree. The department also offers the Master of Arts (M.A.) in political science and the Master of Public Administration (M.P.A.).

Faculty: Professor Tyler, *chairperson*.

Professors Hamilton, Hennessey, Killilea, Moakley, Petro, and Rothstein; Associate Professor Krueger; Assistant Professors Hutchison, Johnson, and Pearson-Merkowitz; Professors Emeriti Leduc, Stein, Wood, and Zucker.

The Major. Students selecting this field must complete a minimum of 32 credits (maximum 46) in political science, including PSC 113 (4), 116 (4), 212 (4), and either 210 or 211 (4). Student must select one 300-level experiential course (4) and two 400-level reearch seminars (4 each).

Students completing both the B.A. degree in political science and the B.S. degree in engineering at the same time may

use courses in the political science major to satisfy Basic Liberal Studies requirements for the Bachelor of Arts. The College of Engineering and the Department of Political Science have established a curriculum that 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.

The Minor. Students declaring a minor in political science must earn 20 credits including PSC 113 (4), 116 (4), either 210 or 211 (4), and any two other political science courses at the 300 level.

Minor in International Relations. See page 37.

John Hazen White Sr. Center for Ethics and Public Service. An important part of URI's Political Science Department, this center was established in 1994 through a grant from John Hazen White Sr., a local businessman and philanthropist. The center offers ethics and public service programs for undergraduate and graduate students, elected and appointed officials, public managers, and citizen groups. In addition to research opportunities, workshops, and special programs, the center also sponsors the Mentor/Tutor Internship (MTI), which provides URI students internships, for credit, in local public schools to encourage and mentor students at risk of dropping out. See Professor Alfred Killilea for more information.

Portuguese

The Department of Modern and Classical Languages and Literatures offers a number of undergraduate courses in Portuguese.

Psychology

The Department of Psychology offers the Bachelor of Arts (B.A.) degree. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

Faculty: Professor Morokoff, *chairperson*. Professors Boatright-Horowitz, Biller, Brady, J.L. Cohen, Collyer, de Mesquita, Faust, Florin, Gorman, Harlow, LaForge, Park, Prochaska, Quina, Rossi, Stevenson, Stoner, Velicer, Willis, and Wood; Associate Professors Flannery-Schroeder, S. Harris, Robbins, Rogers, L. Stein, Walls, and Weyandt; Assistant Professor Loftus; Professors Emeriti Grebstein, Gross, A. Lott, B. Lott, Merenda, Silverstein, N. Smith, Valentino, Vosburgh, and Willoughby.

In order to transfer from University College to Arts and Sciences as a psychology major (or to be coded as such in the College of Arts and Sciences), a student must have a C or better in PSY 113; a C average in two of the following courses: PSY 232, 235, and 254; and a C in PSY 300.

Psychology majors are required to complete a minimum of 31 (maximum 46) credits in psychology courses to be distributed as follows: PSY 113 (with a grade of C or better); a minimum of two courses from PSY 232, 235, and 254 (with a C average); both PSY 300 and PSY 301 (with a grade of C or better in each); a minimum of three topics courses (9 credits) from PSY 255, 310, 335, 361, 381, 384, 385, 399, 432, 434, 436, 442, 460, 464, 470, 479, and 480 (the average in the three courses must be C or better); a minimum of one course (3 credits) in the applied knowledge area to be selected from PSY 103, 261, 275, 334, 399, 465, 466, 471, and 478 (with a C or better); a minimum of one course (at least three credits) from the experiential practice and/or internships area selected from PSY 305, 371, 473, 489, 499; ITR 301, 302, with a C or better in graded courses or a satisfactory in S/U courses.. A minimum of 31 graded psychology (PSY) credits (not S/U) are required for the additional psychology major. Once 46 credits in psychology courses are taken, additional psychology credits will not count toward the 120 total credits required for graduation.

Students who must repeat a course to meet the minimum grade requirement may use only three credits of that particular course toward graduation.

Students majoring in psychology typically go on either to pursue a career at the B.A. level or study for an advanced degree. In both cases, students should consult the department's Web site (uri.edu/artsci/psy) and their academic advisor to select appropriate courses for their interests and goals.

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

Public Relations

The Departments of Communication Studies and Journalism offer the Bachelor of Arts (B.A.) degree in public relations.

Coordinator: Regina Bell, Communication Studies.

This interdepartmental major combines a liberal arts education with the skills important to a career in public relations. Working with an advisor from Communications Studies or Journalism, students will develop a specific program of studies.

Students must complete the following courses before being accepted into the major: COM 202, 210; JOR 220 (with a C or better). Based on grade point average, only the top 25 applicants will be admitted annually. The major requires a minimum GPA of 2.00 overall and 2.50 in the pre-major courses. Apply in February.

The major requires 33 credits including PRS 340, 441, 491; COM 381; JOR 341 (15). Students must complete six courses (18 credits) from the following including at least one course from each category—*Category A:* JOR 321, WRT 201, 235, 302, 303, 304, 333; *Category B:* BUS 365, 465, 468; *Category C:* COM 302, 351, 415, 450; *Category D:* COM 415; JOR 410, 442; PSY 335. A student must maintain a 2.00 grade point average in her or his major to meet graduation requirements.

A total of 120 credits is required for graduation. At least 42 of these must be at the 300 level or above.

A minor is also available (see page 39).

Russian

The Department of Modern and Classical Languages and Literatures offers a number of undergraduate courses in Russian.

Sociology

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

Faculty: Professor Loy, *chairperson*. Professors Carroll, Cunnigen, Mederer, Peters, and Travisano; Associate Professors Costello and Van Wyk; Assistant Professor Doerner; Instructor Pisa; Professor Emerita Reilly.

BACHELOR OF ARTS

Students selecting this curriculum must complete a minimum of 30 credits (maximum 45) in sociology, including SOC 100, 301, 401, 495 [**capstone**], and two courses selected from SOC 240, 242, 336, 413, 428, and 452. At least 18 of the 30 credits must be at the 300 level or above. No more than six credits in independent study and/or field experience courses may be used toward the 30 credits required for the major. SOC 495 is to be taken during the senior year. (See page 52 for a description of the anthropology major.)

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

In order to transfer into the sociology B.A. program from University College, a student must have completed at least 24 credits and have earned a minimum of a 2.00 GPA.

BACHELOR OF SCIENCE IN SOCIOLOGY

Students in this curriculum elect either the Criminology and Criminal Justice option or the Organizational Analysis option and must notify the dean's office of the chosen option.

SOC 476 is the **capstone** course for the Criminology and Criminal Justice option. SOC 495 is the **capstone** course for the Organizational Analysis option.

Criminology and Criminal Justice Option.

A minimum of 30 credits in sociology is required including SOC 100, 230, 274, 301, 370, and 476 (18); two courses selected from SOC 240, 242, 336, 375, 403, 413, 428, and 452 (6); and four courses selected from SOC 330, 331, 420, and 497, and when appropriate and approved by the department chairperson, SOC 300, 498, and 499. No more than six credits in independent study and/or field experience may be used toward the 30 credits required for the major. In addition to the required courses, students selecting this option are strongly encouraged to take PSC 288 and PSC 472.

Admission to this option is selective.

Applications for admission will be reviewed twice each year, usually on or about October 1 and March 1. Students must apply by the end of September or 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 Criminology and Criminal Justice option, students must have earned a minimum of 30 credits, including SOC 100, 230, and 274 by the application deadline, and must have earned an overall GPA of at least 2.50. Preference for admission will be given to those individuals with the highest grade point averages.

A total of 120 credits is required for graduation.

Organizational Analysis Option. A minimum of 30 credits in sociology is required including SOC 100, 301, 320, 350, 401, 495 (12); and six credits in sociology at the 300 level or above. No more than six credits in independent study and/or field experience courses may be used toward the 30 credits required for the major. In addition, students selecting this option must complete ECN 201 and 202 (6); MTH 111 (3); STA 308 and 412* (6); CSC 201* (4); WRT

333 (3); BUS 340, 341, 343, 345, 442, and either BUS 315 or BUS 443 or BUS 448 (18).

*Note: BUS 210 and 212 may be substituted for STA 308 and 412; and BUS 110 may be substituted for CSC 201 if these courses are already completed when the student transfers into the B.S. program.

Admission to this 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 grade point average. Preference for admission will be given to those individuals with the highest grade point averages.

A total of 120 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 department also offers the Master of Arts (M.A.) program in Spanish.

Faculty: Professor Manteiga, *section head*. Professors Morín, Trubiano, and White; Associate Professor de los Heros; Assistant Professor Echevarria; Professor Emeritus Gitlitz.

For the Spanish major, students will complete a minimum of 30 credits (maximum 45), including SPA 325 and three 400-level courses (excluding SPA 421). SPA 421 may be used as part of the remaining 18 required credits. Note: SPA 101, 102, 321, 391, 392, and 393 cannot be counted toward the Spanish major. Students may also include LIN 202 and 220, and—with permission of the advisor, section head,

department chairperson, and dean—up to two courses in allied fields such as history, art, and anthropology. 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.

Students in the International Engineering Program or the International Business Program must take SPA 312, 316, 317, 321, 325, and a 400-level engineering or business course taught in Spanish, designated SPA 412 for engineering students and SPA 421 for business students. IEP or IBP students beginning their study of Spanish at the 200 level or higher may opt to take up to six credits of Portuguese toward the completion of the major in Spanish. IEP or IBP students do not have to take three 400-level courses in Spanish, but must take at least one 400-level literature course in Spanish. Note: SPA 101, 102, 391, 392, and 393 cannot be counted toward the major for IEP or IBP students. The 6-credit Portuguese option is available to IEP and IBP students only. Students simultaneously completing the International Engineering Program or the International Business Program and the B.A. with a major in Spanish may also use three credits of Spanish literature toward the Fine Arts and Literature Basic Liberal Studies requirement. In addition, students in these programs are exempt from the one-course-per-discipline rule in Letters, Social Sciences, and Natural Sciences.

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

Statistical Science

Minor in Statistics. Students who wish to declare a minor in statistics must earn credit for STA 409 (3), 412 (3), MTH 451 (3), and three three-credit statistics courses chosen with prior approval of the chairperson of the Department of Computer Science and Statistics.

Theatre

The Department of Theatre offers a Bachelor of Fine Arts (B.F.A.) degree.

Faculty: Associate Professor McGlasson, *chairperson*. Professor J. Swift; Associate Professors Howard, Wittwer, and Wortman; Lecturer Hawkridge.

Productions at URI 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.

The criteria used to transfer students out of University College into the Department of Theatre are 24 credits and a 2.00 GPA.

BACHELOR OF ARTS

Enrollment in this program is currently suspended with the exception of students enrolled in the elementary education program. Elementary education students who do not complete the elementary education program must switch to the B.F.A. program in order to earn a degree in theatre.

Students must fulfill the elementary education requirements as well as a total of 33 credits (maximum 48) as follows: THE 111 (3), 161 (3), 181 (3), 221 (3), 250 (3), 261 (3), 307 (3), 321 (3), 381 and 382 (6), 383 or 384 or 481 (3). Potential B.A. candidates are urged to complete THE 111, 112, 161, and 181 by the end of their freshman year. B.A. candidates may elect up to 15 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 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, directing, and stage management. Specific requirements of these areas are flexible to suit students' individual needs.

All B.F.A. students are required to complete 37 credits in core courses distributed as follows: THE 111 (3), 161 (3), 181 (3), 221 (3), 250 (3), 261 (3), 291 (2), 321 (3), 351 or 352 (3); three courses from 381 (3), 382 (3), 383 or 384 or 481 (3) to total nine credits; and 391 (2). All B.F.A. candidates are urged to select a course from ENG 362, 366, 446, or 472, and to complete THE 111, 161, and 181 by the end of their freshman year.

In addition to the core requirements, each student selects one of the following specializations. Students must notify the office of the dean of the area of specialization they have selected. B.F.A. students selected for an internship program may substitute up to 12 credits for 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 permission of the department chairperson.

Acting. These students must complete an additional 40 credits: THE 112 (3), 211 and 212 (6), 213 and 214 (2), 300 or 301 (3), 311 and 312 (6), 313 and 314 (2), 350 (1), 400 or 401 (3), 411 and 412 (6), 417 and 418 (2). Select six credits from THE 217, 227, and 413. Recommended electives include courses in related fields such as anthropology, art, communication studies, history, literature, music, psychology, and sociology.

A total of 120 credits is required for this specialization.

Design and Theatre Technology. Students selecting design and theatre technology must complete an additional 31 credits: THE 300 (3), 301 (3), 351 or 352 (3) to complete the sequence begun in the core curriculum; 350 (1), 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 ARH 251, 252, ART 207, and courses in related fields.

A total of 120 credits is required for this specialization.

Directing. Students selecting directing must complete an additional 35 credits: THE 300 or 301 or 307 (3), 322 (3), 331 (3), 341 (3), 355 or 365 or 371 (3), 400 or 401 (3), 420 (3), and 484 (3). They must also complete a three-semester sequence in acting: 112 (3), 211 (3), 213 (1), 212 (3), and 214 (1), to total eleven (11).

Recommended electives include courses in anthropology, art history, history, literature, music, psychology, and sociology.

A total of 120 credits is required for this specialization.

Stage Management. Students selecting stage management must complete an additional 30 credits: COM 320 (3); management course (to be approved by chair) (3); THE 300 (3), 301 (3), 341 (3), 355 or 365 (3), 371 (3), 400 (3), 401 (3), 441 (3).

A total of 120 credits is required for this specialization.

Women's Studies

The aim of this interdepartmental program is to provide an option for students who are interested in the interdisciplinary study of the culture and experiences of women and the ways gender affects social, cultural, political, and economic policies and structures locally, nationally, and globally.

Faculty: Assistant Professor Lisberger, *director.* Professors Aronian, Beauvais, Brownell, J. Campbell, Cappello, Danis, Donnelly, Dvorak, Eaton, Grubman-Black, C. Hamilton, Hughes, Ketrow, Livingston, Luebke, Mederer, J. Miller, Quina, Reynolds, Rollo-Koster, Roworth, M. Schwartz, K. Stein, Strom, and Walton; Associate Professors Derbyshire, de los Heros, Karno, Kirchner, Pegueros, Rusnock, Sama, and Torrens; Assistant Professors Lisberger and K. Owens; Adjunct Professors Barker, Brandt, Brennan, Carlson, DeFrancis, Evans, Hagen, Johnson, Jones, Kosmider, Labelle, Moio, Nichols, Petronio, Pisa, Quinlan, Riley, Rutherford, Saunders, Sears, Stepien, and Wild.

The Major. This program leads to a Bachelor of Arts (B.A.) degree in women's studies.

The program requires 30 credits for a major. Five required courses are WMS 150, 300 or 320, 310, 315, and 400. Five courses needed to complete the concentration may be selected from: AAF 290; APG 328; ARH 285; BUS 346; COM 322; ECN 386; ENG 260, 317, 385; HDF 230, 298, 430, 432, 433, 437, 505, 559; HIS 118, 145, 146, 308, 350, 351, 352, 355, 376, 391; KIN 475, 555; NUR 150, 459; PHL 210; PSC 441; PSY 430, 466, 480; SOC 212, 242, 413, 420, 430; TMD 224; WMS 220, 301, 305, 306, 317, 325, 350, 351, 360, 365, 370, 401, 402, 450, 490, 500, 501, 502; and WRT 645. In addition to this list, there are special courses offered by various departments each year that may be selected with prior approval of the Women's Studies Advisory Committee, and some additional preapproved topics courses not offered on a regular basis. Students must file a program of study with the dean's office. 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. A GPA of at least 2.00 in the major and overall is required to graduate.

The Minor. Students who declare a minor in women's studies are required to complete 18 credits including WMS 150 and WMS 315, and three credits from any other WMS course. The remaining nine credits may be selected from any WMS course or from the following: AAF 290, 300C; APG 328; ARH 285; BUS 346; COM 322; ECN 386; ENG 260, 317, 385; HDF 230, 298, 430, 432, 433, 437, 505, 559; HIS 118, 146, 308, 352, 391; KIN 475; NUR 150, 459; PHL 210; PSY 430, 466, 480; SOC 212, 242, 413, 420, 430; TMD 224. There may be additional courses offered by various departments each year that may be selected with prior approval of the Women's Studies Advisory Committee. A GPA of at least 2.00 is required.

Post-Baccalaureate Certificate. Please see page 164.

Writing and Rhetoric

The College Writing Program offers the Bachelor of Arts (B.A.) degree.

Faculty: Associate Professor Miles, *director*. Professors Schwegler and Shamoan; Assistant Professors Dyehouse, Owens, and Pennell; Associate Professor Emerita Vaughn.

The Major. This program is designed for undergraduate students who seek a career in professional writing, teaching, or publishing. Graduates will have a strong foundation in rhetorical theory and composing strategies as well as familiarity with various writing technologies, and they will leave URI with an electronic

portfolio that will demonstrate their ability to design and write a number of different documents, targeted to different audiences and purposes.

Writing and rhetoric majors must complete 30 credits (maximum 51), including WRT 201, 235, 360, 490, and 495. At least 15 credits for the major must be completed from writing courses numbered 300 or above. A maximum of 6 credits for the major may be taken in online courses or through distance learning. Writing and rhetoric majors are strongly encouraged to complete a practicum experience, either the internship or fieldwork course. Undergraduates wishing to take 500-level courses must secure the instructor's permission.

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

The Minor. Students who declare a minor in writing and rhetoric must complete 18 credits from WRT courses at or above the 200-level. Students must take at least one 200-level course. Students can apply toward the minor a maximum of three credits earned through WRT 383 and WRT 484 each. 100-level courses and WRT 391 and 392 will not be counted as part of the minor.

COLLEGE OF BUSINESS ADMINISTRATION

Mark Higgins, Dean
Shaw K. Chen, Associate Dean
Michaela Mooney, Associate Dean for
Development
Deborah Rosen, Associate Dean
Peg Ferguson Boyd, Assistant Dean

Faculty: Professors Beauvais, Beckman, Budnick, S. Chen, Comerford, Cooper, Dash, Della Bitta, N. Dholakia, R. Dholakia, Hazera, Hickox, Higgins, Jarrett, Mangiameli, S. Martin, Matoney, Mazze, D. Rosen, Scholl, Schwarzbach, and Westin; Associate Professors Boyle, Creed, Dugal, Dunn, Graham, Hales, Y. Lee, Lin, Lloyd, Oppenheimer, Sheinin, and Yu; Assistant Professors Blanthorne, Cai, Y. Chen, DaDalt, Dorado, Jelinek, Jervis, Kroes, Leonard, Shin, Wheeler, and Y. Xu.

The seven majors in the College of Business Administration allow students to develop competence in special fields of interest and prepare them to meet the changing complexities of life and leadership in the business community. Majors are offered in accounting, entrepreneurship management, finance, general business administration, global business management, marketing, and supply chain 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 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, finance, marketing, organization and management theory, supply chain 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 with courses in 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 in the college 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 an overall cumulative grade point average of 2.00 or and a 2.00 or better average 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 Office of the Dean.

Admission Requirements

All students are initially enrolled in University College, where they complete general education and lower-business core courses. Core requirements include accounting, economics, business computing and decision-making, mathematics, and statistics. First-semester sophomores who complete a minimum of 42 credits with an overall grade point average of 2.50 or higher and who have a 3.00 or higher average in BUS 111, 201, 210, and ECN 201 will be admitted. Students not qualifying after the first semester of their sophomore year must still meet the requirements of an overall grade point average of 2.50 and a 2.70 or higher average in BUS 111, 201, 202, 210, and ECN 201 and 202.

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. 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 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 business students for whom a course is a program requirement, as stated in this catalog, followed by any other student in the College of Business Administration, and then students outside the College of Business Administration who specifically need the course as a requirement for their degree.

Curriculum Requirements

The first two years are common to all majors in the college.

Freshman Year: 16 credits in the first semester and 15 credits in the second semester. All students must complete a behavioral science course from the following list: APG 203; PSY 103, 113; SOC 100, 204. BUS 110 and 111 are taken in alternate semesters, with the balance of credits in general education. Students majoring in global business management are required to complete PSC 116. Students majoring in accounting are required to complete PHL 212.

Sophomore Year: 15 credits in each semester. The BUS 201, 202, ECN 201, 202, and BUS 210, 211 (finance, marketing, or supply chain management majors only) sequences are begun in the first semester and completed in the second. WRT 227 may be taken in either semester. The balance of credits is made up of general education requirements and liberal electives.

General Education. Students are required to select and pass 39 credits of course work from the general education requirements as listed on pages 33–35. Specific requirements of the College of Business Administration in each group follow:

Group A (6 credits). A minimum of three credits must be in literature: AAF 247 [D], 248 [D]; CLA 391 [D], 395 [D], 396 [D], 397 [D]; CLS 160 [D]; ENG 110 [D], 160 [D], 241 [D], 242 [D], 243 [D], 247 [D], 248 [D], 251 [D], 252 [D], 260 [D], 262, 263 [D], 264, 265, 280 [D], 300 [D], 302 [D], 303 [D], 304 [D], 355 [D], 357 [D], 358 [D]; FRN 309 [D], 310 [D], 320 [D], 391 [D], 392 [D], 393 [D]; HPR 125; RUS 391 [D], 392 [D]; SPA 305 [D], 306 [D], 307 [D], 308 [D], 320 [D].

The remainder may be in Fine Arts: ARH 120 [D], 251 [D], 252 [D]; ART 101, 207; FLM 101 [D], 203 [D], 204 [D], 205 [D]; HPR 105, 124; LAR 201; MUS 101 [D], 106 [D], 111, 292, 293 [D]; PLS 233; THE 100, 181, 351 [D], 352 [D], 381, 382, 383.

Groups L (6 credits) and N (6 credits). Any course for which prerequisites have been met.

Group MQ (3 credits). BUS 111 in the freshman year.

Group S (6 credits). ECN 201, 202 in the sophomore year.

Group EC (6 credits). COM 100; WRT 104, 105, 106, 201, or 333 in the freshman year and WRT 227 in the sophomore year.

Group FC. The language requirement can be met using either of the following options:

Option 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). Note: Study abroad may be used to complete the second semester requirement of a foreign language only under option 1 (e.g., 102 at URI, study abroad would count as 103).

Option 2. A two-course sequence in a language not previously studied (or studied for less than two years in high school) through the beginning level (e.g., 101 and 102).

Note: Study abroad does not waive the foreign language requirement. As the above indicates, a minimum of 102 in a foreign language must be completed.

Electives. Liberal electives are courses offered by departments outside the College of Business Administration.

Business Track in the Honors Program.

In cooperation with the University Honors Program, academically talented business students are able to enhance their intellectual development and strengthen their preparation by participating in the Business Track in the Honors Program.

Minors. College of Business Administration majors are encouraged to develop a nonbusiness minor. See page 35 for requirements and options relating to minors, along with a list of approved interdepartmental minors. Students in the College of Business Administration choosing the third option described on page 35—"related studies from more than one department under the sponsorship of a qualified faculty member"—need the approval of the Scholastic Standing Committee.

Nonbusiness students wishing to obtain a departmental minor in the College of Business Administration should expect to take the required six courses over a period of two years. Admission is on a space-available basis only, and therefore not guaranteed. Interested students should complete an application form, available from the Office of the Dean of the College of Business Administration.

International Business Program. In cooperation with URI's Department of Modern and Classical Languages and Literatures, the College of Business Administration offers an opportunity for students to complete a double major and receive a B.S. in Business Administration and a B.A. in foreign language. The business requirements include a major in accounting, entrepreneurial management, finance, general business administration, global business management, marketing, or supply chain management. The student also

develops a language component, choosing to major in French, German, Italian, or Spanish, or choosing to minor in Chinese. 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 must complete a study abroad experience and a professional internship experience.

Accounting

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree with a major in accounting. This curriculum provides the education requirements recommended by the American Institute of Certified Public Accountants for certification as a public accountant (CPA). The college also offers a Master of Science (M.S.) degree in accounting.

The increased scope of governmental and business activities has greatly extended the field of accounting and has created an unprecedented demand for accountants in both government and industry. This curriculum has been designed to meet that demand.

In addition to providing a general liberal arts 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 offers fundamental training in the accounting field of the student's 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*

BUS 301 (3), 320 (3), 341 (3), 401 (3), and one liberal elective (3)..

Second semester: 15 credits

BUS 302 (3), 355 (3), 365 (3), 403 (3), and PSC 113, 116 or GEG 104 (3).

*Senior Year**First semester: 15 credits*

BUS 303 (3), 318A (3), 345 (3), and 404 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 402 (3), 428 (3), 445 [capstone] (3), and two liberal electives (6).

Note: All accounting majors are required to complete a minimum of three credit hours in each of the following areas. *Ethical Foundations:* fulfilled by taking PHL 212 as a Letters general education requirement or as a liberal elective. *Political Foundations:* fulfilled by taking PSC 113, 116, or GEG 104 as a liberal elective.

Entrepreneurial Management

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree with a major in entrepreneurial management. The curriculum is intended to provide the student with a background to tackle all aspects of a small business or entrepreneurial endeavor. The entrepreneur faces unique situations and needs a variety of skills to meet the challenges these situations present. Our program builds the skills necessary to the successful development of a business enterprise and includes courses in human resource management, marketing research, customer relationship marketing, leadership, and motivation.

With a degree in entrepreneurial management, students are prepared to start and manage their own business or work for companies in an entrepreneurial role.

*Junior Year**First Semester: 15 credits*

BUS 315 (3), 341 (3), 345 (3), 365 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 320 (3), 342 (3), 355 (3), 367 (3), and one liberal elective (3).

*Senior Year**First semester: 15 credits*

BUS 441 (3), 443 (3), 449 (3), 467 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 445 [capstone] (3), 448 (3), 450 (3), and two liberal electives (6).

Finance

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree with a major in finance. The college also offers the Master of Business Administration (M.B.A.) degree with an opportunity for specialization in finance and the Doctor of Philosophy (Ph.D.) degree.

A finance curriculum is designed to prepare the student to be eligible to pass the Certified Financial Analysts (CFA) Level 1 exam. This background prepares the student for managerial positions in the private, public, and nonprofit sectors. The curriculum emphasizes both financial decision-making and implementation.

Careers in finance are found in financial institutions; security analysis, portfolio, and related investment management; corporate financial management leading to positions as treasurer, controller, and other financial administrative positions; and 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*

BUS 301 (3), 320 (3), 365 (3), 341 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 302 (3), 318B (3), 321 (3), 322 (3), and one liberal elective (3).

*Senior Year**First semester: 15 credits*

BUS 345 (3), 421 (3), 424 (3), 428 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 355 (3), 420 (3), 445 [capstone] (3), and two liberal electives (6).

General Business Administration

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree with a major in general business administration. This 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.

A general business administration student takes a broad spectrum of courses and does not concentrate in one special field of study. The student cannot enroll in more than six (6) credits of professional electives in any area of business. All general business administration majors are strongly encouraged to include in their program of study an internship, or a study abroad experience, or a minor in a field outside of the College of Business Administration.

*Junior Year**First semester: 15 credits*

BUS 320 (3), 341 (3), 335 (3), 365 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 315 (3), BUS 355 (3), 342 (3), 448 (3), and one liberal elective (3).

*Senior Year**First semester: 15 credits*

BUS 345 (3), two professional electives (6), and two liberal electives (6).

Second semester: 15 credits

BUS 445 [capstone] (3), 460 (3), two professional electives (6), and one liberal elective (3).

Global Business Management

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree with a major in global business management. The curriculum is designed to prepare students to meet the challenges of an international career by achieving a high degree of proficiency in the language of another country as well as a background in its history, economy, politics, culture, and arts. In addition to the common body of knowledge required of all business students, global business management majors will study business principles taught from a global perspective. A required internship abroad and/or study abroad experience is an essential part of the program.

*Junior Year**First semester: 15 credits*

BUS 320 (3), 341 (3), 355 (3), 365 (3), and one foreign language (3).

Second semester: 15 credits

BUS 345 (3), 342 (3), 460 (3), one foreign language (3), and one liberal elective (3).

*Senior Year**First semester: 15 credits*

Study Abroad: Business-related courses (12) and one liberal elective (3).

Second semester: 15 credits

BUS 318B (3), 428 (3), 468 (3), 445 [capstone] (3), and one Letters course (3).

Management Information Systems

As of fall 2007, admission to this program has been suspended.

Marketing

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree with a major in marketing. Elective courses in the department expose students to career opportunities in a variety of fields in marketing. The college also offers the Master of Business Administration (M.B.A.) degree with an opportunity for specialization in marketing and the Doctor of Philosophy (Ph.D.) degree.

A major focus of marketing is determining product and service needs of consumers and industries as well as understanding how an organization deals with these marketing issues. The courses required of a marketing major give the student a well-rounded view of consumer and organizational needs.

*Junior Year**First semester: 15 credits*

BUS 315 (3), 355 (3), 365 (3), 366 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 320 (3), 341 (3), 345 (3), 367 (3), and one liberal elective (3).

*Senior Year**First semester: 15 credits*

BUS 441 (3), 460 (3), 468 (3), and two liberal electives (6).

Second semester: 15 credits

BUS 445 [capstone] (3), 465 (3), 467 (3), 470 (3), and one analytical/creative elective (3).

Supply Chain Management

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree with a major in supply chain management. The supply chain management major is a comprehensive program covering the basic and advanced topics necessary for designing, implementing, operating, and improving global supply chains.

Careers in supply chain management span every industry. Career options also include a diverse list of positions including inventory management, customer relationship management, scheduling, purchasing, and facilities management.

*Junior Year**First semester: 15 credits*

BUS 315 (3), 341 (3), 355 (3), 360 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 320 (3), 360 (3), 362 (3), 365 (3), and one liberal elective (3).

*Senior Year**First semester: 15 credits*

BUS 345 (3), 361 (3), 460 (3), 464 (3), and one liberal elective (3).

Second semester: 15 credits

BUS 445 [capstone] (3), 462 (3), 463 (3), 467 (3), and one liberal elective (6).

ALAN SHAWN FEINSTEIN COLLEGE OF CONTINUING EDUCATION

John H. McCray Jr., *Vice Provost for
Urban Programs*
Kathryn Quina, *Associate Dean*

The Alan Shawn Feinstein College of Continuing Education (ASFCCE) confers the University's Bachelor of General Studies degree and sponsors nearly 500 additional courses per semester, allowing students to pursue or complete a number of other University degree programs at the Feinstein Providence Campus. All ASFCCE-sponsored programs and courses are designed to respond to the needs of busy students with jobs, families, and personal responsibilities that may conflict with the more traditional full-time residential college experience. At ASFCCE students will find a dedicated staff, a flexible class schedule, and a supportive community composed of commuter, part-time, adult, financially independent, or otherwise nontraditional students who are assuming multiple roles as they pursue their University studies.

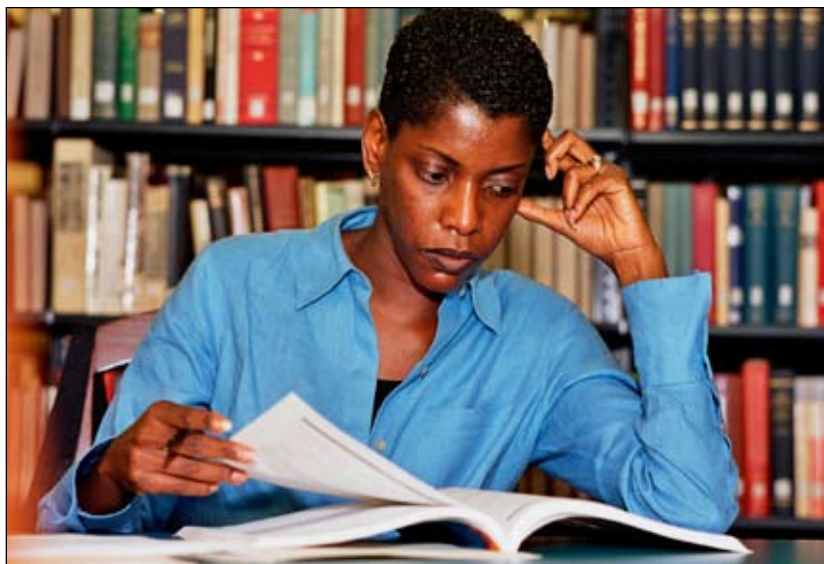
ASFCCE offers the following degree and majors:

Bachelor of General Studies
Applied Communications
Business Institutions
Health Services Administration
Human Studies

In addition, the Feinstein Providence Campus sponsors courses leading to the following degrees in other University colleges:

Bachelor of Arts
Communication Studies
English
History
Psychology

Bachelor of Science
Clinical Laboratory Sciences (specialty in
Biotechnology Manufacturing)
General Business Administration
Human Development and Family Studies



Graduate-Level Programs

Adult Education (M.A.)
Business Administration (M.B.A.)
Clinical Laboratory Science (M.S.)
Communication Studies (M.A.)
Labor Relations and Human Resources
(M.S.)
Library and Information Studies (M.L.I.S.)
Public Administration (M.P.A.)

Information on the college's B.G.S. degree follows. For curriculum requirements on any of the other programs listed above, see the index to find the appropriate section of this catalog.

LEAP (Learning Enhancement for Adults Program), which helps students build confidence and skills in reading, writing, and basic computer applications, is available to interested returning adult students. Also, students may qualify for scholarships offered exclusively to ASFCCE students.

ASFCCE also offers for-credit certificate programs in applied behavioral psychology, psychology, alcohol and drug counseling, and thanatology, as well as non-credit certificate programs. Individual credit and noncredit Continuing Education Unit (CEU) courses are offered in addition to institutes and special courses planned for business, industry, labor, and government agencies.

Courses are offered on weekday mornings, afternoons, evenings, and Saturdays. The college also offers distance learning courses through the Internet. Students enrolling in a degree program may attend at times most convenient for them.

Bachelor of General Studies

The Bachelor of General Studies (B.G.S.) program is designed for adults who have been out of school for five or more years. It is a good choice both for people who have never been to college and for students who attended college in the past but did not complete a degree. For the latter, the B.G.S. program makes it possible to apply their previous educational experience toward a degree program. The admission process should begin with an interview with a B.G.S. advisor in the Providence Campus's Admission and Advising Office.

Qualified applicants interested in other programs at ASFCCE may also be interested in the college's performance-based admission policy; see page 28 for details.

The B.G.S. program consists of the following required sections: 1) Pro-Seminar (BGS 100), 2) Traditions and Transformations (URI 101B), 3) general education, 4) major curriculum, 5) electives, and 6) Senior Project (BGS 399).

A total of 118 credits is required for the Bachelor of General Studies degree.

Pro-Seminar for Returning Students

(3 credits). This is the required entry course that introduces returning students to the college's academic environment. The BGS 100 course helps students identify their scholastic strengths and interests, and assists adults in building the self-confidence to pursue a degree plan. The Pro-Seminar is limited to 16 students and opens the door to the University by helping returning students adjust to academic life. The instructors are carefully chosen and all have prior experience in teaching adults.

While enrolled in the Pro-Seminar, B.G.S. students are encouraged to take one or more College Level Examinations Program (CLEP) tests to measure academic knowledge acquired through prior experience. Credits gained through these tests are applied to the general education requirements. (See page 31 for information on the CLEP tests.)

Traditions and Transformations

(1 credit). URI 101B is a University-wide seminar to introduce new students to the academic culture of higher education and to significant issues that bear on the development of each student's goals for the undergraduate years. Students enroll concurrently in URI 101B and the Pro-Seminar (BGS 100).

General Education Requirements

(39 credits). Students in the B.G.S. program must meet the University's general education requirements as explained on pages 33–35, including the URI 101 requirement. (Note: Health services administration majors must take MTH 107 or STA 220 as the math requirement.) B.G.S. students use Senior Seminars BGS 390, 391, 392 to fulfill general education requirements. Students should consult frequently with their B.G.S. advisor to be sure all general education requirements are met.

Senior Seminars (18 credits). The Senior Seminars are a distinctive feature of the B.G.S. program. These three six-credit

seminars are interdisciplinary in nature and enable students to integrate and synthesize their educational experiences. These seminars are normally begun when students have completed their other general education courses and most of the courses required for their major.

BGS 390 Social Science Seminar
(6 credits)

BGS 391 Natural Science Seminar
(6 credits)

BGS 392 Humanities Seminar
(6 credits)

Major Curriculum (45 credits). B.G.S. students can choose from the following majors: applied communications, business institutions, health services administration, and human studies. These majors allow students to take courses in several disciplines to meet their educational goals in a nontraditional way. A major may be made up of a carefully prescribed set of courses or it may be flexible in its requirements, allowing students to work creatively with an advisor to design an individualized program that meets both the student's needs and the general goals of the B.G.S. program.

Electives (24–27 credits). Electives permit students to complete the B.G.S. degree in a number of creative ways, through course work, carefully designed work experience, internships, or previous but relevant educational experience.

Senior Project (3 credits). All B.G.S. students must complete BGS 399. This **capstone** experience for B.G.S. students provides a structure that enables the student to integrate knowledge and skills from coursework and related experiences with a research project or field experience. The project must be designed so that it allows the student to demonstrate the relationship of subject matter, theory, and practice. Students are required to meet with the B.G.S. coordinator to plan a project proposal. This written proposal must meet with the approval of both the coordinator and an appropriate faculty advisor before the student can register for BGS 399.

APPLIED COMMUNICATIONS MAJOR

Students interested in the broad field of applied communications will be interested in this major. It allows a student, working with an advisor, to design an individual program that must then be approved by the program coordinator.

Communications Core (24 credits). These courses, all at or above the 200 level, must be chosen from communication studies, journalism, and writing (or ENG 205 or 305), with 12 credits from one department and six credits from each of the other two. Prerequisite communications courses are COM 100 and WRT 105.

Methodology Course (3 credits). Students may select COM 206, 381, 382, 383, HDF 202, PSY 300, or STA 308.

Major Seminar (BGS 398 [**capstone**]) (3 credits). Students take this course near the end of their degree program, as it gives them an opportunity to review and evaluate the skills and knowledge they have acquired through their major.

Area of Emphasis (15 credits). With the help of an advisor, students select 15 credits that will comprise an area of emphasis, which may be used either to further develop skills in communications or for study in related areas. This area of emphasis must be approved by an advisor and the program coordinator by the beginning of the student's junior year.

BUSINESS INSTITUTIONS MAJOR

Students interested in the broad field of business will be interested in this major. This is a fully prescribed program with a specific list of required courses (course codes in parentheses refer to the former codes for these courses):

BUS 110 Business Computing Applications (BAC 110) or CSC 101, Computing Concepts
BUS 111 Introduction to Business Analysis and Applications (BAC 120) or MTH 131, Applied Calculus I

BUS 201	Financial Accounting (ACC 201)
BUS 202	Managerial Accounting (ACC 202)
BUS 210	Managerial Statistics I (BAC 201) or STA 308, Introductory Statistics
BUS 315	Legal and Ethical Environment of Business I (BSL 333)
BUS 320	Financial Management (FIN 301)
BUS 340	Organization and Management Theory I (MGT 301)
BUS 355	Operations and Supply Chain Management (MSI 309)
BUS 365	Marketing Principles (MKT 301)
ECN 201	Principles of Economics: Microeconomics
ECN 202	Principles of Economics: Macroeconomics
WRT 227	Business Communications Business Elective (3 credits)

In addition to the courses above, 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.

HEALTH SERVICES ADMINISTRATION MAJOR

This interdisciplinary major offers students a broad overview of the health care system, while allowing them to focus on a specific area of interest. The program provides strong preparation for entry or midlevel managerial and supervisory positions in organizations such as skilled nursing facilities, adult day care centers, home health care agencies, hospitals, clinics, laboratories, physicians' offices, governmental and regulatory agencies, and health plans. This course of study may also be applied in industries related to the health field, such as research and development, pharmaceuticals, and the insurance or computer industry. Graduates are eligible to sit for the Rhode Island exam for nursing home licensure, through courses taken in the area of emphasis.

This major is appropriate for students who have no previous exposure to this field, and for those who may already be employed in the field and are looking for a degree to give them the skills and knowledge to assume more significant responsibilities.

This major is also appropriate for students with 2-year allied health degrees who wish to continue their undergraduate studies. In most cases, a substantial portion of credits earned in the 2-year program will transfer toward the bachelor's degree.

Major Courses (30 credits)

BUS 201	Financial Accounting (formerly ACC 201)
ECN 201	Principles of Economics: Microeconomics
ECN 360	Health Economics
HDF 202	Research Perspectives in Human Development & Family Studies
HDF 357	Family and Community Health
HSA 360	Health Services Administration
HSA 380	Introductory Health Services Practicum
PHL 314	Ethical Problems in Society and Medicine
PSC 481	Political Science Seminar: Health Care Policy and Politics
SOC 224	Health, Illness, and Medical Care

Areas of Emphasis within the Health Services Administration Major (18 credits): Students fulfill the area of emphasis requirement by choosing from existing minors (see page 35), or by designing an area of emphasis to fit the student's experience and career interests.

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 departments in the College of Arts and Sciences: economics, 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. 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 HDF 202. In exceptional cases, students may be allowed to meet the methods requirement by taking PSY 300, SOC 301, or STA 220.

Major Seminar (BGS 397 [capstone], 3 credits). Students 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.

Area of Emphasis (15 credits). The area of emphasis provides the student with an opportunity to select a group of courses that focus on a particular problem or population of interest. Once a particular focus is identified, students select 15 credits at or above the 300 level from a wide variety of departments. The advisor and the B.G.S. coordinator must approve the Area of Emphasis.

Registration and Admission

Students must enroll in courses 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 (description follows). 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 with little or no course work beyond high school are encouraged to register in the Pro-Seminar (BGS 100), and Traditions and Transformations (URI 101B) (see page 77).

Any adult may enroll as a nonmatriculated student in ASFCCE. Most 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 available on the Providence campus Web site at uri.edu/prov. Our online schedule contains up-to-date course offerings and fees, and is available during the registration periods. You may also contact ASFCCE for a printed course schedule at 80 Washington Street, Providence, RI 02903; 401.277.5160.

Application Procedure. A student who wishes to enroll in an undergraduate degree program at ASFCCE should begin by scheduling an interview with an academic advisor to explore the options available and to discuss the student's previous educational experiences. The student then fills out an admission application and provides the necessary transcripts and other paperwork.

Once a student is admitted to an undergraduate degree program, he or she should consult frequently with the advisor. The student and advisor will fill out a program worksheet that lists the courses necessary to complete the degree.

Alternate Ways to Earn Credit. ASFCCE recognizes a number of ways to earn college credits. Students may take CLEP (College Level Examination Program) exams in a wide variety of areas to earn credit. Students may also participate in the Prior Learning Assessment (PLA) program to document college-level learning acquired outside the college classroom. Credit is also available for some military training and employer-sponsored training. Contact an academic advisor for more information.

Services for Students

The ASFCCE provides a number of services for students, including free academic advising, peer counseling, career counseling, tutoring, writing assistance, services for students with disabilities, and counseling and testing services. The Providence campus also has a bookstore, a library, and a snack bar, plus a comfortable student lounge area where students and faculty can meet, talk, and relax.

Fees and Finances

Tuition and fees for ASFCCE students are given on page 20 of this catalog. They may also be found in the course schedules for the current term. The registration fee is not refundable except when URI cancels or closes a course. The Student Services Fee supports a student government, and various lectures and cultural events determined by an activities board of elected ASFCCE students. Fees for Special Programs courses vary (consult the course schedule or contact the Special Programs Office). For information on refunds, refer to page 22 of this catalog.

Financial Aid. Financial Aid advising is available to all ASFCCE students through our Admission and Advising Office. Only matriculated students enrolled on at least a half-time basis (six credits) may be considered for an award. Student Financial Assistance 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 this office.

A limited number of scholarships are available to students matriculating at ASFCCE. Students are required to complete a FAFSA application to be considered. For a brochure, call 401.277.5160.

COLLEGE OF ENGINEERING

Raymond M. Wright, *Dean*
George E. Veyera, *Interim Associate Dean*

URI Engineering's Mission. The College of Engineering (COE) is a diverse community of scholars, learners, and professional staff dedicated to the development and application of advanced technologies, and working together to enhance the quality of life for all. We are creative problem solvers, innovators, inventors, and entrepreneurs, applying our skills for the advancement of knowledge, service to our community, and the economic development of the state of Rhode Island and beyond. We prepare our graduates to be global leaders in a wide range of engineering disciplines and to create new knowledge, products, and services.

Expected Learning Outcomes. As required by the criteria of ABET, Inc., the national Accreditation Board of Engineering and Technology, graduates receiving baccalaureate degrees in all engineering disciplines will demonstrate:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multi-disciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

- (i) a recognition of the need for, and an ability to engage in, life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Engineers from all fields are heavily involved in the solution of technological and socio-technological problems; industry's needs are for balanced teams of both men and women from different engineering areas. Therefore, the college's goal is to stimulate our 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 the world and, consequently, in all branches of engineering.

The College of Engineering (COE) offers undergraduate majors in biomedical, chemical, chemical and ocean, civil, computer, electrical, industrial, mechanical, and ocean engineering. In addition, an ocean option is available in mechanical engineering. Because the same fundamental concepts underlie all branches of engineering, the freshman-year courses are quite similar for all curricula, 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 curriculum for chemical or mechanical engineering for two or three years and enroll in several ocean engineering courses in the junior and senior years. All of the engineering curricula are based on an intense study of mathematics and the basic sciences supporting the fundamentals of each engineering discipline. These principles are applied to the understanding and solution of problems of current interest and importance 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 engineering and science disciplines.

Curriculum Requirements

Entering engineering students who have chosen a specific major should follow the particular program listed in this section. It is recommended that those students who have decided to major in engineering but have not selected a specific program take the following courses: CHM 101 and 102, EGR 105, MTH 141, PHY 203 and 273, and a general education requirement during their first semester. 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.

Students who are undecided about engineering but wish to keep it open as an option should note that MTH 141, 142; PHY 203, 204 and 273, 274; 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 (UC) to the COE.

To transfer from UC to the COE, students must not only complete at least 24 credits (including transfer credits) with a grade point average of 2.00 or better, they must also have completed 20 credits from the following list of required courses with a grade point average of 2.00 or better: MTH 141, 142; CHM 101/102; PHY 203/273; EGR 105, 106; and either PHY 204/274 or CHM 112/114.

To meet graduation requirements, students enrolled in the COE must satisfactorily complete all courses of the curriculum in which they are registered and obtain a grade point average of 2.00 or better in all required science, mathematics, and engineering courses (including professional electives). Students are also required to complete an exit survey at least one semester prior to their anticipated graduation date. At the discretion of the dean, students who do not demonstrate satisfactory progress may be required to leave the COE.

Student Advisement. Engineering students are advised by engineering faculty members. While the student is in University College (UC), the advising takes place at UC; once the student transfers to the COE, advising takes place at the departmental level. The office of the Associate Dean of Engineering provides non-routine advising.

General Education Requirements. Engineering students must meet URI's general education requirements listed on pages 33–35, 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 met department-specific course requirements. The requirements in mathematics and natural sciences are satisfied by required courses in the engineering curricula.

Computers. The Engineering Computer Center (ECC), located in the Chester H. Kirk Center for Advanced Technology, supports the teaching and research activities of the College of Engineering. The ECC has a quad processor Dell PowerEdge server providing centralized services for PC file and print sharing, license serving, email, and Web applications. Both wireless and cabled network access are available. Students are assigned computer accounts upon entering the COE and use these accounts until they graduate. Email accounts are also provided. These are maintained separately and do not expire.

There are 85 networked PCs available at the ECC for student use. These are incorporated into two classrooms with projection systems, a main student work area, and two side project/study rooms. Also provided are two scanners, four laser printers, a color laser printer, and a large-scale pen plotter. Areas are available for students to set up their own laptops for access to software, printers, and the network. Available installed software includes Abaqus, Adobe Acrobat,

Adobe PhotoShop, Aspen, AutoCAD, EES, LabView, Maple, MatLab, Microsoft Office, Microsoft Visual Studio, Minitab, Multisim, SolidWorks, and Working Model.

In addition to providing the computer technologies that engineering students rely on for their course work, the ECC provides faculty members with the resources necessary for their teaching and research commitments, through the use of network services, interactive multimedia classrooms, and the expertise of the ECC staff in identifying and procuring hardware and software.

A new 30-seat classroom, called the *Discovery Center*, was added to the ECC in 2008. This state-of-the-art multimedia computer classroom has dual-monitor PCs for the students; an instructor podium with tablet monitors and the ability to interact with any of the student PCs; eight wide-screen, flat-panel TV monitors; and two large screen projectors. This room is heavily used for our introductory freshman engineering classes, where students are introduced to the College of Engineering, engineering career paths, engineering problem solving, teamwork, hands-on projects, and software with applications that they will use in other engineering classes during their time at URI. *The Discovery Center* is also used by other engineering classes and is available to all engineering students for general use during the evenings and in between classes.

The Department of Chemical Engineering has a senior computing room with PCs and a junior computing room, also with PCs. Several specialized software packages such as Aspen and FEMLAB are available on these computers for undergraduate teaching and research. Printers are located in all the computer rooms, and a dedicated large-scale plotter is available in the department.

The Department of Civil and Environmental Engineering has two computational facilities. The CADD Laboratory contains 22 state-of-the-art computers, two large-format plotters, and several printers; it is also equipped with a direct projection multimedia system. In addition to AutoCAD, other software packages are available in this laboratory including AutoCOGO, CIVIL,

CONSOL, Darwin, Eaglepoint, HCS, Land Development Desktop, MicroPaver, RSS, PCSTABL, RamSteel, Seep/W, Sewer-CAD, Slope/W, SRWALL, STAADPro, SURVEY, Synchro, TransCAD, TSIS, WaterCAD, ZStress, and others. Modern geomatics and surveying equipment (funded by the Champlin Foundations) including electronic Total Station and GPS for field data acquisition are linked to the CADD lab computers, printers, and plotters for graphic GIS representation and analysis. The senior Capstone Design Project Studio has six computers used by the design teams during the integrated **capstone** design project.

The Department of Electrical and Computer Engineering has numerous multiprocessor Linux and UNIX servers. The primary servers feature hardware raid and fiber-optic gigabit network connections. The main computing lab hosts 14 general use, dual-monitor Linux work stations, many of which have dual-core processors. These machines are available 24 hours a day to all students in the department. In addition, there are approximately 50 Linux workstations and 40 Windows systems dispersed throughout laboratories and offices. Available software includes Matlab for signal processing, HSPICE for analog circuit simulation, Quartus for FPGA simulation and design, as well as thousands of open-source applications. Numerous laser printers are available, including duplex (two-sided) and color variants. Wireless network access is available throughout the department.

The Department of Mechanical Engineering has a computer classroom that includes 25 networked PC workstations, two high-speed laser printers, and a direct projection system for classroom and seminar presentations. Application software includes SolidWorks, Working Model, Matlab, Abaqus, Algor, Excel, FEMLAB, Maple, Engineering Equation Solver, Compact 2-D (CFD) and others. In addition, laboratories in the Mechanical Engineering Department are equipped with a variety of computers for computational modeling studies, high-speed data acquisition, and control of mechanical devices.

The Department of Ocean Engineering has a computer laboratory at the Narragansett Bay Campus to support both their education and research programs. The laboratory is permanently accessible to students, both physically (in two computer rooms located in the Middleton Building, with electronic code access) and remotely through the Internet. The laboratory is equipped with nine Pentium IV and five dual-core PC workstations, two laser printers, and an 8-processor Microways Opteron computer cluster running UNIX. Each PC features, as a minimum, MatLab, Word, Excel, PowerPoint, LaTeX, Scientific Word, Netscape/Explorer, AUTOCAD, LabView, SolidWorks, and email software. The cluster has an MPI parallel FORTRAN compiler.

Minors and Double Majors. Students wanting to obtain strengths in other areas of academic specialization and yet remain in engineering are encouraged to do so by completing either a minor (please refer to page 35) or double major.

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, COE offers a five-year program in which students earn two degrees: a Bachelor of Science in engineering and a Bachelor of Arts in a foreign language. The foreign languages currently offered by the IEP are Chinese, German, French, and Spanish. In addition to their engineering and language-related courses, students spend six months abroad in a professional internship in Europe, Latin America, the Caribbean, or Asia. Upon graduation, students are well prepared to compete in the global marketplace. To enroll, an engineering student simply registers and follows the recommended outline of courses for the specific language. In 1992, the IEP was selected as the recipient of the Award for Educational Innovation by ABET, the national Accreditation Board for Engineering and Technology (currently known as ABET, Inc.).

Engineering and M.B.A. Program. This five-year program offers students the opportunity to earn a Bachelor of Science in engineering and a Master of Business Administration (M.B.A.). Students with a GPA of 3.00 or better may enroll during their senior year with successful completion of the Graduate Management Admissions Test (GMAT).

Cooperative Education Program. Optional for juniors and seniors (with a GPA of at least 2.50) in all engineering departments, the Cooperative Education Program assists students with placements for part-time or full-time work directly related to a student's field of study. Enrollment information may be obtained from the Dean's Office, 102 Bliss Hall.

Accreditation. A national accrediting organization, ABET, Inc. (formerly known as Accreditation Board for Engineering and Technology, or ABET) established in 1933 and composed of representatives from technical societies, assures professional standards through periodic evaluations of the programs of the college. ABET, Inc. may be contacted at 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 or by phone at 410.347.7700.

Continuous accreditation of URI's engineering programs by ABET, Inc. has been in place since 1936 for the curricula of civil, electrical, and mechanical engineering, 1954 for chemical engineering, 1957 for industrial engineering, 1992 for computer engineering, 1995 for ocean engineering, and 1989 for the M.S. in manufacturing engineering.

URI's College of Engineering is a member of the American Society for Engineering Education (ASEE).

Graduate Degrees. Graduate study is available in the College of Engineering at the Master of Science and Doctorate (Ph.D.) level. For a listing of advanced degrees, see the "Graduate Programs" section of this catalog.

Biomedical Engineering

The Bachelor of Science (B.S.) degree in biomedical engineering is offered by the Department of Electrical, Computer, and Biomedical 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.

Coordinator: Professor Ying Sun (Electrical, Computer, and Biomedical Engineering). Professors Boudreaux-Bartels, Jackson, Kumaresan, and Ohley; Associate Professor Vetter; Assistant Professors Besio and Huang; Adjunct Professor Chiramida.

Program Educational Objectives. The biomedical engineering program at URI has four primary objectives:

- 1) Produce graduates who are able to practice biomedical engineering to serve hospitals, government agencies, national, state, regional, and international industries.
- 2) Produce graduates with the necessary background and technical skills to work professionally in one or more of the following areas: biomedical electronics, medical instrumentation, medical imaging, biomedical signal processing, rehabilitation engineering, and medical informatics.
- 3) Prepare graduates for personal and professional success with awareness and commitment to their ethical and social responsibilities, both as individuals and in team environments.
- 4) Prepare graduates who are capable of entering and succeeding in an advanced degree program in a field such as engineering, science, business, or medicine.

Program Description. Biomedical engineering is an interdisciplinary area in which engineering techniques are applied to problem solving in the life sciences and medicine. Biomedical engineers design medical instruments for diagnosis and the treatment of various diseases as well as for research in biology. Examples of instruments for diagnosis include electrocardiographs, electroencephalographs, automatic blood

analyzers, and medical imaging systems such as X-ray imaging, radio-nuclide imaging, ultrasound imaging, computer-assisted tomography, and magnetic resonance imaging. Examples of instruments for treatment include radiotherapy machines, pacemakers, cardiac-assist devices, intelligent drug delivery systems, and lasers for surgery. Biomedical engineers develop artificial organs for prosthesis and various computer software and hardware systems to help provide high-quality, cost-effective health care.

Biomedical engineers are employed in the medical instrument industry, where they invent, design, manufacture, sell, and service medical equipment; hospitals, where they evaluate, select, maintain, and provide training for the use of complex medical equipment; and medical and biological research institutes, where they use unique analytical ability and instrumentation skills to conduct advanced research.

URI's biomedical engineering program combines study in the biological sciences with the areas of engineering that are particularly important for the application of modern technology to medicine. This curriculum is designed to provide students with not only a general background in biomedical engineering but also a special focus on the skills in electrical engineering necessary for developing medical devices. 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 engineering program.

For transfer from University College to the College of Engineering in the biomedical engineering program, students must have completed *all science, mathematics, and engineering courses required during the first two semesters* with a grade point average of 2.00 or better.

Minimum Requirements

The major requires 128–129 credits.

Humanities and Social Sciences (27 credits): see the general education requirements for the College of Engineering. Students should consult with their advisors regarding distribution of credits and approved courses (ECN 201 is included in 27-credit total).

Mathematics (at least 14 credits): MTH 141, 142, 243, 362, and technical elective.

Basic Sciences (26 credits): CHM 101, 102, 124; PHY 203, 273, 204, 274; BIO 121, 242, 244, 341.

Statistics (3 credits): STA 409.

Engineering Sciences and Design (55–56 credits): BME 181, 207, 281, 307, 360/361, 461, 462, 464/465, 468, 484, 485; EGR 105, 106; ELE 201/202, 212, 215, 313, 314, 338/339, 400; one technical elective (chosen from CHE 333, 347, 574; CSC 522; ELE 322, 343/344, 423, 435/436, 437, 438, 444/445, 447/448, 458/459, 501, 506; ISE 404, 412; MCE 341, 354, 372; MTH 363, 442, 444, 451, 461, 462, 464, 471, 472).

Free Elective: 3 credits.

Freshman Year

First semester: 16 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); PHY 203 (3), 273 (1), and ECN 201 (3).

Second semester: 17 credits

BME 181 (1); CHM 124 (3); EGR 106 (2); MTH 142 (4); PHY 204 (3), 274 (1); and general education requirement (3).

Sophomore Year

First semester: 18 credits

BIO 121 (4); BME 281 (1); ELE 201 (3), 202 (1); MTH 362 (3), and general education requirements (6).

Second semester: 15 credits

BIO 242 (3), 244 (1); BME 207 (3); ELE 212 (3), 215 (2); MTH 243 (3).

Junior Year

First semester: 16 credits

BIO 341 (3); BME 307 (3); ELE 313 (3), 338 (3), 339 (1); and general education requirement (3).

Second semester: 16 credits

BME 360 (1), 361 (1); ELE 314 (3); STA 409 (3); general education requirement (3); and free elective (3).

Senior Year

First semester: 15–16 credits

BME 461 (3), 462 (3), 484 (2); ELE 400 (1); technical elective (3–4; see above); and general education requirement (3).

Second semester: 15 credits

BME 464 (3), 465 (1), 468 (3), 485 (2), and general education requirement (6).

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, Inc. In cooperation with the Department of Ocean Engineering, the department offers a curriculum leading to the Bachelor of Science degree in chemical and ocean engineering (not accredited). The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

Faculty: Professor Bose, *chair*. Professors S. Barnett, R. Brown, Gregory, Knickle, and Lucia; Associate Professors Gray, Greenfield, and Rivero-Hudec; Assistant Professor Bothun; Associate Research Professors Crisman and Park; Adjunct Assistant Professor Trotter; Professors Emeriti Rockett and Rose.

The chemical engineer is concerned with the application and control of processes leading to changes in chemical composition. These processes are most frequently associated with the production of useful products (chemicals, fuels, metals, foods, pharmaceuticals, paper, plastics, and

the like), but also include processes such 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 thermodynamics, transport phenomena, mass transfer operations, materials engineering, process dynamics and control, kinetics, and plant design. The student has the opportunity to operate small-scale equipment and to visit local industry. Intensive work is undertaken in the solution of complex problems in which economics and optimization of engineering design are emphasized.

The Department of Chemical Engineering has introduced a new biology track into its curriculum. The primary motivation is to respond to advances in our understanding of biological processes at the molecular and macroscopic levels, and the unique opportunity for chemical engineers to translate that understanding to useful processes. The application of the chemical engineering paradigm to biology will enable graduates to develop new molecular biology tools; drug delivery systems; artificial skin, organs and tissues; sensors and alternative fuels; and to integrate new bio-products into existing materials. The new curriculum is founded on the core principles of transport phenomena, unit operations, thermodynamics, and reaction kinetics. Students opting for this track will take a series of five courses in the Biochemistry and Cell and Molecular Biology departments. Besides preparing students for the biotechnology industry, this combination of biology, chemical engineering, and chemistry courses is relevant to those considering medical school.

Department Mission Statement and Program Objectives.

Consistent with missions of the University and the College of Engineering, URI's Department of Chemical

Engineering seeks to prepare students to practice professionally in the fields of chemical engineering through the provision of high quality undergraduate and graduate educational programs, to provide an environment for satisfying faculty career development, and to maintain a world-renowned scholarly research program.

Program Educational Objectives. The chemical engineering program at URI has four primary objectives:

1) Produce graduates who are able to successfully practice chemical engineering to serve state, local, national, and international industries, and government agencies.

2) Produce graduates with the necessary background and technical skills to work professionally as individuals or in teams in chemical engineering practice or in graduate schools.

3) Prepare graduates for personal and professional success with an understanding and appreciation of ethical behavior, social responsibility, and diversity, both as individuals and in team environments.

4) Prepare graduates to be interested, motivated, and capable of pursuing continued lifelong learning through further graduate education, short courses, or other training programs in engineering or related fields.

URI's chemical engineering program is more than just a collection of courses and credit hours whose content reflects the required criteria. The program has also been carefully designed to prepare students for the profession of chemical engineering through study, experience, and practice. Through eight specific program goals, the Department of Chemical Engineering at URI seeks to:

1) provide the necessary background in science, particularly chemistry, physics, and advanced mathematics through the study of differential equations, so that students will be able to continue their education in the engineering sciences, with depth of understanding, and learn to apply these subjects to the formulation and solution of engineering problems;

2) provide a broad cross section of fundamental engineering science courses, including some from other engineering disciplines so that our students will acquire an understanding of the way in which chemistry, physics, and mathematics have been and continue to be used to solve important engineering problems relevant to the general chemical engineering and engineering design;

3) provide students with experience in conducting and planning experiments in the modern engineering laboratory, including interfacing experiments with computers as well as interpreting the significance of resulting data and properly reporting results in well-written technical reports;

4) provide experience in the process of original chemical engineering design in the areas of equipment design, process design, and plant design through the process of formulating a design solution to a perceived need and then executing the design and evaluating its performance, including economic considerations and societal impacts if any, along with other related constraints, culminating in both written and oral presentations of results;

5) provide experience with the multifaceted aspects of using computers to solve problems and present results with word processing, spreadsheet, presentation, and professional-level applications software used for design and analysis; and provide for obtaining and using information on the World Wide Web;

6) provide a familiarity with professional issues in chemical engineering, including ethics, issues related to the global economy and to emerging technologies, and fostering of important job-related skills such as improved oral and written communications and experience in working in teams at a number of levels;

7) encourage students to become actively engaged in the student chapter of the American Institute of Chemical Engineers and other student organizations, and to continue these associations after graduation with an emphasis on the importance of lifelong professional development including the desirability of attending graduate

school or otherwise obtaining continuing or advanced education; and

8) make available continuous individual advising throughout the entire undergraduate educational experience to insure that each student makes the most of the educational opportunities provided by URI, particularly those related to general education electives that might enhance an engineering education, and special programs such as internships, cooperative experience and especially the International Engineering Programs in Chinese, German, French, and Spanish which are a unique opportunity available to globally motivated URI engineering students.

The major requires 129–130 credits.

Freshman Year

First semester: 16 credits

CHM 101 (3), 102 (1), EGR 105 (1), MTH 141 (4), PHY 203 (3), PHY 273 (1), and general education requirement (3).

Second semester: 17 credits

CHM 112 (3), 114 (1), EGR 106 (2), MTH 142 (4), PHY 204 (3), 274 (1), and ECN 201 (3).

Sophomore Year

First semester: 15–16 credits

CHE 212 (3), CHM 291 (4) or CHM 227 (3), MTH 243 (3), and general education requirements (6).

Second semester: 15–16 credits

CHE 272 (3), 313 (3), 332 (3); CHM 228 or BCH 311, or an approved advanced chemistry course (3), and MTH 244 or 362 (3).

Junior Year

First semester: 17 credits

CHE 314 (3), 347 (3), CHM 431 (3), 335 (2), approved mathematics elective (3), and general education requirement (3).

Second semester: 15 credits

CHE 348 (3), 464 (3), CHM 432 or approved department elective that meets accreditation requirements (3), and general education requirements (6).

Senior Year

First semester: 17 credits

CHE 328 (1), 345 [capstone] (2), 349 (2), 351 [capstone] (3), 425 (3), and approved professional elective (3), and general education requirement (3).

Second semester: 17 credits

CHE 346 [capstone] (2), 352 [capstone] (3), approved professional electives (9), and general education requirement (3).

Chemical and Ocean Engineering. As of June 2009, new admissions to this program have been suspended. Students enrolled in this curriculum follow the program of study for chemical engineering during their freshman, sophomore, and junior years, with OCG 451 as the junior year department elective. The senior year curriculum follows.

The major requires 134–136 credits.

Senior Year

First semester: 18 credits

CHE 328 (1), 349 (2), 351 [capstone] (3), 403 [capstone] (3), 425 (3), and approved professional elective (6).

Second semester: 19 credits

CHE 352 [capstone] (3), 404 [capstone] (3), 534 (3), OCE 311 (4), and general education requirements (6).

Biology Track in Chemical Engineering.

Students enrolled in this curriculum will follow a program similar to the traditional chemical engineering curriculum, but with biology and biochemistry courses replacing some of the other technical and science courses. Total credits: 133.

Freshman Year

First semester: 16 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); PHY 203 (3), 273 (1), and general education requirement (3).

Second semester: 17 credits

BIO 101 (4); CHM 112 (3), 114 (1); EGR 106 (2); MTH 142 (4); and ECN 201 (3) or general education requirement.

Sophomore Year

First semester: 18 credits

CHE 212 (3), 227 (3); MTH 243 (3), and general education requirements (9).

Second semester: 15 credits

BCH 311 (3); CHE 272 (3), 313 (3), 332 (3); and MTH 244 (3) or 362 (3).

Junior Year

First semester: 16 credits

BIO 341 (3); CHE 314 (3), 347 (3); PHY 204 (3), 274 (1), and general education requirement (3).

Second semester: 17 credits

CHE 348 (3), 464 (3); MIC 211 (4), BIO 352 (4), and general education requirements (3).

Senior Year

First semester: 17 credits

CHE 328 (1), 345 [capstone] (2), 349 (2), 351 [capstone] (3), 425 (3), approved professional elective (3), and general education requirement (3).

Second semester: 17 credits

CHE 346 [capstone] (2), 352 [capstone] (3); BIO 437 (3), an approved professional elective (3), approved math elective (3), and general education requirements (3).

Pharmaceutical Track in Chemical Engineering.

Biopharmaceuticals is one of the fastest growing industrial sectors both in the United States and worldwide, with a projected growth rate of ten percent per year for the foreseeable future. Driving this rapid growth are the worldwide increase in average life span, major developments in our understanding of key factors behind the development of disease, and important innovations in drug formulations and delivery. This growth has created a need for graduates who are well-versed in the basic sciences as well as all technological aspects related to the development process for therapeutic agents—production, scale-up and processing, formulation and delivery, and regulatory constraints. The pharmaceutical engineering B.S. degree program within

chemical engineering serves to meet this need. It combines the well-known strengths of the College of Pharmacy with those of the Department of Chemical Engineering, for a curriculum that will produce leaders in the pharmaceutical industry.

Students follow a curriculum similar to that for traditional chemical engineering, but with biology, biochemistry, and biomedical-and-pharmaceutical-science courses replacing some of the other technical and science courses. The major requires 135 credits.

Freshman Year

First Semester: 16 credits

CHM 101 (3) and 102 (1); EGR 105 (1); MTH 141 (4); PHY 203 (3) and 273 (1), and general education requirements (3).

Second Semester: 17 credits

BIO 101 (4); CHM 112 (3) and 114 (1); EGR 106 (2); MTH 142 (4), and ECN 201 (3) or general education requirements (3).

Sophomore Year

First Semester: 18 credits

CHE 212 (3); CHM 227 (3); MTH 243 (3), and general education requirements (9).

Second Semester: 15 credits

BCH 311 (3); CHE 272 (3), 313 (3), and 332 (3); MTH 244 (3) or 362 (3).

Junior Year

First Semester: 18 credits

BIO 341 (3); BPS 301 (2), 303 (2), and 305 (2); CHE 314 (3) and 347 (3); and general education requirements (3).

Junior Year

Second Semester: 17 credits

CHE 348 (3) and 464 (3); MIC 211 (4); PHY 204 (3) and 274 (1); and general education requirements (3).

Senior Year

First Semester: 17 credits

BPS 425 (3); CHE 328 (1), 345 (2), 349 (2), 351 (3), 425 (3), and 574 (3).

Senior Year

Second Semester: 17 credits

CHE 346 (2), 352 (3), and 548 (3) or approved professional elective (3); approved professional elective (3); and general education requirements (6).

Civil Engineering

The Department of Civil and Environmental Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree in civil engineering. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in civil and environmental engineering. The Bachelor of Science program in civil engineering is accredited by ABET, Inc.

Faculty: Professor Tsiatas, chairperson.

Professors Lee, Veyera, and R. Wright; Associate Professors Baxter, Gindy, Hunter, Karamanlidis, Thiem, and Thomas; Assistant Professor Craver; Adjunct Professors Baird, Harr, and T. Wright; Adjunct Associate Professors Apostol and O'Neill; Adjunct Assistant Professors Badorek, George, and Osborn; Professors Emeriti Kovacs, Marcus, McEwen, Poon, and Urish.

Department Mission Statement. Consistent with the missions of the University of Rhode Island and the College of Engineering, the Department of Civil and Environmental Engineering seeks to prepare students to practice professionally in the national and international marketplace in the field of Civil and Environmental Engineering through the provision of high quality undergraduate and graduate educational programs and research opportunities; provide an environment that encourages and supports faculty career development and professional/community service; actively promote diversity; and maintain a nationally recognized research program.

Bachelor of Science in Civil Engineering (BSCE) Program Mission Statement. Consistent with the mission of the Department of Civil and Environmental Engineering, the BSCE Program will prepare graduates for

successful careers, advanced studies at the graduate level, and lifelong learning based upon a solid foundation of technical ability, high standards of professional ethics, and strong communication skills.

BSCE Program Educational Objectives.

The BSCE program at URI has four primary objectives:

- 1) Produce graduates who are able to successfully practice civil engineering to serve local, state, regional, national and international industries, and government agencies.
- 2) Produce graduates with the necessary background and technical skills to work professionally in one or more of the following areas: environmental engineering, geotechnical engineering, structural engineering, transportation engineering, water resources engineering.
- 3) Prepare graduates for personal and professional success with awareness of and commitment to their ethical and social responsibilities, and diversity, both as individuals and in team environments.
- 4) Prepare graduates to be interested in, motivated for, and capable of pursuing continued lifelong learning through further graduate education or other training programs in engineering or related fields.

BSCE Program Outcomes. URI's BSCE program will prepare graduates for successful careers and advanced graduate studies based upon a solid foundation of technical ability, high standards of professional ethics, and strong communication skills. Program outcomes describe what the students are expected to know and have the ability to do by the time of graduation. The attainment of these outcomes indicates that the student is equipped to achieve the BSCE program educational objectives. The outcomes for the BSCE program are as follows:

- 1) An appropriate fundamental understanding of mathematics, physics, chemistry, geology, and other basic sciences.
- 2) Basic computer skills consistent with application to civil engineering problem-solving.

3) Basic engineering knowledge across a range of subjects including mechanics, mechanics of materials, engineering construction materials, statics, dynamics, fluid mechanics, and CADD.

4) An understanding of basic economics, together with approaches to economics-based decision-making.

5) A working knowledge of probability and statistics as applied to civil engineering problems.

6) Basic technical proficiency in at least four of the recognized civil engineering focus areas.

7) An understanding of the interdisciplinary approach in civil engineering problem-solving and design at the design project level through an integrated **capstone** design project experience.

8) Experience with individual and team-based approaches to civil engineering problem solving in the classroom, laboratory, and through an integrated **capstone** design project experience.

9) Practical and hands-on laboratory experience solving civil engineering problems involving measuring physical phenomena and interpreting results.

10) An understanding of ethics of engineering activities, professional standards and responsibilities, the relationships between engineering and society in general, and the necessity for lifelong learning.

11) Well-developed written communication skills, and experience with oral communications, both individually and on teams.

12) A broad understanding and global perspective of society in general by exposure to fine arts, literature, letters, foreign language or culture, social science, and English communications.

13) An opportunity to obtain membership in and become active in the student chapter of the American Society of Civil Engineers, develop teamwork and leadership skills, and participate in service activities related to the local community and the civil engineering professional society.

Civil engineers are responsible for researching, developing, planning, designing, constructing, and managing many of the complex systems and facilities essential to modern civilization. These include environmental engineering systems; 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; and all types of geotechnical systems from foundations to dams. Civil 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 students with an excellent background to pursue graduate study or to enter directly into professional practice in industry or government after graduation. The first year is devoted largely to courses in mathematics, chemistry, physics, and engineering science common to all engineering curriculums. During the sophomore year, students take three courses in civil engineering including mechanics of materials and two laboratories. In their last two years, students develop a proficiency in environmental engineering, geotechnical engineering, structural engineering, and transportation engineering. They can also meet their own professional goals through the selection of professional electives in these areas as well as construction management. Professional electives are selected in consultation with the student's advisor to satisfy ABET, Inc.'s accreditation requirements.

The major requires 128 credits.

Freshman Year

First semester: 16 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); PHY 203 (3), 273 (1), and general education requirement (3).

Second semester: 16 credits

EGR 106 (2); MTH 142 (4); PHY 204 (3), 274 (1); ECN 201 (3) (S), and general education requirement (3).

Sophomore Year

First semester: 17 credits

CVE 205 (1); MCE 262 (3); MTH 243 (3), GEO 103 (4); and general education requirements (6).

Second semester: 16 credits

CVE 220 (3), 230 (1); MCE 263 (3); MTH 244 (3), and general education requirements (6).

Junior Year

First semester: 17 credits

CVE 346 (3), 354 (3), 355 (1), 374 (3), 381 (3), 382 (1), and MCE 354 (3).

Second semester: 17 credits

CVE 370 (3), 375 (1), 347 (3), 348 (1); STA 409 (3), general education requirement (3), and one 3-credit engineering elective (details follow).

Senior Year

First semester: 14 credits

CVE 465 (3), 497 [**capstone**] (2), general education requirement (3), and two 3-credit professional electives (details follow).

Second semester: 15 credits

CVE 483 (3), 498 [**capstone**] (3), free elective (3), and two 3-credit professional electives (details follow).

Electives. Three of the twelve credits of required professional electives must be selected from the following courses: CVE 470, 471, 475, 478. The remaining nine credits are to be selected from the list in the Civil Engineering Undergraduate Student Handbook. It is recommended that students consider selecting from the Civil Engineering professional elective courses to satisfy the free elective requirement. The three credits of engineering electives are to be selected from the list in the Civil Engineering Undergraduate Student Handbook.

Computer Engineering

The Bachelor of Science (B.S.) degree in computer engineering is offered by the Department of Electrical, Computer, and Biomedical Engineering and is accredited by ABET, Inc. Specialization in computer engineering is also available within the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) programs in electrical engineering.

Coordinator: Professor Lo (Electrical, Computer, and Biomedical Engineering). Professors Ohley and Qing Yang; Associate Professor Sendag; Assistant Professor Yan Sun; Professor-in-Residence Uht.

Program Educational Objectives. The objectives of the computer-engineering program at URI are the following:

- 1) Produce graduates who are able to practice computer engineering to serve government agencies and state, regional, national, and international industries.
- 2) Produce graduates with the necessary background and technical skills to work professionally in one or more of the following areas: computer hardware and software design, computer-based systems, network design, system integration, or electronic design automation.
- 3) Prepare graduates for personal and professional success with awareness and commitment to their ethical and social responsibilities, both as individuals and in team environments.
- 4) Prepare graduates who are capable of entering and succeeding in an advanced degree program in a field such as engineering, science, or business.

Program Description. Digital computer and communication systems have transformed society in a profound way. The examples range from super powerful scientific computers, the Internet and the World Wide Web, to cell phones and smart cards. Traditionally, computer engineering has been a discipline that combines both electrical engineering and computer science. The URI computer engineering program is thus

designed so the students will have a strong foundation in the relevant fields of electrical engineering and computer science, while establishing themselves with the latest computer engineering topics, such as advanced computer system architecture, design and programming, computer communication, electronic design automation, and high-level digital design methodologies.

The computer engineering core courses can be categorized as follows: (1) ELE 208/209, 305, and 408/409 are core courses for computer system architecture and hardware and software organization and interaction. (2) ELE 201/202, 306/307, and 405/406 are the core courses for digital design with electronic design automation and rapid prototyping, and for computer system integration. (3) ELE 313 and 437 and CSC 412 are core courses for computer communication and networks. The computer engineering program has two computer engineering electives and one free elective in the senior year so students can further expand into areas such as signals and systems, digital control, electronics, and computer software.

The computer engineering program culminates in the senior year with two major design experiences. First, ELE 408/409 is where all the skills accumulated through the curriculum will be employed in a group senior design project. Second, ELE 480 and 481 provide each student with the opportunity to work in a multi-disciplinary team in a senior **capstone** design project.

Graduates from the program go on to positions in both government agencies and the private sector, or enter graduate school for further study. Many computer engineering undergraduate students work with faculty on research projects before entering graduate school.

To transfer from University College to the College of Engineering's computer engineering program, students must have completed *all science, mathematics, and engineering courses required during the first two semesters* with a grade 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. Students should consult their advisors regarding distribution of credits and approved courses. (ECN 201 is included in the 27-credit total.)

Mathematics (20 credits): MTH 141, 142, 243, 362, 447, 451.

Basic Sciences (12 credits): CHM 101, 102; PHY 203, 273, 204, 274.

Computer Science (at least 8 credits): CSC 211, 212, and CE electives.

Engineering Sciences and Design (44 credits): ELE 201/202, 208/209, 212, 215, 301/302, 305, 313, 338/339, 400, 405/406, 408/409, 437, 480, 481.

Computer Engineering Elective (9–12 credits): Three courses from: BME 464/465, any ELE 300- to 400-level course not otherwise required by the major, any ELE 500-level course with petition, and CSC 301, 305, 402, 406, 412, 415, 436, 481, 485, and 486.

Free Elective (3 credits): Any course may be used as a free elective.

College of Engineering (3 credits): EGR 105, 106.

The major requires 126–129 credits.

Freshman Year

First semester: 16 credits

MTH 141 (4); CHM 101 (3), 102 (1); PHY 203 (3), 273 (1); EGR 105 (1), and general education requirement (3).

Second semester: 16 credits

ELE 208 (2), 209 (1); MTH 142 (4); PHY 204 (3), 274 (1); ECN 201 (3), and EGR 106 (2).

Sophomore Year

First semester: 17 credits

ELE 201 (3), 202 (1); MTH 362 (3); CSC 211 (4), and general education requirements (6).

Second semester: 15 credits

ELE 212 (3), 215 (2); MTH 243 (3); CSC 212 (4), and general education requirement (3).

Junior Year

First semester: 16 credits

ELE 305 (3), 313 (3), 338 (3), 339 (1); MTH/CSC 447 (3), and general education requirement (3).

Second semester: 16–17 credits

ELE 301 (3), 302 (1); MTH 451 (3); computer engineering elective (3–4; details follow), and general education requirements (6).

Senior Year: (30–32 credits)

ELE 400 (1), 405 (3), 406 (1), 408 (3), 409 (1), 437 (3), 480 (3), 481 (3), computer engineering elective (6–8; details follow), free elective (3), and general education requirement (3).

Electives. Nine or more credits from the following courses: BME 464/465; any ELE 300- or 400-level course not otherwise required by the major, any ELE 500-level course with petition, and CSC 301, 305, 402, 406, 412, 415, 436, 481, 485, 486. See your advisor for help in preparing a suitable senior-year program.

Minor in Computer Engineering. Students who are interested in pursuing a minor in computer engineering are encouraged to speak with the department chair to discuss course requirements.

Electrical Engineering

The Department of Electrical, Computer, and Biomedical Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

Faculty: Professor Boudreaux-Bartels, *chairperson.* Professors Fischer, Jackson, Kay, Kumaresan, Lo, Mardix, Ohley, Ying Sun, Sunak, Swaszek, Vaccaro, and Q. Yang; Associate Professors Sendag and Vetter; Assistant Professors Besio, Huang, and Yan

Sun; Professor-in-Residence Uht; Adjunct Professors Banerjee and Cooley; Adjunct Assistant Professors Davis and Sepe; Professors Emeriti Daly, Haas, Lengyel, Lindgren, Mitra, Sadasiv, Spence, and Tufts.

Program Educational Objectives. The objectives of URI's electrical engineering program are the following:

- 1) Produce graduates who are able to practice electrical engineering to serve government agencies or state, regional, national, and international industries.
- 2) Produce graduates with the necessary background and technical skills to work professionally in one or more of the following areas: analog electronics, digital electronics, communication systems, computer-based systems, or control systems.
- 3) Prepare graduates for personal and professional success with awareness of and commitment to their ethical and social responsibilities, both as individuals and in team environments.
- 4) Prepare graduates who are capable of entering and succeeding in an advanced degree program in a field such as engineering, science, or business.

Program Description. Since electrical instrumentation is at the heart of modern science and technology, electrical engineers are employed not only in the computer, electronics, communications, and power industries, but also in diverse enterprises such as transportation, the chemical industry, large hospitals, and government laboratories.

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. The development of computer hardware and software is a part of many electrical engineering courses.

Extensive laboratory work serves to bridge the gap between mathematical analysis and the real world of "hardware."

Separate undergraduate laboratories are available for electrical measurements, analog electronics, digital electronics, microprocessors, hardware description languages, embedded systems, control systems, optics, communications, and electronic materials.

Electrical engineering students should note that the four-year electrical engineering curriculum allows for three credits of completely free electives that 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.

To transfer from University College to the College of Engineering's electrical engineering program, students must have completed *all science, mathematics, and engineering courses required during the first two semesters* with a grade 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. Students should consult their advisors regarding distribution of credits and approved courses. (ECN 201 is included in the 27-credit total.)

Mathematics (at least 14 credits): MTH 141, 142, 243, 362, and MTH 451 or ISE 411.

Basic Sciences (19 credits): CHM 101, 102; PHY 203, 273, 204, 274, 205, 275, 306.

Computer Science (4 credits): CSC 200.

Engineering Sciences and Design (58–63 credits): EGR 105, 106; ELE 201, 202, 205, 206, 212, 215, 301, 302, 313, 314, 322, 331, 338, 339, 343, 344, 400, 480, 481; ISE 411, three electrical engineering design electives (chosen from BME/ELE 461; BME 464/465; ELE 401/402, 405/406, 408/409, 423, 427/428, 432, 435/436, 437, 438, 444/445, 447/448, 457, 458/459; one of these courses must be chosen from ELE 408/409, 427/428, 436/437, 444/445, 447/448, 458/459).

Free Elective: (3 credits): Any course may be used as a free elective.

The major requires 128–130 credits.

Freshman Year

First semester: 16 credits

EGR 105 (1); CHM 101 (3), 102 (1); MTH 141 (4); PHY 203 (3), 273 (1), and general education requirement (3).

Second semester: 17 credits

EGR 106 (2); ECN 201 (3); MTH 142 (4); PHY 204 (3), 274 (1), and CSC 200 (4).

Sophomore Year

First semester: 17 credits

MTH 362 (3); PHY 205 (3), 275 (1); ELE 201 (3), 202 (1), and general education requirements (6).

Second semester: 17 credits

ELE 205 (2), 206 (1), 212 (3), 215 (2); MTH 243 (3); PHY 306 (3), and general education requirement (3).

Junior Year

First semester: 17 credits

ELE 313 (3), 331 (4), 338 (3), 339 (1); MTH 451 (3) or ISE 411 (3), and general education requirement (3).

Second semester: 15 credits

ELE 301 (3), 302 (1), 314 (3), 322 (4), 343 (3), and 344(1).

Senior Year

Total credits for two semesters: 29–31. See your advisor for help in preparing a suitable program.

ELE 400 (1), 480 (3), 481 (3), general education requirements (9), free elective (3), and three electrical engineering design electives (10–12; details follow).

Electrical Engineering Design Electives. May be chosen as any three of the following: BME 462/463, 464/465; ELE 401/402, 405/406, 408/409, 423, 427/428, 432, 435/436, 437, 438, 444/445, 447/448, 457, 458/459. However, one of the courses must be chosen from BME 462/463; ELE

408/409, 427/428, 435/436, 444/445, 447/448, 458/459.

Minor in Electrical Engineering. Students who are interested in pursuing a minor in electrical engineering are encouraged to speak with the department chair to discuss course requirements.

Industrial and Systems Engineering

The Department of Industrial and Systems Engineering offers an ABET, Inc.-accredited curriculum leading to the Bachelor of Science (B.S.) degree in industrial and systems engineering. The department also offers the Master of Science (M.S.) degree in systems engineering and the Doctor of Philosophy (Ph.D.) in industrial and systems engineering. In collaboration with the College of Business Administration, qualified students could choose to pursue a Master of Business Administration (M.B.A.) degree that will take one extra year following their completion of the B.S. in industrial and systems engineering.

Faculty: Professor Wang, *chair*. Professors Dewhurst and Sodhi; Associate Professor Maier-Sperdelozzi; Adjunct Professors Jones and Miller; Professors Emerti Boothroyd, Knight, and Nichols; Associate Professor Emeritus Shao.

Program Mission Statement. Consistent with the mission of the Department of Industrial and Systems Engineering, URI's B.S. program in industrial and systems engineering will prepare students for successful careers that require a foundation of technical ability, high ethical standards, and good communication skills.

Program Educational Objectives. Graduates of the industrial and systems engineering program will be:

1) Prepared to practice professionally in the fields of industrial and systems engineering for both manufacturing and service sectors, and able to work in a wide range of areas such as systems engineering, quality engineering, logistics, management

engineering, human factors, health care, and transportation.

2) Equipped with a foundation of technical ability, high ethical standards, and good communication skills for success in their future careers.

3) Prepared to successfully pursue advanced degrees through an environment that values both scholarly research and technical education.

Curriculum Objectives. Consistent with these program objectives, it is expected that graduates from the Bachelor of Science in Industrial and Systems Engineering will have:

1) appropriate fundamental understanding of mathematics, physics, chemistry and other basic sciences;

2) basic computer skills consistent with application to industrial and systems engineering problem solving;

3) basic engineering knowledge across a range of subjects including mechanics, materials, thermodynamics, and electrical circuits;

4) understanding of basic economics and accounting, together with approaches to economics based decision-making;

5) thorough grounding in probability and statistics as applied to industrial and systems engineering problems;

6) practice in designing, developing, and analyzing integrated systems that involve people, materials, equipment, and energy;

7) knowledge of basic manufacturing processes and the relationship between product design and manufacturing efficiency;

8) advanced knowledge in student-selected topics in industrial and systems engineering, manufacturing engineering, and other related disciplines;

9) experience with individual and team-based engineering problem solving;

10) practical and hands-on experience solving engineering problems involving measuring physical phenomena and interpreting results;

11) understanding of ethics of engineering activities;

12) understanding of the relationships between engineering and society in general;

13) understanding of the necessity for lifelong learning;

14) well-developed written communication skills and experiences of oral communications both individually and in groups; and

15) broad understanding of society in general by exposure to fine arts, literature, history, philosophy, social science, and foreign cultures.

Program Curriculum. The industrial and systems 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 systems engineer. Fundamental manufacturing processes, economics, statistics, quality systems, and mathematical and computer modeling of production and service systems are included.

The major requires 125 credits.

Freshman Year

First semester: 16 credits

CHM 101 (3), 102 (1); PHY 203 (3), 273 (1); EGR 105 (1); MTH 141 (4), and general education requirement (3).

Second semester: 16 credits

ECN 201 (3); EGR 106 (2); MTH 142 (4); PHY 204 (3), 274 (1), and general education requirement (3).

Sophomore Year

First semester: 17 credits

ISE 240 (3), 241 (1); MCE * 262 (3); MTH 243 (3); PHY 2055 * (3), 275 (1).

Second semester: 16 credits

CVE 220 (3); ELE 220 (3); ISE 220 (1); MCE 263 (3); MTH 362 or 244 (3), and general education requirement (3).

Junior Year

First semester: 15 credits

CHE 333 (3); EGR 316 or PHL 212 (3); ISE 325 (3), 411 (3), 432 (3).

Second semester: 15 credits

BUS 201 (3); ISE 404 (3), 412 (3), 433 (3), and professional elective (3).

Senior Year

First semester: 15 credits

ISE 451 (3), professional elective (3), free elective (3), and general education requirements (6).

Second semester: 15 credits

ISE 452 (3), professional electives (6), and general education requirements (6).

General education (indicated in several places above) refers to the electives in the University's general education program, required in all curriculums leading to a bachelor's degree.

Mechanical Engineering

The Department of Mechanical Engineering and Applied Mechanics offers a curriculum leading to the B.S. degree in mechanical engineering. The B.S. degree in mechanical engineering is accredited by ABET, Inc. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in mechanical engineering and applied mechanics.

Faculty: Professor Taggart, *chair*. Professors Chelidze, Datsaris, Faghri, Ghonem, Jouaneh, Palm, Sadd, Shukla, and Zhang; Associate Professors Meyer and Rousseau; Assistant Professor Park; Adjunct Professor Anagnostopoulos.

Department Mission and Program Objectives

URI's Mechanical Engineering department fully follows the college's mission statement. The University's mechanical engineering program is more than just a collection of courses and credit hours; it has been carefully designed to prepare students for the profession of mechanical engineering through study, experience, and practice. Although strong educational objectives existed in the program for many years, the department recently carefully reviewed and redeveloped its objectives and outcomes.

Program Educational Objectives. These are related to career and professional accomplishments that the program prepares students to achieve after graduation.

1) Produce graduates who are able to successfully practice mechanical engineering to serve state, local, national, and international industries and government agencies.

2) Produce graduates with the necessary background and technical skills to work professionally as individuals or in teams in the two major stems of mechanical engineering including mechanical and thermal systems.

3) Prepare graduates for personal and professional success with an understanding and appreciation of ethical behavior, social responsibility, and diversity, both as individuals and in team environments.

4) Prepare graduates to be interested, motivated, and capable of pursuing continued lifelong learning through further graduate education, short courses, or other training programs in engineering or related fields.

Desired Program Outcomes. Mechanical engineering students demonstrate knowledge in all the outcomes required by ABET, Inc. and listed in the College of Engineering's description.

The curriculum provides a thorough and well-rounded foundation in basic science, mathematics, engineering science, and general education to prepare the graduate for a professional engineering career. The curriculum is also excellent preparation for graduate school. The program is strong in providing a background in design, solid and fluid mechanics, systems engineering, and the thermal sciences, including energy and energy transfer. Computer applications are stressed throughout the curriculum. All undergraduates are invited and encouraged to join the student section of the American Society of Mechanical Engineers, which sponsors industrial plant visits, special lectures, and other activities. Students may also join chapters of the Society of Automotive Engineers and the Society for Experimental Mechanics.

* Please see "Addendum to 2009–2010 URI Catalog" for an addition or correction to this information.

The work in the first two years consists of basic courses in science (math, physics, chemistry), applied science (mechanics, electricity and magnetism, basic computer literacy and computer-aided problem solving), manufacturing processes, and general education requirements (humanities, social sciences, English communication). A pair of introductory engineering courses are included in the freshman year.

The junior year concentrates on fundamental courses in mechanical engineering (thermodynamics, fluid mechanics, systems engineering, engineering analysis, heat transfer), materials sciences, and design of machines. Further general education studies are also covered.

The senior year in mechanical engineering includes the capstone design sequence, mechanical engineering experimentation, and a wide variety of professional electives such as mechanical control systems, advanced fluid mechanics, advanced mechanics of materials, mechatronics, internal combustion engines, applied energy conversion, tribology, product design for manufacture, air conditioning, heating and ventilation, vibrations, finite element method, and experimental stress analysis. The program also includes two laboratory courses in the junior and senior years, which introduce experimental techniques and provide practical experience with the engineering phenomena covered in the classroom.

Computer techniques are integrated throughout the curriculum. Computational facilities including personal computers and workstations are available in the College of Engineering's Computer Center and the University's Office of Information Services. The department's computer classroom provides state-of-the-art hardware and software for simulation, design, and product development.

To receive the Bachelor of Science degree in mechanical engineering, the student must satisfactorily complete all the courses in the following curriculum, which requires 130 credits.

Freshman Year

First semester: 16 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); PHY 203 (3), 273 (1), and a general education requirement (3).

Second semester: 16 credits

ECN 201 (3); EGR 106 (2); MTH 142 (4); PHY 204 (3), 274 (1) and a general education requirement (3).

Sophomore Year

First semester: 17 credits

MCE 201 (3), 262 (3); MTH 243 (3); PHY 205 (3), 275 (1); ISE 240 (3) and 241 (1).

Second semester: 15 credits

CVE 220 (3); ELE 220 (3); MCE 263 (3); MTH 244 (3), and general education requirement (3).

Junior Year

First semester: 18 credits

CHE 333 (3); MCE 301 (3), 341 (3), 354 (3), 372 (3); and general education requirement (3).

Second semester: 18 credits

MCE 302 (3), 313 (3), 366 (3), 448 (3), and general education requirements (6).

Senior Year

First semester: 15 credits

MCE 401 [**capstone**] (3), 414 (3), professional electives (6; details follow), and general education requirement (3).

Second semester: 15 credits

MCE 402 [**capstone**] (3), professional electives (6; details follow), free elective (3), and general education requirement (3).

Professional Electives. Must be satisfied by a minimum of three three-credit elective courses in mechanical engineering, two of which must be taken at URI. The fourth course may be a 300-, 400-, or 500-level course offered by: the College of Engineering; or the Departments of Chemistry, Computer Science and Statistics, or Physics; or the Department of Mathematics (one

400- or 500-level course). Professional elective courses taken outside URI are subject to URI rules on transfer credit and require prior written approval.

Ocean Engineering

The Department of Ocean Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree in ocean engineering; this program is accredited by ABET, Inc. and is open to qualified students under the New England Regional Student Program. URI's Department of Ocean Engineering is nationally and internationally recognized as one of the leaders in ocean engineering, and also offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

Faculty: Professor Miller, *chairperson.*

Professors S. Grilli, Hu, Moran, Spaulding, Stepanishen, and Tyce; Associate Professor Baxter; Assistant Professor Roman; Associate Research Professor Vincent; Assistant Research Professors A. Grilli and Potty; Adjunct Professors Coriveau, Muench, Sharpe, and Shonting; Adjunct Assistant Professors Cousins and Newman; Professors Emeriti Kowalski, Middleton, and Silva.

Department Mission Statement and Educational Objectives. The Department of Ocean Engineering's missions are to provide high-quality undergraduate and graduate degree programs that prepare our students for professional careers in ocean engineering in industry, academia, and government; to develop and maintain internationally recognized research programs in selected areas of ocean engineering; to actively serve the profession and community in our areas of expertise; and to provide a challenging work and learning environment where diversity, community, scholarship, professional development, and excellence are valued and rewarded. The program is designed to provide students with a strong base in fundamental sciences, mathematics, and engineering; a broad base in ocean engineering; opportunities for the integration of theory, experimentation, and design; appreciation of ethical, social,

and environmental issues in the practice of the profession; and strong oral and written communication skills.

Program Educational Objectives. The educational objectives for the ocean engineering B.S. program have been developed in consultation with the department's advisory board, alumni, graduate employers, and students. Graduates are prepared to:

1) Gain employment with private or government organizations and advance to positions of increased responsibility, or pursue an advanced degree in an engineering program.

2) Work in one of the specialty areas within the broad field of ocean engineering including ocean instrumentation, hydrostatics, ocean waves, underwater acoustics, marine structures, marine geomechanics, and ocean engineering design.

3) Behave ethically, contribute to society, participate in strengthening a diverse engineering professional environment, and succeed in diverse workplaces, nationally and internationally.

URI's curriculum provides a basic ocean engineering program that gives students a firm base in engineering fundamentals and prepares them for direct entry into a professional career or continued study toward a graduate degree. The required ocean engineering courses begin at the freshman level and include laboratory, analysis, and design courses. 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 the reporting of results. This hands-on experience provides graduates with an understanding of ocean engineering activities in scientific and industrial fields. Two ocean engineering professional elective courses are also required.

The broad-based program exposes students to the following topics: ocean instrumentation and data analysis, underwater and sub-bottom acoustics, marine hydrodynamics, coastal and near shore processes, marine geomechanics, coastal and offshore structures, and corrosion.

To ensure that each student gains an in-depth knowledge of one of the ocean engineering disciplines, the curriculum allows sequences of courses in hydrodynamics, structures, geomechanics, acoustics, instrumentation, and data analysis. 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 internship in an ocean-oriented private company or government laboratory; this internship allows interested students to take advantage of the many opportunities available in the region.

The Department of Ocean Engineering is located at the University's Narragansett Bay Campus. Computational facilities include personal computer and workstation rooms networked and connected to the Engineering Computer Laboratory and Office of Information Services. Extensive laboratory facilities are also available. The department often utilizes an 80-foot research vessel equipped with a fully integrated side-scan sonar and sub-bottom mapping system; this vessel is used for both lab courses and research. A remotely-operated vehicle is operated by the department. A 100-foot tow and wave tank and a large acoustics tank are located on the Bay Campus, as well as an electronics shop, machine shop, and the Marine Geomechanics Laboratory. These facilities are available to undergraduates for course work, research, and independent study.

This major requires 130 credits.

Freshman Year

First semester: 16 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); PHY 203 (3), 273 (1); and general education elective (3).

Second semester: 17 credits

ECN 201 (3); EGR 106 (2); MTH 142 (4); OCE 101 (1); PHY 204 (3), 274 (1); and general education requirements (3).

Sophomore Year

First semester: 17 credits

MCE 262 (3); MTH 243 (3); OCE 205 (3), 215 (1); PHY 205 (3), 275 (1); and general education elective (3).

Second semester: 16 credits

CVE 220 (3); MCE 263 (3); MTH 244 (3); OCE 206 (3), 216 (1); and free elective (3).

Junior Year

First semester: 16 credits

MCE 354 (3); OCE 301 (4), 310 (3); professional elective (3; details follow), and general education elective (3).

Second semester: 16 credits

EGR 316 (3); OCE 307 (3), 311 (4), 471 (3); and general education elective (3).

Senior Year

First semester: 17 credits

OCE 416 (2), 421 (3), 495¹ (3); CHE 333 (3); general education elective (3), and professional elective (3; details follow).

Second semester: 15 credits

OCE 496¹ (3); OCG 451 (3), professional electives (6; details follow), and general education elective (3).

Professional Electives. This requirement must be satisfied by a minimum of two approved three-credit elective courses at the 300-, 400-, or 500-level in engineering or oceanography and two approved three-credit courses in ocean engineering.

¹ An approved off-campus experience, usually between the junior and senior years, can be substituted for OCE 495 and 496.

COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES

Nancy L. Fey-Yensan, *Interim Dean*
Dennis W. Nixon, *Associate Dean*
Richard C. Rhodes III, *Associate Dean*

The College of the Environment and Life Sciences (CELS) offers undergraduate majors leading to three degrees: the Bachelor of Science (B.S.), the Bachelor of Arts (B.A.), and the Bachelor of Landscape Architecture (B.L.A.). The following majors are offered within the B.S. degree program: animal science and technology, aquaculture and fisheries technology, biological sciences, clinical laboratory science, environmental economics and management, environmental horticulture and turfgrass management, environmental science and management, geology and geological oceanography, geosciences, marine affairs, marine biology, microbiology, nutrition and dietetics, resource economics and commerce, and wildlife and conservation biology. Students may also obtain a B.A. in biology or marine affairs, or a B.L.A. in landscape architecture.

Options have been developed within certain majors to help students prepare for graduate study, professional training, or specialized careers. Entering freshmen and transfer students with fewer than 24 credits are admitted to University College and may choose a major in the College of the Environment and Life Sciences at that time.

Undergraduate students from any college may develop a minor from one of the majors offered by the College of the Environment and Life Sciences. Details can 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.

CELS encourages students in all majors to pursue opportunities such as undergraduate research fellowships, internships, apprenticeships, and field studies that will complement their formal classroom learning.

The Department of Community Planning and Landscape Architecture offers a minor in community planning, which is described on page 36.

Faculty

Many faculty members hold a joint appointment with the Rhode Island Agricultural Experiment Service 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.

Biological Sciences: Professor Goldsmith, *chairperson*. Professors Bengtson, Bibb, Bullock, Fastovsky, Heppner, Kass-Simon, Killingbeck, Koske, A. Roberts, and Webb; Associate Professors Irvine, Katz, Norris, Seibel, and Wilga; Assistant Professors Lane, Preisser, Sartini, and Thornber; Adjunct Professors Carleton, Deacutis, Fogarty, Lauder, and Sanford; Adjunct Associate Professors Cromarty, Ewanchuk, Gemma, Orwig, T. Roberts, and Thursby; Adjunct Assistant Professor Roposa; Professors Emeriti Albert, Beckman, Caroselli, Cobb, Costantino, Goertemiller, Goos, Hammen, Harlin, Hauke, Hyland, Lepper, and Twombly; Associate Professor Emeritus Krueger; Research Professor Hill.

Cell and Molecular Biology: Professor Sperry, *chairperson*. Professors Bradley, Chandlee, P. Cohen, Goldsmith, Hufnagel, Kausch, D. Nelson, Seemann, and Sun; Associate Professors L. Martin, Mottinger, and J.H. Norris; Assistant Professors N. Howlett and B. Jenkins; Adjunct Professor Mehta; Adjunct Assistant Professors Bauer, Kaplan, and Luo; Professors Emeriti Cabelli, Carpenter, Hartman, Laux, Traxler, Tremblay, and Wood.

Clinical Laboratory Science: Clinical Professor Paquette, *director*. Adjunct Clinical Professors Allegra and Kenney; Adjunct Clinical Associate Professors Kessimian and Schwartz; Adjunct Clinical Assistant Professors Campbell, Gmuer, Goddu, Heelan, Ingersoll, Lewandowski, and Mello.

Community Planning: Professor Atash, *chairperson and program director*. Professor Feld; Associate Professors Feldman and Gordon. (Note: Admission to the Community Planning Program has been suspended effective June 30, 2005.)

Environmental and Natural Resource Economics: Professor J.L. Anderson, *chairperson*. Professors Grigalunas, Opaluch, Roheim, and Swallow; Associate Professor C. Anderson; Assistant Professors E. Uchida and H. Uchida; Adjunct Professors Asche, Edwards, Holland, Johnston, Mazzota, and Shogren; Professors Emeriti Gates, Sutinen, and T. Tyrrell.

Fisheries, Animal and Veterinary Science: Professor Bengtson, *chairperson*. Professors Bradley, Costa-Pierce, DeAlteris, Mallilo, Rhodes, and Rice; Associate Professor Gomez-Chiarri; Assistant Professors Peterson and Sartini; Lecturers Jones and Launer; Adjunct Professors Hoey, Klein-McPhee, Musik, and Smolowitz; Adjunct Associate Professors Colwill and Hare; Adjunct Assistant Professors Brumbaugh, Castro, Dudzinski, Hancock, Leavitt, Rheault, Schwartz, and Weatherbee; Adjunct Clinical Professor Serra; Professors Emeriti Chang, McCreight, Nippo, Recksiek, Wing, and Wolke.

Nutrition and Food Sciences: Professor English, *chairperson*. Professors Greene, C. Lee, and Patnoad; Associate Professors Fey-Yensan and Gerber; Assistant Professor Melanson; Adjunct Associate Professor Sebelia; Adjunct Assistant Professor Pivarnik; Professors Emeriti Caldwell, Constantinides, and Rand; Instructor Handley.

Geosciences: Associate Professor Veeger, *chairperson*. Professors Boothroyd, Cain, and Fastovsky; Associate Professor Boving; Assistant Professor Savage; Adjunct Professors Burks, Fischer, Hapke, Pockalny, and Spiegelman; Professors Emeriti Hermes and Murray.

Geology and Geological Oceanography: Associate Professor Veeger, *undergraduate advisor*. The faculty consists of the members of the Department of Geosciences and the

marine geology and geophysics faculty of the Graduate School of Oceanography.

Landscape Architecture: Associate Professor Green, *director*. Professor Simeoni; Associate Professor Sheridan; Adjunct Assistant Professors Bourbonnais and Weygand; Professor Emeritus Hanson.

Marine Affairs: Associate Professor Pollnac, *chairperson*. Professors Burroughs, Juda, Marti, and D. Nixon; Assistant Professors Macinko and Thompson; Professors Emeriti Alexander, Knauss, and West; Associate Professor Emeritus Krausse.

Natural Resources Science: Professor Paton, *chairperson*. Professors Amador, August, Forrester, Gold, Golet, Husband, McWilliams, Stolt, and Wang; Assistant Professors F. Meyerson and L. Meyerson; Adjunct Professors Paul and Perez; Adjunct Associate Professors Abedon, Cerrato, Gorres, Groffman, Nowicki, O'Connell, Reed, and Rockwell; Adjunct Assistant Professors Augeri, Dabek, Hollister, Jarecki, Kellogg, Lashomb, McKinney, Milstead, Peters, Rubinstein, Saltonstall, Steele, and Tefft; Professors Emeriti Brown and Wright.

Plant Sciences: Professor Maynard, *Interim chairperson*. Professors Alm, Casagrande, LeBrun, Mather, Ruemmele, and Sullivan; Associate Professor Englander; Assistant Professors Adkins, Brown, and Mitkowski; Professor-in-Residence Ginsberg; Adjunct Assistant Professors Dellaporta, Gettman, and Gordon; Professors Emeriti Beckman, Hull, Jackson, McGuire, and Mueller; Associate Professor Emeritus Krul; Adjunct Professor Emeritus Taylorson.

Curriculum Requirements for Majors

Bachelor of Arts. Students who pursue the B.A. in marine affairs or biology must fulfill the Basic Liberal Studies requirements of the College of Arts and Sciences (see page 50). Also see the listings under biology and marine affairs in this section.

Bachelor of Science. Most of the college's B.S. programs require a minimum of 130

credits for graduation, except when specified otherwise under the program description. Required courses come from three categories: general education requirements (36 credits); program requirements (77–85 credits); and free electives (6–12 credits).

The following outline gives the basic general education requirements for all students in the B.S. curriculum within the college. 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 communication studies.

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.

Bachelor of Landscape Architecture.

For information on the curriculum requirements for URI's B.L.A. degree, see page 101.

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, three in biology, eight in inorganic chemistry, and three 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 Science Option. This option includes animal nutrition, physiology, behavior, 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, students choosing this option must complete the following basic science requirements: four to eight credits in organic chemistry, three in introductory calculus, and four in microbiology. A course in animal anatomy and physiology is required in the concentration. The remaining credit requirements will be selected from the concentration courses and supporting electives approved for this option.

Animal Management 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, students must complete the following basic science requirements: four to eight credits in organic chemistry, three in introductory calculus, four in microbiology, and three 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 credits will be selected from the concentration courses and supporting electives approved for this option.

Preveterinary Option. This option requires a demonstrated capability in the basic sciences and prepares students for admission to veterinary schools offering the D.V.M. degree. 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, students must complete the following basic science requirements: eight-credit, two-semester sequence in organic chemistry, three credits in biochemistry, four in microbiology, eight in general physics, three in introductory calculus, and three in intermediate calculus or statistical methods in research. Four credits in animal anatomy and physiology are required in the concentration. The remaining credits will 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 (AFS), 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 twelve 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 twelve additional credits in basic science selected from an approved course list in the departments of Biological Sciences, Chemistry, Computer Science and Statistics, Mathematics, and Physics. In addition, the major requires 24 credits in concentration courses at the 300 level or above, and 18 credits of the concentration courses must be selected from courses offered by AFS. The additional six

credits may be selected from courses offered in Biological Sciences; Fisheries, Animal and Veterinary Science; Nutrition and Food Sciences; Marine Affairs; Environmental and Natural Resource Economics; and by the Graduate School of Oceanography. Finally, the program requires 30–36 credits of supporting electives selected from an approved list of courses in the departments of Biological Sciences (botany and zoology); Fisheries, Animal and Veterinary Science; Marine Affairs; Environmental and Natural Resource Economics; Natural Resources Science; and the Graduate School of Oceanography.

Biology Biological Sciences Marine Biology

These programs are administered by the Department of Biological Sciences. A student may earn either the Bachelor of Arts (B.A.) degree in biology or the Bachelor of Science (B.S.) degree in biological sciences or marine biology. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in biological sciences.

BACHELOR OF ARTS (BIOLOGY)

Students selecting a major in biology must complete a minimum of 28 credits (maximum 45 credits) in biological sciences including the following courses: BIO 101 and 102 (8), and MIC 201 or 211 (4). They must also complete a minimum of three credits from each of the three lists (A, B, and C) below. The remaining nine credits may be selected from courses in biology and/or microbiology. Students in this major must elect a year of chemistry with laboratories. Up to three credits of independent study or special topics in the following disciplines may be applied toward this bachelor's degree: AFS, AVS, BCH, BIO, MIC, NRS, and PLS.

List A (Botanical): BIO 311, 321, 323, 332, 346, 348, 365, 418. *List B (Zoological):* BIO 121, 201, 242, 244, 286, 301, 302, 304, 327, 329, 334, 335, 354, 355, 366, 385,

386, 412, 441, 442, 445, 467, 469, 475. *List C (Combination of Botanical and Zoological):* BIO 262, 272, 341, 345, 352, 353, 360, 396, 437, 452, 453, 455, 457, 458, 472, 480, 491, 492.

Students in this major must fulfill the Basic Liberal Studies requirements of the College of Arts and Sciences. Students must take either six credits of a modern foreign language or the study of a modern foreign language through the intermediate (104) level. The requirement for a modern foreign language is not met by study abroad or by a culture cluster.

Those wishing to prepare for a professional career in the life sciences should enroll in the B.S. program (description follows).

Students must maintain a 2.00 grade point average in BIO or MIC courses used to meet graduation requirements. A total of 120 credits is required in the B.A. program. At least 42 credits must be in courses numbered 300 or above. Only three credits of 491, 492 may be used for biology elective.

BACHELOR OF SCIENCE (BIOLOGICAL SCIENCES)

BACHELOR OF SCIENCE (MARINE BIOLOGY)

These curricula provide a foundation in the fundamental principles of biology and marine biology, and are concerned with the application of biological science to problems of modern life. They also provide preparation for graduate work in biological fields including aquatic, environmental, and marine studies, molecular, cellular, and developmental biology, biological oceanography, genetics, and physiology, and preparation for admission to professional schools of medicine, dentistry, and veterinary medicine.

Students who know their professional goals are encouraged to declare a major as soon as possible to take advantage of help from department advisors. Students *must* declare their major when leaving University College.

Biological Sciences. A minimum of 35 credits in biology is required and must include BIO 101 and 102 (8). The remaining 27 credits must include at least one course from List A (Botanical) and one course from List B (Zoological). At least three laboratory courses beyond BIO 101 and 102 must be taken, excluding 491, 492, and 495. The 27 credits must include one course from at least four of the following six areas: Cell and Development (BIO 302, 311, 341, 453); Ecology and Evolution (BIO 262, 272); Genetics (BIO 352); Molecular Biology (BIO 437); Organismal Diversity (BIO 304, 321, 323, 354, 365, 366); Physiology (BIO 201, 242/244, 346).

In addition, students must take CHM 101, 102, 112, 114, 226, 227, 228 or 124, 126, and BCH 311; MIC 201 or 211; two semesters of introductory calculus or one semester of calculus and STA 308; PHY 111, 112, 185, and 186 or PHY 203, 204, 273, 274; WRT 104, 105, or 106 and three additional credits of English communication, three credits of fine arts, three credits of literature; and either six credits of a modern foreign language, or study of a modern foreign language through the intermediate (104) level. The requirement for a modern foreign language is not met by study abroad or a culture cluster. Students must follow University requirements for general education; no area may be reduced.

Students are encouraged to become involved in the department's research activities by arranging to register for assigned work as Special Problems (491, 492). Only three credits of 491, 492 may be used toward the B.S. degree. Up to three credits of independent study or special topics in the following disciplines may be applied toward this bachelor's degree: AFS, AVS, BCH, BIO, MIC, NRS, and PLS.

List A (Botanical): BIO 311, 321, 323, 332, 346, 348, 365, 418. *List B (Zoological):* BIO 121, 201, 242, 244, 301, 302, 304, 327, 329, 334, 335, 354, 355, 366, 385, 386, 441, 445, 467, 469, 475. *List C (Combination of Botanical and Zoological):* BIO 262, 272, 341, 345, 352, 353, 360, 396, 437, 452, 453, 455, 457, 458, 472, 480, 491, 492.

Students are strongly urged to consult the biological sciences advisors to obtain detailed programs of the various sub-disciplinary paths through the department most suited to their particular career goals.

Students must maintain a 2.00 grade point average in BIO courses used to meet graduation requirements. A total of 130 credits is required for graduation.

Marine Biology.

The Major. A minimum of 36 credits in biological sciences is required for the major and must include BIO 101, 102, 130, and 360. Of the remaining 23 credits, 12 credits must be earned by selecting one course from at least four of the following six areas: Cell and Developmental Biology (BIO 302, 311, 341, 453); Ecology and Evolution (BIO 262, 272); Genetics (BIO 352); Molecular Biology (BIO 437); Organismal Diversity (BIO 304, 321, 323, 354, 365, 366); Physiology (BIO 201, 346). The remaining 11 credits must be selected from the following, with no more than three credits of Special Problems to be applied to this requirement: BIO 345, 354, 355, 365, 412, 418, 441, 455, 457, 458, 469, 475, 491, 492, 495, 563; OCG 420, 576. Up to three credits of independent study or special topics in the following disciplines may be applied toward this bachelor's degree: AFS, AVS, BCH, BIO, MIC, NRS, and PLS. Students must take at least three laboratory courses in biological sciences (BIO) in addition to BIO 101 and 102 and excluding BIO 491, 492, and 495.

In addition, the student must take CHM 101, 102, 112, 114, and either CHM 226, 227, and 228 or CHM 124, 126, and BCH 311; two semesters of introductory calculus or one semester of calculus and STA 308; OCG 401 or 451; PHY 111, 112, 185, 186; WRT 104, 105, or 106 and three additional credits of English communication, three credits of fine arts, three credits of literature; and either six credits of a modern foreign language, or study of a modern foreign language through the intermediate (104) level. The requirement for a modern foreign language is not met by study abroad or by a culture cluster. Students must follow Uni-

versity requirements for general education; no area may be reduced.

Students must maintain a 2.00 grade point average in BIO courses used to meet graduation requirements. A total of 130 credits is required for graduation.

The Minor. The minor in marine biology requires at least 20 credits, including 8 credits of General Biology (BIO 101 and 102, or equivalent, e.g., Advanced Placement), Marine Biology (BIO 360), and at least 8 additional credits at the 200-level or above, chosen from among courses counted as marine biology electives for the B.S. degree in marine biology. A maximum of 3 credits in research (e.g., BIO 491, 492) may be counted towards the minor. At least half of the credits for the minor must be earned at URI. A minimum GPA of 2.00 must be earned in the credits required for the minor. *Application for a minor must be filed with the coordinator of the Marine Biology Program prior to the completion of the first semester of the senior year.*

Clinical Laboratory Science and Biotechnology Manufacturing

This major, offered by the Department of Cell and Molecular Biology, is designed to prepare students for applied careers in the medical laboratory, biomedical, and biotechnology sciences, as well as to prepare students for graduate or professional school. The department also offers the Master of Science (M.S.) degree.

There are two options in the program: Clinical Laboratory Science and Biotechnology Manufacturing. Students in both are required to take these courses: BIO 101 and 102, 121, and 242; CHM 101, 102, 112, 114, 226, 227, and 228 (or 124 and 126 for the Biotechnology option); PHY 111 and 185; MTC 102; MTH 111, 131, or 141; CSC 101 or 201; STA 307 or 309. A total of 130 credits is required for graduation.

Clinical Laboratory Science Option.

During the first three years, emphasis is on general education and on basic courses in the biological, chemical, and quantitative sciences. The courses of the senior year are

taught off campus by staff from affiliated hospital schools of clinical laboratory science. These schools are accredited by the National Accreditation Agency for Clinical Laboratory Sciences. The senior year is an 11-month clinical internship that begins in late July. It is taken at one or more of the following clinical agencies: Rhode Island Hospital, Miriam Hospital, Fatima Hospital, and the Rhode Island Blood Center. The clinical program includes lecture and laboratory instruction in clinical chemistry, clinical microbiology, hematology, immunology, immunohematology, and molecular pathology, and prepares the student for national certification examinations and state licensure.

Applicants to this curriculum should have completed 60 credits and taken most of the required courses by the end of the sophomore year. Students are selected for clinical internships by the departmental curriculum committee and by program officials of the hospital schools. Since the number of students is limited, interested students should consult with the program director early in their college career, so they will be familiar with the requirements and application procedures. Flexibility in the curriculum permits students who are not admitted to the program to fulfill requirements for the Bachelor of Science degree in one of several other concentrations in the department. Students with a degree in a health profession, life science, or related field may apply to the clinical internship as a fifth year of study.

Required courses: MTC 102, 405, 406, 407, 409, 410, 411, 412, 413, 414, 415, 416, and 483; MIC 201 or 211, 333, 432; BCH 311 and 437.

Freshman Year

First semester: 14–15 credits

CHM 101, 102 (4); BIO 101 or 102 (4); MTH 111 or 131 (3) or 141 (4); and one general education requirement (3).

Second semester: 16 credits

CHM 112, 114 (4); BIO 101 or 102 (4); CSC 101 or 201 (4); MTC 102 (1); and one general education requirement (3).

Sophomore Year

First semester: 18 credits

BIO 121 (4); CHM 227 (3); PHY 111, 185 (4); MIC 211 or 201 (4); and general education requirements (3).

Second semester: 17 credits

BIO 242 (3); CHM 226, 228 (5); general education requirements (6) and free elective (3).

Junior Year

First semester: 15 credits

MIC 333 (3); MTC 483 (3); and general education requirements (9).

Second semester: 12 credits

MIC 432 (3); BCH 311 (3); STA 307 or 308 (3); and electives (3).

Senior Year

First semester: 17 credits

MTC 405 (2), 409 (4), 411 (4), 413 (2), 415 (3), and 451 (2).

Second semester: 15 credits

MTC 406 (2), 410 (4), 412 (4), 414 (2), and 416 (3).

Biotechnology Manufacturing Option.

This option is designed to prepare students for professional careers in the biotechnology and biomedical industries in the areas of manufacturing, processing, operations, and technical support. This option is based at the Providence Campus and includes a 12-credit clinical internship at a regional biotechnology or biomedical company.

Students should be aware that internships may be limited in number and are awarded on a competitive basis. Students are selected by the departmental curriculum committee and by program officials of affiliated companies. Students interested in this option should consult with the program director early in their college career, so that they will be familiar with the requirements and application procedures. Flexibility in the curriculum permits students who are not admitted to the program to fulfill requirements for the Bachelor of Science degree in

one of several other concentrations in the department.

Required courses: MTC 195, 199; MIC 190 and 201 or 211; BCH 311, 437, and 453. The program is structured to provide intensive professional and clinical training in the first year of the program so the student may enter the professional field while still pursuing the degree. The remainder of the program may be completed on a full-time or reduced-time basis. The electives, in consultation with the program director and appropriate department officials, may be utilized to create personalized specializations and/or minors in management, training and development, information technology, bioengineering, and related areas. The recommended program for the first year is:

Freshman Year

First Semester: 16 credits

BIO 101 (4); CHM 101 (3) and 102 (1); MIC 190 (3) and 211 (4); and URI 101 (1).

Second Semester: 17 credits

BIO 102 (4), 242 (3); CHM 124, 126 (4); MTC 102 and 195 (3); WRT 333 (3).

Summer Session: 12 credits

MTC 199 (12)

Environmental Economics and Management

This major prepares students for professional careers in the public and private sector that address environmental and natural resource management, business, or public policy. This interdisciplinary major is offered jointly by the Department of Environmental and Natural Resource Economics and the Department of Natural Resources Science. Students develop a foundation in both natural and social sciences to understand the interactions between human society and our natural or environmental resources. Environmental economics and management majors seek careers that address the interface between the economic system and the ecological or environmental

systems. For example, economic incentives and values can drive individual decisions to use forest, land, water, or air resources, which can in turn cause ecosystem management problems. Public officials, nonprofit organizations, and private businesses need professionals to integrate the ecological and natural science with the economic science aspects of their organizations. Such professionals play an important role in coordinating an interdisciplinary team to address such complex problems. Graduates gain an understanding of both natural sciences and the economy.

The degree requires a minimum of 120 credit hours, including a minimum of 24 credit hours in the concentration credits for this interdisciplinary major. The program is designed as a blend of the existing majors of environmental science and management and resource economics and commerce. In addition to satisfying the general education requirements, students need 12 credits in introductory professional courses, including natural resource conservation, introductory resource economics, introductory soils, and resource management. As part of the basic science requirements, majors must complete eight credits in biological sciences (four in general botany, four in general zoology); three credits in introductory ecology; four credits in introductory physics; four credits in physical geology; four credits each in organic and inorganic chemistry; three credits in introductory calculus; and three credits in introductory statistics. Within the 24-credit concentration, students are required to take two courses in forestry and wildlife and two courses in water and soil for a minimum of 12 credits in these natural sciences. A minimum of 12 concentration credits are required in environmental and resource economics (listed under Resource Economics, REN), including economics for environmental resource management and policy and economics of land and water resources, as well as two other courses selected according to the student's particular interests. The major also requires a minimum of nine credits in communication skills beyond the general education

requirements. Finally, students may choose a minimum of nine credits in supporting electives and six credits in free electives.

Environmental Horticulture and Turfgrass Management

The major in environmental horticulture and turfgrass management, offered by the Department of Plant Sciences, 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, nursery personnel, vegetable and fruit growers, managers of lawn service firms, horticultural therapists, and technical representatives for seed, equipment, and chemical companies, to name just a few 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 that enhance the human environment.

URI's Department of Plant Sciences operates 50 acres of turfgrass, horticulture, and plant science research and education farm centers. The C. Richard Skogley Turfgrass Center is the oldest turfgrass research and teaching program in the U.S. Also included in the department's facilities are five research laboratories, controlled environment facilities, a greenhouse complex, and a biotechnology initiative for hands-on opportunities. The department is closely allied with the URI Botanical Gardens and E.P. Christopher Arboretum.

Depending on the area of specialization, graduates can meet the standards of several certification organizations. Environmental horticulture students qualify for certification with the Rhode Island Nursery and Landscape Association and International Society for Arboriculture. 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. of the American Society of Agronomy. These same graduates also meet the requirements for registration with the Golf Course Superintendents Association of America.

The major requires 24 credits of preprofessional natural science courses, including six in general education; 40 credits in concentration courses; and 18 credits of supporting electives selected from an approved course list, with permission of the advisor. Included among these electives are business and management courses, as well as advanced offerings in plant science, botany, and soil science. Many students minor in business management.

Environmental Science and Management

The major in environmental science and 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 background for graduate study in several more specialized environmental science disciplines. Environmental science majors may meet the educational requirements for state and federal employment as biologists, natural resource specialists, environmental scientists, and other classifications.

The major requires 13 credits of professional courses, which include natural resource conservation, seminar in natural resources, resource economics, introductory soil science, and conservation of populations and ecosystems. As part of the basic science requirements, environmental science and management majors must complete six to eight credits in introductory

biological sciences; three credits in introductory ecology; four credits in introductory physics; four credits in physical geology; three to four credits in introductory biochemistry, introductory microbiology, or geomorphology; eight credits in introductory chemistry; four credits in organic chemistry; three credits in introductory calculus; and three credits in introductory statistics. Required concentration courses (26 credits) must be taken at the 300 level or above; at least 21 credits must be selected from courses offered by the Department of Natural Resources Science.

In addition, one course must be selected from each of the following groups: biological and ecological science; watershed and environmental quality; methods in environmental science; natural resources management; and land use management. These and the remaining concentration credits should be selected from courses offered by the Department of Natural Resources Science or from an approved list of courses; at least nine credits must be selected from NRS courses. Supporting electives (18–21 credits) must be selected from an approved list of courses, mostly at the 300 and 400 levels. Up to 24 credits of experiential learning courses may be taken toward satisfying concentration (letter grade courses only) and supporting elective requirements. NRS 402, 403, 423, 425, 450, 452, 522, and 524 are the **capstone** experiences in this major.

Geology and Geological Oceanography

This major, offered by the Department of Geosciences and the Graduate School of Oceanography, 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 geosciences (see below). Students in the program will be advised jointly by geosciences and oceanography faculty members.

A senior research project will be taken in the Graduate School of Oceanography

(GSO) as OCG 493 or 494 [**capstones**], under the direction of a GSO faculty member. Three courses in oceanography—OCG 401 or 451, 540, and one additional OCG course at the 400 level or above selected by the student in conjunction with the advisor—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 careers in either conventional geology or 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. Students 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: GEO 103 (4), 204 (4), 210 (4), 320 (4), 370 (4), 450 (4), 483 (4), either an approved summer field camp (GEO 480 [**capstone**]) for a four to six credits or an approved field experience (prior approval required), two approved geosciences electives (at the 200-level or above); OCG 401 (3) or 451 (3), OCG 540 (3), OCG 493 or 494 [**capstones**] (3); and one additional OCG course at the 400 level or above. Students must also take the following supporting course work: MTH 131 (3) or 141 (4); MTH 132 (3) or 142 (4); BIO 101 (4) and 102 (4); CHM 101 (3), 102 (1) and 112 (3), 114 (1); CSC 201 (4) or STA 308 (3); PHY 111 (3), 185 (1) or 213, 285 (4); and PHY 112 (3), 186 (1) or 214, 286 (4).

A total of 126 credits is required for graduation.

Geosciences

The major in geosciences, offered by the Department of Geosciences, is designed as a foundation for careers in the earth sciences. The federal government identifies GEO 204, 210, 320, 370, 450, and supporting sciences as a minimum background for geologists. Students in this program elect one of the following three options: environmental geology, sedimentary geology, or petrology/tectonics. These options offer preparation for further work in areas such as environmental geology, mineral and energy resources, hydrogeology, sedimentology, coastal geology, igneous and metamorphic petrology, geochemistry, structural geology, and tectonics.

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

All B.S. majors are required to complete the following geosciences courses: 103 (4), 204 (4), 210 (4), 320 (4), 370 (4), 450 (4), 483 (4), two courses within one of the options listed below, two additional approved geosciences electives (at the 200-level or above), and either an approved summer field camp (GEO 480 [**capstone**]) for four to six credits or an approved field experience (prior approval required). The field camp is normally taken following the junior year. Students must also take the following supporting course work: MTH 131 (3) or 141 (4); MTH 132 (3) or 142 (4); BIO 101 (4) and 102 (4); CHM 101 (3), 102 (1) and 112 (3), 114 (1); CSC 201 (4) or STA 308 (3); PHY 111 (3), 185 (1) or 213, 285 (4); and PHY 112 (3), 186 (1) or 214, 286 (4).

Students in the Geosciences program select one of the following options:

Environmental Geology Option. Emphasizes the study of geology as it pertains to the environment, including hydrogeology (ground-water resources and water quality) and the recognition and reduction of effects of geologic hazards (coastal erosion, volcanic eruptions, earthquakes). Students must take two of the following: GEO 277 (3), 465

or 485 (3), 468 (4), 482 (4), 484 (4), 515 (3), 568 (3), 577 (3), or 583 (3).

Sedimentary 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 must take two of the following: GEO 277 (3), 250 (4), 465 (3), 468 (4), 515 (3), 550 (3), or 555 (3).

Petrology/Tectonics Option. Emphasizes the study of igneous and metamorphic processes through geochemistry, petrography, structural analysis, and geophysics, leading to interpretations of rock petrogenesis and earth history. Students must take two of the following: GEO 465 (3), 530 (4), 531 (3), 580 (3), 581 (3), or CHM 431.

GEO 480, 497 and 499 are **capstone** experiences available for this major.

A total of 126 credits is required for graduation.

Landscape Architecture

Landscape architecture is a curriculum leading to the Bachelor of Landscape Architecture (B.L.A.) degree. Accredited by the American Society of Landscape Architects, the curriculum is designed to prepare undergraduates for professional careers in the public and private sectors of landscape architecture that 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 design and plan parks, recreation areas, new communities and residential developments, urban spaces, open spaces and rooftop landscapes, commercial centers, resort developments, transportation facilities, corporate and institutional centers, industrial parks, and waterfront developments. Their professional skills may also be used to preserve natural, historic, and coastal landscape projects.

The requirements of this curriculum include preparation in the basic arts and sciences. The major includes 57 credits of

program courses; 22–24 credits of supporting requirements; and 13–15 credits of approved supporting electives through which a student may obtain additional preparation in art, natural resources, community planning, business, or plant sciences. Students are required to own a laptop computer by the time they enter the program. Specifications are available from the Landscape Architecture Program Office or online at uri.edu/cels/lar. Graduation requirements include a minimum of 130 credits maintaining a grade point average of at least 2.50 and no landscape architecture grades below a C.

URI's Landscape Architecture Program (LAR) is oversubscribed. Accreditation standards regarding staff and facilities limit the present student acceptance into the major to 20 per year and require a competitive admission policy. Students will be reviewed twice during the course of their studies: first for admission into the lower-division design sequence and again for acceptance into the upper-division B.L.A. major.

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 and/or transfer students through Undergraduate Admission (subject to maintaining a minimum 2.50 grade point average with no grades in LAR courses below a C). These students 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 and, where appropriate, a portfolio. Applications and transcripts are evaluated in February/March each year for acceptance into the lower-division design sequence in the following fall. In order to encourage minority applicants, one available space is set aside each year for a minority applicant who meets the minimal program qualifications.

Acceptance into the upper-division (junior-senior) landscape architecture major is based on submission and review of a portfolio of lower-division work, academic transcript, and a written essay. A maxi-

mum of 20 students per year are accepted into the upper-division B.L.A. curriculum. Eligible applicants for the upper division are students enrolled in LAR 244, repeat applicants, and students wishing to transfer directly into the upper division from other landscape architecture programs. Only students who have completed comparable lower-division courses in programs that 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 Admission and have their portfolio, transcripts, and essays submitted to the director of the landscape architecture program before February 20 preceding the fall semester in which they wish to enroll. Students will be notified of their acceptance into the upper-division program before preregistration for fall classes.

Interested students should discuss entrance probabilities with the program advisor.

Marine Affairs

URI's Department of Marine Affairs offers the following degrees: B.A., B.S., M.A., M.M.A. (Master of Marine Affairs), and Ph.D.

The B.A. and B.S. in marine affairs focus on coastal and ocean areas and examine environments, resources, and uses from a variety of perspectives. Topics include coastal and fisheries management, ports and maritime transportation, ocean policy and ocean law.

A marine affairs major establishes a background for careers in the public or private sectors in a wide variety of marine-related fields. Typical areas of employment include positions in government concerned with coastal zone, environmental, or fishery management, and marine transportation. In the private sectors, students have secured positions in environmental consulting firms, marine insurance, public interest nongovernmental organizations, marinas, ports, and companies involved in shipping. The major serves well as an educational background for continued study in law,

especially environmental, fishery, coastal zone, admiralty, and ocean law. Students have also entered graduate and professional programs in environmental management, public administration, community planning, marine affairs, and related fields.

Students in the Department of Marine Affairs who participate in the New England Regional Student Program must maintain a 2.8 G.P.A. and take at least one MAF course per year to retain their New England regional tuition status. Failure to meet these objectives will result in suspension of the reduced tuition privilege. Reinstatement may occur if the student meets these requirements for one year after the time of the suspension.

Bachelor of Arts in Marine Affairs.

Students who obtain the B.A. in marine affairs must fulfill the Basic Liberal Studies requirements of the College of Arts and Sciences (page 50).

Students selecting this field are required to complete at least 30 credits (maximum 45) in marine affairs as follows.

All of the following courses (12 credits): MAF 100, 120, 220, and 410 [**capstone**]. Five of the following courses (15 credits): MAF 312, 415, 320, 330, 413, 434, 461, 465, 471, 472, 475, 484, and 499. One additional MAF course (three credits) must be taken to complete the required 30 credits in the degree.

In addition, students must also take STA 308 and OCG 123 or 401 (if OCG 123 is taken, it may also be used toward fulfilling the Basic Liberal Studies Natural Sciences requirement).

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

Bachelor of Science in Marine Affairs.

Students selecting this field must complete at least 30 hours in marine affairs with the following required MAF courses: MAF 100, 120, 220, 410 [**capstone**], 482; and five of the following courses: MAF 312, 320, 330, 413, 415, 434, 461, 465, 471, 472, 475, 484, and 499.

In addition to the above requirements, students must take BIO 101; OCG 123 or 401; MTH 111 or 131; and WRT 333 (3).

Students must also select a total of 18 credits from the following, of which nine must be at the 300 level or above: AFS 102, 201, 210, 211, 321/322, 332, 362, 432, 483; BIO 141, 252, 345, 355, 360, 418, 455/457; CHM 103, 112, 124/126; EEC 105, 110, 205, 310, 345, 356, 410, 432, 435, 440, 441, 456, 460; GEO 100, 103, 210, 240, 277, 370, 450, 483; NRS 223, 361, 406, 410, 423, 424, 440, 461; NRS/GEO 482; OCE 101, 215, 307, 310, 311; PHY 109/110, 111/185, 112/186, 130, 213/285, 214/286, 306; STA 308, 409, 412, 413.

A total of 126 credits is required for graduation.

Marine Biology

See page 96.

Microbiology

This major, offered by the Department of Cell and Molecular Biology, meets the guidelines of the American Society for Microbiology. It will prepare students for work in a wide variety of scientific areas including molecular genetics, biotechnology, and the pharmaceutical industry, as well as many other areas of biological sciences. A strong background in chemistry is emphasized, providing excellent preparation for graduate or professional school. An option in biotechnology is also available.

Students who develop a strong interest in the clinical aspect of microbiology can easily move to URI's Clinical Laboratory Sciences program. This department also offers a Master of Science degree in cell and molecular biology, and a Ph.D. in biological sciences.

A minimum of 30 credits in microbiology is required, including MIC 333; the **capstone** experiences 413, 414, 415, 416, and 495; and one course selected from MIC 412, 422, 432, or 576. Students majoring in microbiology may include any course in microbiology; BIO 327, 341, 432, 437, and 465. Students planning to attend graduate school are advised to take MTH 131 and 132, or 141 and 142. In addition, they must

take BIO 101, 102, and 352; CHM 101, 102, 112, 114, 212, 226, 227, and 228; BCH 311; PHY 213, 214, 285, and 286 or 111, 112, 185, and 186; and MTH 131 or 141 and one of the following: MTH 111, 132, 142; CSC 201; or STA 308.

Note: CHM 229 and 230, which are offered in summer only, may be substituted for CHM 226.

A total of 130 credits is required for graduation.

Biotechnology Option. Students in the microbiology major may elect the biotechnology option, which offers preparation for further work in research and development, biotechnology operations, quality assurance, and regulatory affairs. This option emphasizes a broad and interdisciplinary overview of the biotechnology industry, and provides students with an academic background in microbiology, biochemistry, cell biology, molecular biology, and molecular genetics to prepare them for careers at several levels of industry.

In addition to the courses specified for the major, the following biochemistry and microbiology courses are required: BIO 341, 437; MIC 190, 211, 333, 413, 415, 499 and six additional credits of MIC or BCH course work. MIC 414, 416, and 495 are not required for students pursuing this option.

The required internship for this option (MIC 499) is conducted with the cooperation of local members of the biotechnology industry and may be pursued on a full- or part-time basis. Students should be aware that internships may be limited in number and are awarded on a competitive basis; therefore those interested in the biotechnology option should consult with their advisors early in their college career.

Nutrition and Dietetics

This major prepares undergraduates for careers in nutrition-related fields. Two options, dietetics and nutrition, are available.

The major requires 11 credits in introductory professional courses including NFS 110, 207, 227, 236, and 276; 21–22 credits in sciences (four in general chemistry, four in organic chemistry, seven–eight in

biology, four in microbiology, and three in biochemistry), three credits in statistics, and 25–29 credits in the concentration including the following courses: NFS 394, 395, 410, 441, 443, and 458 [capstone]. WRT 104 or 105, or 106, and COM 101 are required and may be used to fulfill general education requirements. There are 19–24 credits of supporting electives and 12 credits of free electives. A total of 123 credits is required for graduation.

Students will be admitted to the Nutrition and Dietetics major in the College of the Environment and Life Sciences after completing a minimum of 30 credits. Students must complete the following courses prior to admission: 1) NFS 207, 2) either CHM 103/105 and CHM 124/126 or BIO 121 and BIO 242, and 3) either COM 100 or WRT 104/105. A minimum grade of C in NFS 207 and C- in the remaining courses is required for admission. In order to graduate, students will need to have earned a minimum of C in each of the required NFS courses and a minimum of C- in each of the required program courses. The required NFS courses for the Dietetics Option include: NFS 110, 207, 227, 236, 276, 337, 375, 376, 394, 395, 410, 441, 443, 444, and 458; and the required program courses include: CHM 103, 105, 124, and 126; BCH 311; BIO 121; BIO 242; MIC 201; WRT 104/105; COM 100; STA 220; SOC 100; and PSY 113. The required NFS courses for the Nutrition Option include: NFS 110, 207, 227, 236, 276, 394, 395, 410, 441, 443, 458, and two additional NFS concentration courses; the required program courses include: CHM 103, 105, 124, and 126; BCH 311; BIO 102 or 121; BIO 242; MIC 201; WRT 104/105; COM 100; and STA 220.

Dietetics Option. This option is required of all students planning to become registered dietitians. URI's dietetics program is accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association (ADA), 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606, 312-899-0040, ext. 5400. This option provides students with the academic background in clinical, community, and administrative

dietetics. In addition to the core courses specified for the major, the following courses are required: NFS 337, 375, 376, 444 and BUS 341. SOC 100 and PSY 113 are also required and may be used to fulfill general education requirements. Students are encouraged to use supporting elective and free elective courses to study disciplines related to the field.

After completing their B.S. requirements, students can qualify for the professional title of Registered Dietitian by completing supervised practice requirements and passing a national exam. The supervised practice requirement is met by completing an ADA-accredited dietetic internship program available to students on a competitive basis nationwide. Internships may be combined with graduate programs in universities leading to an advanced degree. Students completing academic and supervised practice requirements become eligible to take the national registration examination.

Nutrition Option. This option is for students who want to study nutrition but do not plan to become registered dietitians. Using this option, students have the opportunity to design their own programs by combining training in nutrition with other areas that interest them. In addition to the courses specified for the major, students must complete a minimum of 3 credits in NFS 491/2 or NFS 451, and 9 credits selected from advanced-level NFS courses. Students must also select a "minor" field of study. To satisfy this requirement, students can complete any one of the University-approved minors, or complete 18 credits in a curriculum other than NFS. Examples of possible minors are health promotion, exercise science, psychology, international development, journalism, biology, and general business. Alternatively, with approval from the department, students may complete 18 credits related to their interests or career goals selected from several disciplines. Students may, for example, select courses to prepare for graduate school or meet basic admission requirements for medical school.

Resource Economics and Commerce

This major, offered by the Department of Environmental and Natural Resource Economics (with courses listed under Environmental Economics), provides students with a broad education focused on resource economics, economics, and natural resources sciences. In the private sector, careers can focus on the production, marketing, and distribution of natural resource commodities such as fisheries and agricultural products, timber, and 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 levels, for advanced professional programs in environmental law or community planning, or for graduate study in resource and agricultural economics.

EEC 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 in general chemistry and six in general biology. Fifteen credits are required in supporting sciences including three in computer science and six 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 can 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.

Twenty-six credits are required in supporting electives, which must include three credits in communication skills. The student normally selects three credits in communication in addition to the general education requirements. 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 the Environment and Life Sciences 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 nutrition and food sciences. Students intending to pursue graduate studies in resource economics or economics should select course work in economic theory, mathematics, and statistics.

Wildlife and Conservation Biology

The major in wildlife and conservation biology, 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. They 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 13 credits of professional courses, which include natural resource conservation, seminar in natural resources, resource economics, introductory soil science, and conservation of populations and ecosystems. As part of the basic science requirements, wildlife majors must complete six to eight credits in introductory biological sciences; three credits in introductory ecology; four credits in introductory

physics; four credits in physical geology; four credits in introductory 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 the principles of wildlife management; three credits in wildlife field techniques; four credits in field botany and taxonomy; three credits in wetland wildlife or nongame and endangered species management; and nine to ten credits from an approved list of concentration courses that may include, for example, field ornithology, biology of mammals, vertebrate biology, animal behavior, introduction to forest science, wetland wildlife management, wetland ecology, and wildlife biometrics. Supporting electives (31–34 credits) must be selected from the approved list. We encourage students to complete course work so they can become certified wildlife biologists. The list includes the following upper-division course work: three credits in botany; six credits in zoology; six credits in resources policy or administration, environmental law, or land use planning; and six credits in communications. An additional 10–11 credits of supporting electives must be selected from concentration electives, or from other 300- or 400-level natural resources science courses. Up to 24 credits of experiential learning courses may be taken toward satisfying concentration (letter grade courses only) and supporting elective requirements.

NRS 402 and 403, or 423 and 425, or 522 and 524 are the **capstone** experiences in this major.

MINORS IN NATURAL RESOURCES SCIENCE

The following minors are University-approved. Students may also design their own minors; see page 35.

GIS and Remote Sensing. This minor field of specialization provides students in-depth training in the use of GIS (geographic information system) and remote sensing technology and application of geospatial data processing methods to environmental

problem solving. Students who declare a minor in GIS and remote sensing must complete 18 credit hours consisting of the following core courses: NRS 409, 410, 415, 516, and 522. The remaining credits may be taken from NRS 423, 524, 533, or CPL 511. Students minoring in GIS and remote sensing are encouraged to take a capstone course that allows them to apply their analytical skills in a real-world application.

Soil Environmental Science. This minor field of specialization provides students in-depth training in the application of soils information to solve environmental problems and issues. Students fulfilling the requirements of the soil environmental science minor meet the qualifications for basic membership in the Society of Soil Scientists of Southern New England, are eligible for certification as soil scientists under the American Registry of Certified Professional Soil Scientists, and meet the requirements for federal job listings under soil scientists. Students who declare a minor in soil environmental science must complete 18 credits from the following courses: NRS 212, 312, 351, 361, 412, 426, 450, 452, 471, 510, 567, or GEO 515. Students minoring in soil environmental science are encouraged to take a capstone course that allows them to apply their analytical skills in a real-world application.

Wildlife and Conservation Biology. This minor field of specialization provides students in-depth training in the principles of managing wildlife populations and their habitats. Students who declare a minor in wildlife and conservation biology must complete at least 18 credits of NRS courses within the WCB major curriculum, at least 12 of these 18 credits must be at the 200 level or higher, and all courses in the minor must be taken for a letter grade. Students minoring in wildlife and conservation biology are encouraged to take a capstone course that allows them to apply their analytical skills in a real-world application.

A major in this program is also available. See above.

COLLEGE OF HUMAN SCIENCE AND SERVICES

William Lynn McKinney, *Dean*
Nancy Kelley, *Assistant Dean*

The College of Human Science and Services is a people-oriented college designed to focus on the human and material resources needed to help individuals and groups solve human problems encountered in contemporary society. Our programs prepare students for a variety of professions in teacher education, health-related fields, and fields that have evolved from URI'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 that enable students to develop the competencies needed in the field of human services. The teacher education programs offered through the college are outlined in the following departmental descriptions. For more information on teacher education programs, see page 41.

Degrees offered include a Bachelor of Science degree with majors in communicative disorders; human development and family studies; kinesiology; secondary education; textile marketing; and textiles, fashion merchandising, and design; and Bachelor of Arts degrees in elementary or secondary education.

The college sponsors a number of organizations and activities that provide special opportunities for students, including two child development centers, a family therapy clinic, historic textile and costume collection, computer laboratory, physical therapy clinic, and a speech and hearing clinic.

Minors. Students can declare a minor, which will appear on their transcripts as a category separate from their major. See page 35 for details.

The college participates in the following interdisciplinary minors: gerontology, hunger studies, leadership studies, and special populations (see pages 36–39). Details on

minors offered within the college can be found later in this section.

Faculty

Communicative Disorders: Professor J. Singer, *chairperson*. Professors Kovarsky and Weiss; Associate Professor M. Kim; Assistant Professor Mahler; Clinical Assistant Professors Connors and Theadore; Adjunct Assistant Professor R. Singer.

School of Education: Professor Byrd, *director*. Professors Boulmetis, Eichinger, Favazza, McKinney, Purnell, Trostle Brand, G. Willis, and Young; Associate Professors Adamy, deGroot, Hicks, Peno, Seitsinger, and Shim; Assistant Professors Coiro, Deeney, and Kern; Research Associate Professor Brand; Instructor Fogleman; Professor Emeritus Heifetz.

Human Development and Family Studies: Professor J. Adams, *chairperson*. Professors J. Adams, Gray Anderson, Clark, Knott, Newman, and Xiao; Associate Professors Branch, Kalymun, McCurdy, Richmond, and Sparks; Assistant Professors S. Adams, Dice, Harper, Kisler, and Vaccaro; Adjunct Professors P. Newman and Prochaska; Adjunct Instructors Blumen, Kerbel, Penhallow, and Warford; Professors Emeriti Cohen, Maynard, and Schaffran.

Kinesiology: Professor Riebe, *chairperson*. Professors Lamont and Manfredi; Associate Professors Blissmer, Ciccomascolo, and Kusz; Assistant Professors Delmonico and Xu; Lecturers Doll, Hatfield, and Steen.

Textiles, Fashion Merchandising, and Design: Professor Welters, *chairperson*. Professors Bide and Ordenez; Associate Professors Harps-Logan and Hannel; Assistant Professors Kapstein and Kim; Adjunct Professor Emery.

Interdisciplinary Programs: Gerontology—Professor Clark, *director*; Human Science and Services—Dean McKinney, *program head*; Leadership Studies—Associate Professor Richmond, *acting program head*; Special Populations—Associate Professor Roush, *acting program head*.

Curriculum Requirements

General Education Requirements. All students pursuing a bachelor's degree in the college are required to develop a 39-credit program in general education within the framework listed on pages 33–35.

Students within the college must take, as part of their *English communication* requirement, a minimum of three credits from WRT 104, 105, or 106 and a minimum of three credits from COM 100; or as part of their *social sciences* requirement, a minimum of three credits from APG, PSY, and SOC courses approved for general education. Individual programs within the college may require specific courses.

Students in the elementary and secondary education program must follow the basic liberal studies requirements of the College of Arts and Sciences.

Field Work. Many of the college's academic programs 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, child 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.

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 cannot be repeated for credit. Credit can 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.

Curricular Modifications. In consultation with the advisor, and with the approval of the department chairperson, a student will be permitted to modify the normal requirements of the department in which the student is majoring. The decision of the department chair is final. Requirements outside the major may be modified only with the approval of the Scholastic Standing Committee of the College of Human Science and Services. Petition forms are available in the Office of the Dean. Minimum grade point average and total credit requirements are not petitionable.

Transfer Students. Transfer students should be advised that admission to some programs in the college requires meeting certain prerequisites or separate admission criteria. Teacher education programs in the School of Education, Department of Human Development and Family Studies, and the Department of Kinesiology have specific admission criteria and generally require that a matriculated student complete at least one semester of work at URI before applying for admission. Transfer students may be admitted to the University, but are not admitted directly into these programs.

The Plan for Early Contingent Admission to the D.P.T. Program in Physical Therapy requires careful and timely course planning typically beginning with the freshman year at URI. It is unlikely that transfer students would have the appropriate sequence of courses, including the prerequisites, that would allow them to take advantage of this option.

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.

Graduation. It is the responsibility of each student to file an Intent to Graduate form and curriculum work sheet approved by his or her 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.

Communicative Disorders

This curriculum leads to a Bachelor of Science (B.S.) degree. Students seeking admission to this program must receive a grade of C or better in CMD 160, 272, and 273 and maintain a minimum cumulative GPA of 2.50. In addition to general education requirements and appropriate free electives, a major of 43 credits in communicative disorders includes 34 credits of required courses and nine credits of professional electives.

The required courses are CMD 160, 272, 273, 274, 276, 278, 361, 375, 377, 454, 460, 465, and 493. The remaining nine credits (three courses) must be selected from the following courses: BMS 312; COM 221, 251; CMD 440, 475, 491, 492; EDC 312; HDF 200, 201, 203, 312, 314, 400; HIS 117; HSS 120; LIB 120; LIN 200, 220; PSY 232, 254, 300, 388, 442; SOC 224; STA 220, 308.

With careful early planning, students can use free electives to achieve a double major or explore special-interest areas in depth. Students should anticipate the necessity for graduate study in speech-language pathology. The typical minimum entry requirement for graduate study is a grade 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. URI sixth-semester students pursuing a B.S. degree in communicative disorders with 25 credits of electives remaining may apply for acceptance into an accelerated master's degree program in speech-language pathology. This accelerated program is not available to non-URI undergraduates or part-time graduate students. Students ac-

cepted to these programs follow a specified sequence of graduate-level course work and clinical practicum during their senior year, and complete the master's degree with an additional one year and one summer of full-time study in speech-language pathology. A cumulative grade point average of 3.00 overall and 3.20 in the major is required, with satisfactory MAT or GRE scores. Three letters of recommendation (two from URI communicative disorders faculty) are also needed. Students should indicate their intent to apply to the accelerated program in the graduate application materials.

Students in the speech-language pathology program are required to take a minimum of 24 credits in specified course work and practicum at the 400–500 level in the fifth year. Requirements for the M.S. in speech-language pathology are outlined in "Graduate Programs" (see pages 161–162 for more information).

Education

Curriculums in secondary education lead to the Bachelor of Science or Bachelor of Arts degrees, the curriculum in elementary education to the Bachelor of Arts (B.A.) 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 "Graduate Programs."

The curriculums offer a balanced program of academic preparation and professional training. The required professional courses contribute directly to the student's understanding the teacher's role in society and developing teaching skills.

Successful completion of the early childhood education program leads to an initial teaching certificate for the pre-school and primary grades (PK–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.

If you are a transfer student, see above for information on transferring into these programs.

Admission Requirements. Students interested in undergraduate teacher education programs must apply for admission to the Office of Teacher Education. Students interested in URI's early childhood, elementary, and secondary education programs must submit a portfolio and sit for an interview as part of the admission process. Please visit uri.edu/hss/education for additional information.

Applications for admission to teacher education programs are normally submitted 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) passing scores on the PPST: Reading 172, Writing 171, Math 171 or a score of 1100 on the SAT; 4) the student's academic record, including a cumulative grade point average of 2.50 or better. In addition, for the secondary education and music education programs, a grade point average of 2.50 or better in the Arts and Sciences major or specialization. Students applying to the early childhood education program must attain a C or better in HDF 203 or equivalent for acceptance into the program.

Students should consult with the elementary or HDF advisor at University College, the Office of Teacher Education, or the HSS advisor at the Providence Campus.

Due to limited staff and facilities, admission to the programs in early childhood and elementary education is limited. Some applicants meeting the minimum requirements may not be admitted due to limited space. Students should check with the School of Education, the Department of Human Development and Family Studies, or their University College advisor as early as possible for additional information.

Students denied admission can petition the department for a review of the decision. In such cases, the school's screening committee meets to consider the appeal.

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

Program Requirements. For courses required for early childhood education, see "Human Development and Family Studies" on the next page. For more information on teacher education programs, see page 41. For graduate teacher education programs, see the "Graduate Programs" section.

Students who are admitted to the elementary education program are required to complete a B.A. degree. Students must select a major in the College of Arts and Sciences, or biology in the College of the Environment and Life Sciences, in addition to the major in elementary education. Students must also fulfill the basic liberal studies requirements of the College of Arts and Sciences as they relate to double majors. See program requirements in the College of Arts and Sciences section.

The professional sequence courses required for elementary education are EDC 250, 312, 102 or 360, 402, 423 (or HDF 302) 424, 452, 453, 454, 455, 456, 457, 458, 459 and EDC 460. These courses are taken prior to student teaching. EDC 484 and 485 make up the student teaching experience. The following are also required and can be taken as part of the basic liberal studies requirements: COM 101; HIS 142; PSY 113, 232; WRT 104, 105, or 106; and a one-credit health education course or equivalent. Students should contact the School of Education for more details.

Students seeking to teach in a middle school must obtain a middle level endorsement and be eligible for elementary or secondary certification. The professional sequence of courses required for middle level endorsement is EDC 400, EDC 415 or an approved adolescent development course, and a practicum. These courses should be taken prior to student teaching. EDC 484

and 485 make up the student teaching semester. Teacher candidates seeking a middle level endorsement are required to teach in a middle school in addition to their elementary or secondary experience. In addition, 21–30 credits in one of the following content areas is required: English/language arts, mathematics, science, social studies, or foreign language. Final projects for each course must be uploaded into the electronic portfolio along with a self-reflection prior to the end of each course. Admission to the middle level endorsement program is contingent upon acceptance to the elementary or secondary education program. Prior to student teaching, candidates must successfully meet the standards for EDC 400 and the pre-student-teaching review, which includes review of all required courses and e-portfolio tasks by the secondary and elementary teams in conjunction with the middle level team and the Office of Teacher Education. Elementary education students should see a middle level advisor for specific course requirements.

The professional sequence courses required for secondary education are EDC 250, 312, 102 or 360, 371, 402, 430, 431, and 448. These courses are taken prior to student teaching. EDC 484 and 485 make up the student teaching semester. PSY 113 and HDF 310 or EDC 415 are also required. Students in secondary education are required to take a content area exam in their area of certification.

Students pursuing a program in secondary education normally obtain a B.A. degree, double majoring in education and their subject matter specialization, although a B.S. degree in secondary education is available in some specialization areas. Secondary education programs are offered in biology, chemistry, English, general science, history, mathematics, modern language, physics, and social studies.

Students in all programs must maintain minimum grade point averages of 2.50 overall, 2.50 in their education major, and 2.50 in their academic major area. To be eligible for student teaching, students must earn a grade of at least a C in EDC 430 and 448 (secondary); EDC 424, 425, 452, 453,

455, 456, 457, 458, and 460 (elementary); HDF 203, 301, 303, EDC 424, 426, and 429 (early childhood). Failure to maintain these grades and/or 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.

Students in the School of Education, graduate and undergraduate certification and licensure programs will be required to take and pass a content area exam(s) in their area of certification and any other exam required for state licensure prior to student teaching or final internship. Contact the Office of Teacher Education for the “passing” scores required for each discipline.

The major in elementary education requires 128 credits; secondary education requires 120 credits.

The School of Education has designated EDC 485 as its **capstone** course.

Human Development and Family Studies

The curriculum in human development and family studies leads to a Bachelor of Science degree. The department also offers a certification program in family financial counseling and planning, as well as the Master of Science degree (see “Graduate Programs”).

The undergraduate B.S. 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, child care centers, institutions and hospitals, and in recreational, child guidance, casework, and other community agencies. Students completing the program in family financial counseling and planning are employed in agencies providing family financial and credit counseling services.

Program student learning objectives:

Graduates of the program in human development and family studies will acquire and utilize knowledge and skills necessary for a professional position or graduate/professional training in the human development and family studies field; understand and use methods of inquiry appropriate to this field, including relevant quantitative or qualitative analytic tools; use acquired knowledge, skills, and creativity to identify and solve complex human science problems; communicate clearly and effectively using a variety of methods; demonstrate a sense of responsibility to self, community, and society; and acquire knowledge and practice regarding the ethical principles and best practices in human development and family studies discipline. A more detailed description of the student learning objectives can be found at the HDF program Web site: uri.edu/hss/hdf.

Admission Requirements. Students seeking admission to this bachelor’s degree program must complete the following courses with an overall grade point average of 2.00 or better prior to acceptance for admission: HDF 200 or 201, PSY 113, any 100- or 200-level sociology course, and three general education credits in mathematics.

Program Requirements. Students are required to complete the following core curriculum:

- 1) a one-credit personal and career development course, HDF 180;
- 2) 15 credits of core courses including HDF 200, 201, 202, 205, and 230;
- 3) any two development courses—courses include HDF 203, 306, 310 and 311, 312, 314;
- 4) six to 12 credits of senior-level field experience chosen from the following options—HDF 480/481; HDF 477/478; EDC 484/485 (early childhood education students only); HDF 497; or the OIEE Internship Program (see page 44).

Additionally, students are required to complete a 12-credit concentration in one of the following three areas:

Professional Content for Child Settings: any 12 credits—HDF 357, 400, 430, 432, 434, 455 and 456, HDF 302 or EDC 425, HDF 305.

Professional Content for Family and Community Settings: any 12 credits—HDF 357, 418, 421, 428, 430, 431, 432, 433, 434, 437, 440.

Professional Content for Family Finance: any 12 credits—HDF 418, 424, 426, 428, 451.

To enhance their concentrations, students must also complete 12 credits of professional electives including HDF 450. Professional electives must be approved in consultation with an advisor, and nine of the 12 credits must be at the 300 level or above. Field experience does not meet this requirement.

Students must have from 19 to 31 credits of free electives to reach the 120-credit B.S. degree requirements.

For information on transferring into this program, see page 106.

Minor in Family Financial Counseling and Planning. Students outside the Department of Human Development and Family Studies may declare a minor in family financial counseling and planning by completing 18 credits as follows: HDF 418, 424, 426, 450, 451, and one of the following courses: HDF 205, 210, 225, or 428.

Certification Program in Family Financial Counseling and Planning. Students will take HDF 418, 424, 426, 428, 450, and 451; and HDF 477, 478 for their senior fieldwork experience. Non-HDF majors should also take HDF 205.

Early Childhood Education. A portion of the courses in the HDF curriculum, plus certain others in education, meet the requirements for the initial Early Childhood Education Certificate (nursery through grade 2) in Rhode Island. Students who wish to meet the requirements for this certificate in Rhode Island must apply to Early Childhood Education through the Office of Teacher Education. See page 41 for admission requirements, certification in

other states, and other information regarding teacher education.

Students complete an application and develop an admission portfolio during the sophomore year. The portfolio includes materials in the following areas: interpersonal and communication skills, academics, experience with children in community settings, and diversity experiences. Students must sit for an interview and take several examinations. Because there are only nine credits of free electives in the program, early consultation with an HDF advisor is important if students are to finish their degree in a timely manner.

URI's curriculum, shown below, meets the mandates for beginning teachers set by Rhode Island's Department of Education. Curriculum requirements for the Early Childhood Education (ECE) Certificate are as follows (in this order):

Prior to acceptance into early childhood education: 1) 39 credits of general education courses (to be taken prior to formal application, including EDC 102, 250, and 312, and NFS 207); after acceptance into ECE program: 2) 16 credits of core courses including HDF 180, 200, 201, 202, 205, and 230; 3) professional content courses totaling 13 credits; these are specific courses that are already required plus one 400-level course (HDF 203, HDF 302 or EDC 425, HDF 357, HDF 400 or 432); 4) certificate program (total 27 credits)—EDC 102, 250, 312, 402, 426 and 350, 429, 424; HDF 301, 303; and 5) final 15-credit senior-level field experience, EDC 484/485 Student Teaching and Seminar.

To be eligible for student teaching, students must maintain a grade point average of 2.50 overall and 2.50 in the major, and attain a grade of at least C in HDF 203, 301, 303, EDC 402, 424, 426, and 429. 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 continue on the early childhood course sequence or student teach. Failure to return grade averages to acceptable standing after one semester will lead to dismissal from the program.

URI's early childhood education program totals 111 credits plus nine credits of free electives; 120 credits are required for graduation.

Kinesiology

This curriculum in kinesiology leads to a Bachelor of Science degree. The major is designed for students who plan to pursue careers in the broad fields of exercise science, health fitness, and physical and health teacher education. Students can prepare for certification as a public school teacher (physical and health education K–12) including endorsement in adapted physical education. For those interested in alternative careers in kinesiology, options are offered in exercise science, health fitness, and general studies in kinesiology. The department also offers a Master of Science degree and a teacher certification preparation program (see "Graduate Programs").

The Department of Kinesiology offers up-to-date research and teaching facilities, including laboratories for biochemistry, electron microscopy, bone density, health fitness, body composition, plethysmography, and human performance.

Students seeking admission to this program must have completed 24 credits including BIO 101 and BIO 121. In addition, students entering the program must have a minimum GPA of 2.00 and must have received a grade of C (2.00) or better in BIO 121.

Kinesiology Options. Students are strongly advised to seek guidance from their advisor in planning their course of study and choosing a focus area.

Exercise Science Option. The exercise science option prepares students to analyze physical activity, exercise, and sport in a physiological context, with an emphasis on basic science courses. This option is for students considering careers or graduate degrees in health care professions: exercise physiology, cardiac rehabilitation, physical therapy, physician's assistant, and occupational therapy. Students in this option are required to have a cumulative

grade point average from KIN core and specialization requirements of 2.50 or higher before completing supervised field work.

Health Fitness Option. This option promotes the understanding of the benefits of physical activity and is designed for students interested in becoming health fitness practitioners. Career opportunities exist in corporate, community, commercial, and hospital-based fitness and wellness centers. Students will be prepared to become certified health/fitness specialists, strength and conditioning specialists, or personal trainers. This option also prepares students for continuing study in exercise science, fitness management, health promotion, preventive medicine, and related fields. Students in this option are required to have a cumulative grade point average from KIN core and specialization requirements of 2.50 or higher before completing supervised field work.

Physical Education and Health Education Teacher Education Option. This option is designed for students seeking teacher certification in physical education and health education at the elementary and secondary levels. Completion of the NCATE approved certification program fulfills the requirement for teacher certification in Rhode Island and the majority of other states. Students interested in undergraduate teacher education programs must apply for admission to URI's Office of Teacher Education. Applications for admission to teacher education programs are normally submitted during the sophomore year. A departmental screening committee reviews the applications. The committee's decision is 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 working with children, and expectations as a teacher; 3) passing scores on the PPST (Reading 172, Writing 171, Math 171) or a score of 1100 on the SAT; 4) interview with presentation of admission portfolio; 5) completion of at least 30 credits of coursework including

KIN 270; and 6) an overall GPA of 2.50 or better and grades of C or better in KIN 270, COM 100, and WRT 104, 105, or 106. If denied admission, students can petition the department for a decision review. Applicants who fail to gain admission should seek counsel from an appropriate advisor. Students may reapply for admission to the teacher education program but should understand that this may delay their anticipated graduation date. Students in the physical and health education teacher education program are required to have a cumulative grade point average of 2.70 or higher in KIN courses before student teaching (EDC 486/7). Students in the physical and health education teacher education certification and licensure program are required to take and pass the Praxis II: Principles of Learning and Teaching (PLT) Test and the Physical Education Content Knowledge Test prior to student teaching. Contact the Office of Teacher Education for the “passing” scores required for each test.

Early Contingent Admission to URI Physical Therapy Program Option. This advanced specialization is designed for highly qualified students who have decided on a career in physical therapy and wish to attend the URI D.P.T. program. Students successfully following this track will be allowed to apply for the URI D.P.T. program during their junior year. Following acceptance, credits earned the first year in the physical therapy program will be used to complete the B.S. degree in kinesiology. Students in this track must complete the following requirements to stay in this accelerated program: 1) complete the required course sequence and have a 3.20 or higher GPA at the completion of freshman year; 2) receive a minimum grade of 3.00 in BIO 121; 3) complete the required course sequence and have a 3.30 or higher GPA at the completion of sophomore year; and 4) complete the required course sequence and have a GPA of 3.40 or higher following the first semester of the junior year. Students applying for early contingent admission must also complete all admission requirements set by

the D.P.T. program (see “Physical Therapy” in the “Graduate Programs” section of this catalog). Completion of this specialization does not guarantee admission into URI’s D.P.T. program.

General. This option is designed for the student who desires a broad experience in kinesiology. It may also be used for students transferring into the department.

Degree Requirements. The following courses are required of all students in kinesiology: URI 101 (1 credit), 40 credits of general education including WRT 104, 105, or 106; COM 100; BIO 101; and PSY 113. Core curriculum requirements (16 credits) include BIO 121, 242; KIN 334, 278, and 370. A total of 120 credits is required for graduation from exercise science, health fitness, early contingent physical therapy, and general options. A total of 135 credits is required for graduation from the physical and health education teacher education option. Specific requirements for the different degree options are listed below.

Teacher certification requirements include: KIN 270, 304, 305, 307, 309, 310, 314, 315, 324, 368, 380, 382, 401, 410; PSY 232, 460; EDC 312, 485, 486/487; NFS 207; NUR 150; MIC 201; HDF 357; 7 credits of practicum activity including KIN 116, 117, 118, 121, 222, 322, and 324, 6 credits of approved adaptive physical education courses. There are no free electives.

Requirements in the *health fitness* option include KIN 105L, 120, 275, 325, 335, 369, 382, 420, 425, 484, 486; NFS 207, and a health promotion course. Additionally, to reach the required 120 credits, students take nine credits of free electives and select 12 credits from the following specialized electives: BCH 211; BSL 333; BUS 140, 201, 202, 340, 441; CHM 124; COM 202, 221, 324, 351; HDF 201, 314, 357, 450; NFS 360, 441, 444; KIN 243, 391, 441, 475, 478; PHY 111, 112, 185, 186; PSY 103; SOC 224; WRT 227, 235.

The *exercise science* option requires CHM 105, 124, 126; BCH 211; BIO 244; NFS 207; KIN 275, 325, 335, 369, 420, 484, and 486. Additionally there are 15–17 credits selected from specialized electives

and 6–8 credits of free electives. Students may need to use free electives to complete requirements for many graduate programs. Specialization electives that students may choose from are BIO 445, 451, 453; BCH 464; NFS 360, 441, 444; MIC 211; KIN 120, 243, 391, 414, 475, 478; PHY 111, 112, 185, 186; PSY 232, 300; SOC 100, 224; STA 307, 308, 409, 412. In addition, students applying for URI’s physical therapy program must take the following classes as specialization or free electives: PHY 111, 185, 112, 186; MTH 111; a basic statistics course (through ANOVA) and a second level psychology course (developmental or abnormal psychology preferred).

The *early contingent physical therapy program* requires that the following classes be completed during the first five semesters of study: BIO 101, 121, 242, 244; CHM 103, 105, 124, 126; COM 100; KIN 243, 275, 278, 325, 334, 335, 370; MTH 111; PHY 111, 112, 185, 186; PSY 113, 232, 300; WRT 104; and 12 credits of general education courses. Other requirements include KIN 420; FSN 207; nine credits of general education courses. During the fifth and sixth semesters, the first year physical therapy graduate curriculum is followed.

Requirements specific to the *general* option include KIN 243, 270, 275, 369, 382, 475 or 478; PSY 255; NSF 207; and HDF 357. Additionally, students must complete 18 credits in a department-approved focus area, or complete a University-approved minor. Students also complete courses to fulfill the general education requirements, and the kinesiology core courses that are common to all options in the department.

Textile Marketing

This interdepartmental curriculum leads to a Bachelor of Science degree. It combines the professional requirements of a major in textiles with the requirements of the College of Business Administration and is designed to prepare students for wholesale and retail marketing positions in the textile industry.

Textile marketing managers are responsible for planning and directing the flow of textile products from manufacturers to consumers. The major, which provides a strong background in both textiles and marketing, is designed to give students the opportunity to explore the areas of manufacturing, market research, consumer behavior, advertising, promotion, fashion, and sales.

Freshmen who complete a minimum of 27 credits with an overall grade point average of 3.00 or higher and who complete CSC 101 and MTH 131 (or their equivalents BUS 110 and 111) with a B or higher will be admitted to the College of Human Science and Services at the end of the freshman year. Student who have a minimum of 42 credits, a grade point average of 2.40 or higher, and who have successfully (with an average of 2.40 or higher) completed CSC 101, MTH 131, STA 308 (or their equivalents BUS 110, 111, 210), BUS 201, and ECN 201 after the first semester of the sophomore year will be admitted to the College of Human Science and Services. Students not meeting these requirements may be eligible to transfer to the textiles, fashion merchandising, and design program.

Students in this curriculum must take the following courses: TMD 103, 224, 303¹, 313, 402, 403, 433²; one of the following: TMD 240, 440, or 441; six credits of TMD electives; BUS 201, 202, 315, 341, 365, 366, 367; CSC 101; or nine credits from BUS 360, 448, 449, 450, 465, 467 or 468; MTH 131; and STA 308, 412. Students must also take the following courses to complete general education requirements: CHM 101/102 or 103/105; one of the following: BIO 105, MIC 190, NFS 207, PHY 109/110, PHY 111/185, or PHY 112/186; and ECN 201, 202.

A total of 120 credits is required for graduation.

Textiles, Fashion Merchandising, and Design

This curriculum leads to a Bachelor of Science degree. The Master of Science (M.S.) program is described in the "Graduate Programs" section.

The major is open to men and women with ability and professional interest in the artistic and technical aspects of the subject. Specialized programs of study prepare students for careers in the design, development, manufacture, and merchandising of textiles, apparel, and interior furnishings. Qualified students can prepare for graduate studies.

The following core courses are required: TMD 103, 224, 232, 303¹, 313, 402, 433²; one of the following: TMD 240, 440, or 441; one of the following pairs: 1) TMD 226, and 326 or 426; 2) TMD 327, and 222 or 325; ART 101, 207; ARH 120, 251, or 252; CHM 101/102 or 103/105; ECN 201 and 202; one of the following: BIO 105, MIC 190, NFS 207, PHY 109/110, PHY 111/185, or PHY 112/186. Twelve credits of TMD electives (six credits must be upper-level courses and no more than three credits from TMD 361, 362, or 461, 462) and 18 credits of professional electives (nine credits from any one area) are required. Students should choose TMD electives and professional electives in consultation with an academic advisor. Students must complete 24 credits with an overall 2.00 GPA and complete CHM 101 or 103, and TMD 103 and the general education mathematics requirement with a 2.00 average to transfer to the College of Human Science and Services. (The same requirements apply to students wishing to transfer into TMD from other majors.) TMD 402 is the **capstone** experience in this major. To complement classroom and laboratory/studio instruction, internships and study abroad are encouraged.

A total of 120 credits is required for graduation.

Apparel Studies. Students choosing this area of emphasis should select 12 credits of electives from TMD 222, 325, 327, 335, 345, 346, 355, and an additional 18 credits of professional electives³ from art, business, or theatre.

Fashion Merchandising. Students choosing this area of emphasis should select 12 credits of electives from TMD 222, 232, 332, 432, 442, 452, and an additional 18 credits of professional electives³ from business and/or art.

Interior Furnishings and Design. Students choosing this area of emphasis should select 12 credits of electives from TMD 226, 326, 426, 440, and an additional 18 credits of professional electives³ from art and/or business.

Textile Science. Students selecting this area of concentration should take TMD 403 and 413 as well as additional chemistry, chemical engineering, and/or statistics courses. An internship in textile manufacturing is recommended. The 18 credits of professional electives³ should be selected from MTH 111, 131; PHY 111 and 112 or 213 and 214; STA 308 or 412 or CSC 201; CHM 112, 114, 212, 226, 227, or 228.

Students in this option are encouraged to broaden and deepen knowledge of textile science by enrolling for one or two semesters at another university through an exchange program. Through a special arrangement, URI students may study for a semester or year at the textile sciences department at the University of Massachusetts–Dartmouth, which has extensive textile manufacturing equipment and analytical instrumentation. Possible course work includes fiber science, yarn spinning, warp and weft knitting, jacquard

or doobby weaving, composites, nonwovens, and manufacturing facilities design.

General TMD Program. Students may structure their own programs by concentrating course work in areas such as consumer studies, journalism, or gerontology. Selection of the 12 required TMD elective credits and the 18 professional elective credits³ should strengthen career goals and interests.

Art Minor. Students with an interest in apparel design or interior design should consider a minor in art. The requirements for this minor are determined by the Art Department and consist of 18 credits of

any art or art history courses, 12 credits of which must be at the 200 level or above. The overall URI requirements for a minor apply (see page 35). Courses particularly appropriate to TMD can be determined by consultation with TMD and Art faculty.

Double Major in a “Fashion” Language. France and Italy lead the luxury fashion market. Students enrolled in the Bachelor of Science program in Textiles, Fashion Merchandising, and Design may earn a Bachelor of Arts in either French or Italian. Students must complete the requirements for both degrees. With careful planning, no extra semesters are required. TMD students

who double major in a “fashion” language are strongly encouraged to participate in a study abroad experience and/or a professional internship in France or Italy. The Office of International Education and the respective departments help students arrange semester-long programs with affiliate universities. Students who graduate with majors in TMD and either French or Italian are well prepared to compete in the global fashion industry.

¹ Admission to the degree-granting college in the major is a prerequisite for TMD 303.

² Economics is a prerequisite for TMD 433.

³ Courses related to the student’s career goals, subject to approval by an advisor.

COLLEGE OF NURSING

Dayle H. Joseph, *Dean*
Laurie M. Lauzon-Clabo, *Associate Dean*

The College of Nursing offers a curriculum leading to the Bachelor of Science (B.S.) degree. The college also offers the Master of Science (M.S.) and the Doctor of Philosophy (Ph.D.) degrees.

Faculty

Professors Burbank, Dufault, Dunphy, Joseph, Schwartz-Barcott, and M. Sullivan; Associate Professors Coppa, Ferszt, Hames, Lauzon-Clabo, Martins, and O'Brien; Assistant Professors Leveillee and Misto; Clinical Professor Mercer; Associate Clinical Professors Doyle-Moss, Lavin, Palm, and Stout; Clinical Assistant Professors Carley, Dassie, Dugas, Gerzevitz, Kinsey, Paquette, and Thulier; Associate Professors Emeritae Feather, Godfrey-Brown, Miller, Viau, and Yeaw; Assistant Clinical Professor Emerita Evans.

URI's baccalaureate program is designed to prepare students with academic and personal potential to become professional nurses. It aims to develop mature, well-informed graduates who will meet the challenges of health care delivery and continued learning.

Nursing is a creative activity that provides human services for the promotion of health, prevention of illness, and 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. Our nursing curriculum enhances students' ability to function professionally

in community and home care settings with diverse populations.

Clinical practicums include experience in numerous community agencies, schools, nursing homes, ambulatory care facilities, and hospitals throughout Rhode Island.

There are three routes to admission to the college's baccalaureate program:

1) *Students with no previous college study* begin their preparation in University College with a major in nursing. After completion of 30–40 credits (which must include required foundation courses) with a minimum 2.80 overall grade point average and a 2.20 grade point average in the foundation courses, they may apply for transfer to the College of Nursing. This process is competitive; space is limited, and priority is given to students with strong academic records.

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 into the College of Nursing. To enroll in clinical nursing courses, transfer students must acquire a URI-based grade point average of 2.80 or higher and 2.20 in the foundation courses. Grades from courses taken at the other institution are not included in the student's grade point average. Students who transfer from another college or university are admitted into clinical nursing courses on a space-available basis.

Because the number of students accepted into clinical courses is limited, transfer students are advised to contact the associate dean before applying for admission to be sure of placement in a specific course.

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 Examination Program (CLEP) sponsored by the College Entrance Exami-

nation Board. Advanced credit allowances are based on a review of the candidate's test scores and preparatory experience.

R.N. students are required to take 18 credits of nursing courses as follows: NUR 246, 253, 346, 443, 444, and 446 or 503. R.N. students must have an active Rhode Island nursing license and malpractice insurance.

A total of 120 credits is required for R.N.s to earn the B.S. degree. Thirty of those credits must be earned at URI.

The usual time for completion of all requirements for students with no previous college or nursing study is eight semesters. All students in the College of Nursing meet all the general education requirements of the University, as listed in "Undergraduate Program Requirements," pages 33–35. Entry into clinical courses is competitive, space is limited, and entry is based on grade point average and the number of semesters students have been enrolled in nursing. Because of space limitations, students may have to wait one or more semesters before being accepted into NUR 203.

A minimum grade of C (73) must be achieved in all required nursing courses and in each foundation course. Students will not be allowed to repeat a required nursing course more than once. 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 are approximately the same as for other University students. Special items include uniforms, nursing equipment, transportation, academic achievement testing, and lab fees for each clinical course. The use of an automobile or funds to meet public transportation costs is required for the clinical experiences.

Students must maintain car insurance as required by state law.

The program is approved by the Commission on Collegiate Nursing Education and the Rhode Island Board of Nurse Registration and Nursing Education. The graduate is eligible for examination for professional licensure as a registered nurse (R.N.).

The law requires criminal background checks for persons providing care in community agencies. Updated health requirements and CPR certification are mandated throughout the clinical courses.

Curriculum Requirements

Foundation Courses. The following are required before transfer from University College: CHM 103 (3), 124 (3); NUR 103 (3); PSY 113 (3); BIO 121 (4), 242 (3), 244 (1); MIC 201; one writing (Cw) course (3), URI 101 (1).

The following are prerequisites for some nursing courses, and therefore are recommended during the first three semesters: NFS 207 (3); MIC 201 (4); PSY 232 (3); SOC 100 (3); STA 220 (3) or PSY 300 (3).

An example of the curriculum plan follows. (Individual programs may vary.)

Freshman Year

First semester: 14 credits

- 4 BIO 121 Human Anatomy
- 3 SOC 100 General Sociology
- 3 CHM 103 Introductory Chemistry Lecture
- 1 URI 101 Freshman Seminar
- 3 General Education requirement (Cw)

Second semester: 16 credits

- 3 BIO 242 Human Physiology
- 1 BIO 244 Human Physiology Laboratory
- 3 CHM 124 Introduction to Organic Chemistry
- 3 PSY 113 General Psychology

- 3 NUR 103 Professional Practice in Health and Illness
- 3 General Education requirement (C)

Summer Session

3–6 General Education or free elective requirements (to reduce junior year requirements)

Sophomore Year

First semester: 16 credits

- 4 MIC 201 Introductory Medical Microbiology
- 3 PSY 232 Developmental Psychology
- 3 NFS 207 General Nutrition
- 3 NUR 203 Comprehensive Health Assessment
- 3 STA 220 Statistics in Modern Society (or PSY 300 Quantitative Methods in Psychology)

Second semester: 18 credits

- 3 NUR 213 Pathophysiology
- 3 NUR 233 Foundations of Nursing Practice with Older Adults
- 3 NUR 234 Practicum in Foundations of Nursing with Older Adults
- 3 NUR 253 Nursing Research
- 3 General Education course
- 3 Free Elective

Junior Year

First semester: 15 credits

- 6 NUR 323 Medical-Surgical Nursing
- 3 NUR 324 Practicum in Medical-Surgical Nursing
- 3 BPS 333 Nursing Pharmacology
- 3 Free Elective

Second semester: 15 credits

- 3 NUR 333 Psychiatric-Mental Health Nursing
- 3 NUR 334 Practicum in Psychiatric-Mental Health Nursing
- 3 NUR 343 Nursing in Childbearing and Reproductive Health

- 3 NUR 344 Practicum in Childbearing and Reproductive Health Nursing
- 3 General Education course

Senior Year

First semester: 15 credits

- 3 NUR 433 Nursing of Children
- 3 NUR 434 Practicum in Nursing of Children
- 3 NUR 443 Community Health Nursing
- 3 NUR 444 Practicum in Community Health Nursing
- 3 General Education course

Second semester: 15 credits

- 3 NUR 463 Advanced Medical-Surgical Nursing
- 3 NUR 464 Practicum in Advanced Medical-Surgical Nursing
- 3 NUR 474 Leadership in Professional Nursing [**capstone**]
- 6 General Education courses

Required Nursing Courses. The following 60 credits are required: NUR 103, 203, 213, 233, 234, 253, 323 (6 credits), 324, 333, 334, 343, 344, 433, 434, 443, 444, 453, 463, 464, and 474. Students must maintain an overall minimum GPA of 2.20 in order to progress in the NUR courses.

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. A total of 124 credits is required for graduation.

Minor in Thanatology. For information on this interdisciplinary minor dealing with loss, death, and grief, please turn to page 39.

COLLEGE OF PHARMACY

Ronald P. Jordan, *Dean*
Joan M. Lausier, *Associate Dean*
E. Paul Larrat, *Associate Dean*

Entering freshmen are admitted to URI's six-year entry-level Doctor of Pharmacy (Pharm.D.) degree. The college also awards a baccalaureate in science (B.S.) and two graduate degrees: the Master of Science (M.S.) and the Doctor of Philosophy (Ph.D.) in pharmaceutical sciences, offered by both departments, Biomedical and Pharmaceutical Sciences and Pharmacy Practice.

Faculty

Biomedical and Pharmaceutical Sciences: Professor Chichester, *chairperson*. Professors Cho, Kislalioglu, Lausier, Parang, Rodgers, Rosenbaum, Shaikh, Shimizu, Yan, and Zia; Associate Professors Rowley and Zawia; Assistant Professors Akhlaghi, Deng, King, Seeram, and Udway; Professors Emeriti Needham and Swonger.

Pharmacy Practice: Associate Professor Kogut, *chairperson*. Professors Barbour, Dufresne, Hume, Larrat, Owens, and Tempkin; Associate Professors Bratberg, Charpentier, Feret, Lasky, Lin, MacDonnell, Matson, Orr, Pawasauskas, and Taveira; Assistant Professors Akus, Cohen, Cowles, Estus, Goren, LaPlante, Marcoux, Mersfelder, Quilliam, and Ward.

Admission Requirements

Each admission candidate is given individual consideration. However, a minimum of 18 units of college (secondary school) preparatory work are expected:

- 4 in English
- 3 in algebra and plane geometry
- 2 in a physical or natural science
- 2 in history or social science
- 2 in the same foreign language
- 5 additional units to total 18

Successful candidates typically have high grades in science and mathematics, do well in SATs, and often have earned advanced placement or college credit while in high school.

Doctor of Pharmacy (Pharm.D.)

The six-year Doctor of Pharmacy curriculum is patterned on accepted programs of study recommended by the American Association of Colleges of Pharmacy, the American Council on Pharmaceutical Education, and other interested organizations. The Doctor of Pharmacy is accredited by the American Council on Pharmaceutical Education (20 North Clark Street, Suite 2500, Chicago, Illinois, 60602; acpe-accredit.org).

Medication therapy management is the responsible provision of drug therapy to achieve specific outcomes that improve a patient's quality of life. A pharmacist, in cooperation with a patient and other health-care professionals, designs, implements, and monitors a plan of care that will produce desired patient outcomes. A key element in medication therapy management is that the pharmacist accepts *personal* responsibility in achieving the desired outcomes. In learning to provide medication therapy management, pharmacy students must exhibit the highest level of ethical behavior and moral values in all of their decision-making, as well as in their actions both in and outside of the college. Furthermore, students must acknowledge that the profession and medication therapy management are based foremost on caring, trust, and communication for the benefit of patients and society in general. All students must be committed to maintaining these standards, to fostering the professional development of other pharmacy students, and to responding appropriately when the ethical and moral standards of the profession have been breached.

Graduates of our program have a strong record of passing the national licensing examination (NABPLEX). Average scores over the past five years are in the 90 percent-ages, with scores for 2008 graduates taking the exam for the first time at 97.6%. The program in pharmacy provides preparation for community and institutional pharmacy practice. Students have the opportunity to take professional electives that will advance their knowledge in different areas of phar-

macy, including hospital, clinical, manufacturing, managed care, drug analysis, administration, and research.

A recent survey of alumni indicates that 64% work in a community practice setting, while 11% work in hospitals. Others are pursuing advanced training in residencies (19%), fellowships (3%), and graduate school (3%). Job responsibilities vary from staff pharmacists, manager, clinical specialist, consultant, executive, to professor. Seventy-one percent agree that their educational experience at URI contributed to their leadership abilities in the profession.

Technical Standards. In addition to the academic requirements for admission, applicants must also meet the technical standards that the college deems essential for training and practice in the profession of pharmacy. Students who have concerns about their ability to meet these standards should contact the associate dean of the college. When requested, the college will provide reasonable accommodation to otherwise qualified students with disabilities. Disabled students must work with and be approved by URI's Disability Services for Students.

These functions include, but are not limited to:

Observation: A candidate with or without accommodations must be able to observe demonstrations and experiments in the basic sciences. A candidate must be able to observe a patient accurately at a distance and close at hand. The candidate must be able to visually observe and interpret presented information. This will necessitate the functional use of vision, hearing, and somatic senses.

Communication: A candidate with or without accommodations must be able to communicate effectively and sensitively with patients, caregivers, faculty/staff, and all members of the healthcare team. The focus of this communication is to elicit information, describe changes in mood, activity, and posture, and perceive nonverbal communication. An applicant must be able to communicate effectively and efficiently in oral and written English.

Sensory/Motor: The candidate with or without accommodations must have sufficient motor function and skills necessary to perform basic tasks in the practice of pharmacy. Examples of such tasks may include the compounding of medicinals, physical assessment, the administration of drugs, and the provision of basic cardiac life support. Such actions require the coordination of both gross and fine muscular movements, equilibrium, and functional use of the senses.

Intellectual: A candidate must have the ability to measure, calculate, reason, analyze, synthesize, and integrate information that is essential to fully develop these skills. A candidate must be fully alert and attentive at all times in clinical settings.

Behavioral/Social: A candidate must be of sufficient emotional health to utilize fully his or her intellectual abilities, the exercise of good judgment, and the prompt completion of all patient care responsibilities. A candidate must possess the ability to develop mature, sensitive, and effective relationships with patients. A candidate must be able to tolerate physically and emotionally taxing workloads and to function effectively under stress. A candidate must be able to adapt to changing environments, to display flexibility and learn to function in the face of uncertainties inherent in the clinical problems of many patients. A candidate must possess compassion, integrity, interpersonal skills, and motivation to excel in pharmacy practice.

Health. Certain illnesses impair a student's performance. These include, but are not limited to, active drug and/or alcohol addiction, severe depression, and other psychiatric illnesses. It is not permissible for students to interact with patients while impaired by these conditions. It is the policy of the College of Pharmacy to encourage recognition of these conditions and to support treatment so that the student may resume his or her studies in the college.

Selection Factors. Due to the large number of applications received for a limited number of spaces, admission to URI's College of Pharmacy is highly selective. The Admission

Office carefully evaluates each candidate's strength in the following areas:

High School Transcript including the rigor of the high school curriculum and academic performance.

Standardized Test Scores (only SAT or ACT results are reviewed).

Personal Essay (including an additional paragraph required of all Pharmacy applicants—details are available on the application).

Letters of Recommendation (a minimum of two letters is required: one from a science or math teacher and one from a guidance counselor or a teacher from another subject area).

Extracurricular Activities (including employment experiences) and unique talents.

Pharmacy applicants are strongly encouraged to submit all of their application materials by the Early Action deadline. The Admission Committee makes every effort to notify pharmacy applicants of their admission status by January 31.

Professional Standards of Behavior For Pharmacy Students. The College of Pharmacy demands that its students adhere to the highest standards of professional behavior. Specific requirements include the following:

Pledge of Professionalism: The College of Pharmacy expects all students to sign a pledge of professionalism when they enter the professional program.

Honesty and Academic Integrity: Students are expected to abide by the University of Rhode Island's Community Standards of Behavior as outlined in the University of Rhode Island Student Handbook. Pharmacy students are expected to adhere to the highest standard of academic integrity in both the pre-professional and professional programs. Any evidence of cheating or plagiarism may be grounds for dismissal from the program (see URI Student Handbook for definitions of cheating and plagiarism).

Ethical Values: Students must demonstrate the highest level of professional demeanor and behavior, and must perform in an ethical manner in all dealings with peers, faculty, staff, preceptors, and patients.

Students who violate these standards of behavior may be given a reprimand, placed on probation, suspended for a period of time, required to acquire professional evaluation and counseling or other medical care, required to complete community service, or dismissed from the program. Incidents including, but not limited to, academic dishonesty, violation of HIPPA or privacy regulations, chemical impairment, violation of state and federal laws, sexual harassment, may delay or permanently prohibit progression in the Pharm.D. curriculum.

Requirements for Progression to the Professional Program. Pharm.D. students must request transfer from University College to the College of Pharmacy at the end of three semesters. During their sophomore year, all students are required to have a formal interview. The student's progression to the professional program will be contingent upon a successful interview. The interview is designed to assess students' commitment to the profession of pharmacy, knowledge of the profession, and ability to communicate with patients.

Only those pharmacy students having a 2.50 grade point average or better in required preprofessional courses (CHM 101, 102, 112, 114, and 227; BIO 101, 121, 242, and 244; MTH 131; and MIC 201) with no grade less than C- in any of these courses, and an overall grade point average of 2.00 will be admitted at this time. Successful candidates must maintain a grade point average of 2.50 in remaining prerequisite courses (CHM 226, 228; STA 307; and BCH 311). Students who lose their seat at the end of three semesters will be considered for admission on a competitive basis along with other URI undergraduate students and transfer students from other institutions at the end of four semesters. Applicants with a grade point average of less than 2.50 for the designated preprofessional courses will not be considered for admission to the college. For purposes of admission among transfer students (both internal and external), all of the preprofessional courses listed above, plus CHM 226, 228, STA 307, and BCH 311 (or equivalent

courses) must be completed. All applicants must have a 2.50 in these courses, and successful candidates will be competitively selected from the applicant pool. In addition, all students must complete WRT 106, ECN 201, COM 100, and PHL 212 as a specific component of their general education prior to admission to the professional curriculum. Beginning in the fall of 2009, PCAT exams, work experience, and letters of recommendation will be required for all transfer applicants. Please note that it is a competitive program and seats are limited. For a more detailed description of these requirements, see the Admission Web site.

Beginning in the professional curriculum third year (P1) students should have their own laptop computer for use in the classroom. There are lease and purchase options at the University Bookstore for interested students.

Unless otherwise indicated, courses offered by the college are restricted to pharmacy majors.

Retention and Graduation Requirements.

Students must earn a minimum grade point average of 2.00 overall and 2.20 in all professional courses in order to qualify for graduation in the Pharm.D. program. Students can repeat up to ten credits of pharmacy courses in which they received a C- or less in order to achieve the 2.20 GPA graduation requirement.

The student whose cumulative GPA in professional courses falls below a 2.00 at the end of any semester will be dismissed from the program. Students will not be allowed to proceed into their sixth-year (P4) rotations without at least a 2.00 GPA in required professional pharmacy courses.

Professional and/or legal exigencies arise from time to time which may necessitate changes in a pharmacy course, progression, and/or graduation requirements. Students should review their status with academic advisors on a timely basis and refer to current publications for updated information.

Students in certain other New England states may enroll in pharmacy under the New England Regional Student Program. (See page 31 for current changes in this program.)

Six-year Entry Level Pharm.D. Curriculum Requirements. A total of 202 credits is required for graduation. Proficiency in American Red Cross standard first aid, community CPR, and physical assessment¹ is also expected of each student prior to advanced practice rotation.

Experiential Rotations. Introductory and advanced experiential rotations may be scheduled at a distance from the Kingston campus. These rotations contribute importantly to the depth and breadth of the experiential program. While the college makes every effort to accommodate student requests regarding rotations, students should anticipate having some rotations assigned at a distance. For these rotations, students are responsible for their costs of transportation and housing if needed.

Criminal Background Check. Certain hospitals, clinical facilities, and other professional sites that participate in both the introductory practice experiences (IPPE) and advanced practice experiences (APPE) require students to undergo a criminal background check. Students with criminal records may be denied positions at these sites. As a result, their progression to meet the degree requirements will be impeded.

Drug Testing. Many hospitals, clinical facilities, and other professional sites that participate in both the introductory practice experiences (IPPE) and advanced practice experiences (APPE) require students to undergo a drug test. Students who test positive for an illegal drug will be denied positions at these sites. As a result, their progression to meet the degree requirements will be impeded.

Intern License Requirement. All students in the professional Pharm.D. program must obtain an intern license through the board of pharmacy of the state(s) in which they have their introductory and advanced practice experiences. Registration as an intern pharmacist is a requirement of the program; students must apply for a license prior to the fall semester of their first professional year.

Students must hold a valid intern license when they enter the fall semester of their first professional year and maintain it

throughout the professional program. For experiential coursework, students must have a Rhode Island license as well.

To be eligible for an intern license, students must be currently enrolled in a pharmacy program. Intern licenses must be returned to the board if a student withdraws or takes a leave of absence from the college.

Application for a license requires disclosure of any convictions of federal, state, or local statutes (including driving under the influence).

Pre-Professional Curriculum

First Year

First semester: 15 credits

CHM 101 (3), 102 (1); COM 100 or WRT 106 (3); BIO 101 (4); one 3-credit elective or PHL 212 (3); and URI 101 (1).

Second semester: 17 credits

CHM 112 (3), 114 (1); MTH 131 (3); COM 100 or WRT 106 (3); BIO 121 (4), and one 3-credit elective or PHL 212 (3).

Second Year

First semester: 17 credits

CHM 227 (3); ECN 201 (3); MIC 201 (4); BIO 242 (3), 244 (1), and one 3-credit elective.

Second semester: 17 credits

BCH 311 (3); CHM 228 (3), 226 (2); STA 307 (3), and 6 credits of electives.

Professional Curriculum

(At this time, the professional curriculum is being modified. Presented below is a framework to show the course distribution by year.)

First Professional Year (P1)

First semester: 15 credits

PHP/BPS 311 (2); BPS 301 (2), 303 (2), 305 (2), 313 (2), 318 (1), 321 (2); PHP 317 (2).

Second semester: 17 credits

PHP/BPS 310 (2); BPS 325 (2), 326 (1), 334 (2); PHP 305 (3), 316 (3), 332 (3), 340 (1); PHC 327 (1)².

*Second Professional Year (P2)**First semester: 15 credits*

PHP/BPS 409 (2), 418 (3); BPS 416 (1), 421 (2); PHP 401 (3), 413 (3), 450 (0); PHC 417 (1)².

Second semester: 17 credits

PHP/BPS 312 (2); BPS 322 (2), 403 (3); PHP 324 (2), 451 (0); FSN 444 (3); professional elective (3); PHC 427 (1)² and lab to be determined (1).

*Third Professional Year (P3)**First semester: 17 credits*

PHP/BPS 410 (2), 515 (1); BPS 422 (2), 504 (3); PHP 414 (3), 503 (2); professional elective (3); PHC 517 (1)².

Second semester: 15 credits

PHP/BPS 526 (2, pending approval); BPS 521 (3); PHP 504 (3), 513 (2), 516 (1); professional elective (3); PHC 527 (1)².

Fourth Professional Year (P4)

Combined summer, first, and second semester: 36 credits

To complete the curriculum, students must complete six 6-week advanced practice experiences in community (PHP 591), ambulatory care (PHP 595), inpatient (PHP 592), institutional (PHP 594), and two different elective areas (PHP 593) for a total of 36 credits. The rotations will take place over summer, fall, and spring semesters in any order and are all capstone requirements in the program.

Doctor of Pharmacy Professional Electives.

As part of the College's professional curriculum, students may select three courses to improve their knowledge and understanding in a variety of areas including pediatric pharmacotherapy, geriatric pharmacotherapy, advanced topics in self care; specialty clinical areas such as infectious diseases, endocrine, and neuropsychiatry; pharmacoepidemiology and pharmacoecomics; and research.

Students desiring to expand their understanding in pharmacy practice may consider courses from the following sections: PHP 430, 440, 460, 505, 520, 540, 542, 550,

555, 560, and 580; PHP/BPS 519; HSS 530; PSY 460; NFS 551 and 552; and MSI 310.

Students desiring to expand their understanding in biomedical, pharmaceutical, and pharmacy research may select professional electives that focus learning on the theory and practice of laboratory research techniques, the evaluation and quantification of results, and on the understanding and interpreting of scientific literature. They will develop skills for oral and written communication of hypotheses, methods, and interpretations, and will carry out basic scientific research in one of the following four areas of specialization: medicinal chemistry and pharmacognosy, pharmaceuticals and pharmacokinetics, pharmacoepidemiology and pharmacoecomics, or pharmacology and toxicology. Students will develop a program of study in conjunction with a faculty advisor in their area of interest. All students will take 9 credits of course work at the graduate level and may take an elective advanced practice experience in research. Students focusing their elective professional courses in this manner may also be able to apply and work toward an M.S. degree with a focus in one of the following areas:

Medicinal Chemistry and Pharmacognosy: Molecular mechanisms of chemical carcinogenesis; combinatorial chemistry; solid-phase peptide synthesis; screening, isolation, and structure elucidation of physiologically-active natural products; biosynthesis of microbial and plant natural products; herbal medicine.

Pharmaceuticals and Pharmacokinetics: Design, development, production, evaluation, and regulatory approval of pharmaceutical and self care products as well as pharmacokinetic and pharmacodynamic studies using virtual, clinical, and preclinical data, often with an emphasis on population approaches.

Pharmacoepidemiology and Pharmacoecomics: Health and economic outcomes research pertaining to pharmacotherapy as used in human populations. Specializations include medication adherence, decision and cost-effectiveness analyses, post-marketing surveillance, epidemiologic methods, and quality improvement and measurement.

Pharmacology and Toxicology: Research projects explore the mechanisms involved in various disease states and their pharmacological intervention, and mechanisms of toxicity of various environmental agents. Ongoing topics include the effects of hormonal imbalances and antihypertensive agents on cardiac function and metabolism in hypertension, diagnosis and treatment of arthritis, effect of septic shock on drug metabolism, developmental neurotoxicity of environmental agents, hepatotoxicity and nephrotoxicity of heavy metals, interindividual variation in metabolism of heterocyclic amine carcinogens, regulation and genetic heterogeneity of enzymes involved in drug and xenobiotic metabolism, calcium- and non-calcium mediated pathways of cell death, and the development of inhibitors to cell signaling events.

Double Major in Pharmacy and French.

Qualified students can graduate in six years with both a Pharm.D. degree and a B.A. degree in French. Students must complete at least two five-week rotations in a French-speaking country and earn 30 credits of French, six of which must be from 400-level courses. French 101 and 102 do not count among the mandatory 30 credits. It is recommended that students wishing to double major come to URI with four years of high school French and advanced placement credits.

B.S. in Pharmaceutical Science (B.S.P.S.)

The four-year program offers students a solid foundation in the basic sciences, broad exposure to the liberal arts, and expertise in one of several areas of specialization within the pharmaceutical sciences. It is designed to provide educational and training experiences that prepare students for careers in the pharmaceutical, consumer product, and health care industries. Graduates of the B.S.P.S. program will be qualified to seek a diverse range of career options that include: research and development, manufacturing, product marketing, sales,

testing, and administrative positions within the pharmaceutical industry; research and regulatory oversight careers within government agencies; and research and teaching positions in academia. As a prelude to many of these career opportunities, the program prepares students for graduate studies in the expanding fields of pharmaceutical and biomedical sciences.

The first two years of the program include rigorous basic science requirements plus a broad exposure to the humanities, arts, and social sciences. The science component of the curriculum is consistent with the admission requirements of most basic science graduate programs and professional schools. Courses offered in the third and fourth year will be drawn primarily from our existing curriculum, and will be taught by Department of Biomedical and Pharmaceutical Sciences (BPS) faculty. They provide solid, fundamental training in the pharmaceutical sciences. The fourth year curriculum also includes BPS course offerings and selected electives from other departments on campus, such as the basic sciences and business. Students may also elect to obtain course credits for laboratory research performed under the guidance of a faculty mentor. These fourth year offerings will present students with the opportunity, under the supervision of the B.S.P.S. program advisor, to tailor their academic program to prepare them for the specific career paths that they choose. The 120-credit requirement for graduation provides education and training comparable to that offered by similar B.S.P.S. programs, and conforms to University credit requirements for four-year degree programs.

B.S.P.S. Curriculum Requirements. The curriculum contains four distinct components. The first component consists of 35 credits of general education requirements that will provide broad exposure to the humanities, arts, and social sciences. The second component consists of 41 credits of basic science and mathematics courses that will deliver a firm foundation in the sciences, and satisfy admission requirement for

most basic science graduate programs and professional schools. The third component is the B.S.P.S. core requirement, consisting of 38 credits of new and existing BPS/PHP courses, which will offer students a strong, basic, and applied understanding of the pharmaceutical sciences. The fourth component of 6 credits, comprising B.S.P.S. electives, is drawn from upper level B.S.P.S. courses and selected electives from other programs on campus, particularly those from the basic sciences and business. These courses allow our students to tailor a program of study to suit their specific career goals.

Freshman Year

First Semester: 15 credits

CHM 101 (3), 102 (1); BIO 101 (4); COM 100 (3); URI 101 (1); general education elective (3)

Second semester: 15 credits

CHM 112 (3), 114 (1); BIO 121 (4); MTH 141 (4); WRT 106 (3)

Sophomore Year

First Semester: 17 credits

CHM 227 (3); MIC 201 (4); BIO 242 (3); PHY 111 (3), 185 (1); ECN 201 (3)

Second semester: 17 credits

CHM 226 (2), 228 (3); BCH 311 (3); STA 308 (3), general education electives (6)

Junior Year

First Semester: 15 credits

BPS 301/303/305 (6); 311 (2); 313 (2); 321 (2); B.S.P.S. or general education elective (3)

Second semester: 13 credits

BPS 325 (2), 443 (2), 445 (3); general education electives (6)

Pharmaceutics Specialization

Senior Year

First semester: 15 credits

BPS 425 (3), 487/587 (3), 503 (3); PHP 580 (3); CHM 522 (3)

Second semester: 13 credits

BPS 405 (3), 442 (3), 451 (4); B.S.P.S. or general education elective (3)

Natural Products Specialization

Senior Year

First semester: 15 credits

BPS 425 (3), 487/587 (3), 503 (3); PHP 580 (3); CHM 551 (3)

Second semester: 13 credits

BPS 442 (3), 451 (4), 535 (3); B.S.P.S. or general education elective (3)

Cosmetic Specialization

Senior Year

First semester: 15 credits

BPS 425 (3), 487/587 (3), 503 (3), 530 (3); PHP 580 (3)

Second semester: 13 credits

BPS 442 (3), 451 (4), 560 (3); B.S.P.S. or general education elective (3)

Pharmacology/Toxicology Specialization

Senior Year

First semester: 15 credits

BPS 425 (3), 487/587 (3), 503 (3), 551 (3); PHP 580 (3)

Second semester: 13 credits

BPS 442 (3), 451 (4), 533 (3); B.S.P.S. or general education elective (3)

¹ PHP 900

² Interactive learning courses will be shared by PHP and BPS under the code of PHC.

GRADUATE ADMISSION AND REGISTRATION

Persons holding the baccalaureate degree and wishing to take graduate-level courses at the University may do so through admission to the Graduate School.

GRADUATE SCHOOL

Nasser H. Zawia, *Interim Dean*
Harold D. Bibb, *Associate Dean*
Keith Killingbeck, *Associate Dean*

Admission

Students may be admitted to URI's Graduate School as degree candidates or they may pursue postbaccalaureate work in nonmatriculating status (see next page). Admission to the Graduate School is based on academic qualifications and potential without regard to race, sex, religion, age, color, creed, national origin, disability, or sexual orientation, and without discrimination against disabled and Vietnam era veterans.

Prospective students should apply directly online via a link from the Graduate School Web site at uri.edu/gsadmis. All supporting materials (application fee, transcripts, letters of reference, etc.) must be sent as a complete package to the department or program to which admission is sought. Inquiries concerning particular degree programs or courses of instruction should be addressed to the appropriate department chairperson or the graduate program director, as listed in the "Graduate Programs" section of this catalog.

The completed application package must be sent directly to the department or program to which admission is sought. Final decisions rest with the Graduate School, which, after considering the recommendation of the department concerned, will notify the applicant of the decision.

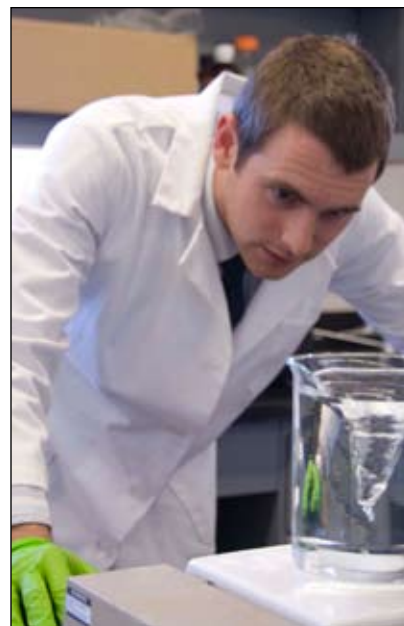
Where admission to a doctoral program is possible for those holding the bachelor's degree and meeting other requirements, the Graduate School reserves the right

to offer admission only to the master's program while postponing a decision on admission to the doctoral program until at least a substantial portion of the master's work has been completed.

Applications must be accompanied by a \$65 nonrefundable application fee. Simultaneous application to more than one department requires duplicate applications and credentials and separate application fees.

The completed application package and all supporting documents must be received by April 1 for summer admission, July 15 for fall admission, and November 15 for spring admission (dates for international applicants are below). The application package must be received by February 1 for consideration for financial aid for the following year. As indicated in the "Graduate Programs" section in this catalog, certain programs admit students only for the fall semester or have earlier deadlines. There is no assurance that applications completed after specified deadlines will be processed in time for enrollment in the desired semester. Admission is valid only for the term offered and must be reconsidered if a postponement is subsequently requested.

International Applicants. Applicants from foreign countries must complete the Test of English as a Foreign Language (TOEFL). Required minimum scores on the computer-based and Internet-based TOEFL (iBT) are: Reading 20, Writing 22, Listening 17, and Speaking 17 (the suggested minimum speaking score for international teaching assistants is 23); the minimum score on the paper-based TOEFL is 550. If a higher minimum is required for admission to a specific program, it is listed under that program's admission requirements. Apply online at uri.edu/gsadmis. All supporting materi-



als (application fee, transcripts, letters of reference, etc.) must be sent as a complete package to the department or program to which admission is sought. Applications not received by February 1 for fall admission and July 15 for spring admission will be considered for the next admission period. Inquiries from international students concerning nonimmigrant visas, transfers, funding, etc., should be sent to the Office of International Students and Scholars. Inquiries concerning housing should be sent to the Department of Housing and Residential Life (for apartments on campus) or to the Commuter Housing Office (for rooms, apartments, and houses in the nearby community).

Transfer Credit. Transfer credit can be requested for graduate work taken at other accredited institutions of higher learning. Under usual circumstances, such credits may not exceed 20 percent of the total credits required in the program. Doctoral candidates holding a master's degree in the same or a closely related area can request

up to 30 credits from their master's degree. The transfer work must have been taken at the graduate level (equivalent to the 500 level or higher in URI's course numbering system) and a passing grade earned at that institution. It must have been completed not more than five years prior to the date of admission into a master's program (ten years for the doctoral program) and must have a clear and unquestioned relevance to the student's program of study. The request for transfer credit should be accompanied by a proposed program of study and must have the approval of the student's major professor and the Graduate School. If transfer credit is desired for work taken elsewhere after a graduate student is enrolled at the University, *prior approval* must be obtained from the Graduate School.

Degree Candidates. Applicants must forward the completed application package, containing *all* of the requested materials, directly to the department to which admission is being sought. Where required, test scores in the appropriate nationally administered tests should be sent directly to the department by the testing service. Tests required for specific programs can be found in the "Graduate Programs" section. Scores (GRE, MAT, or GMAT) earned more than five years prior to the term of application will not be accepted. If test results exceed the five-year limit, applicants must retake the examination.

To be accepted as graduate degree candidates, applicants must have maintained an average of approximately B (3.00 on a 4.00 scale) or better in their undergraduate work. For programs that require standardized tests, students must also have satisfactory scores on the appropriate nationally administered test. Applicants with undergraduate averages below the B level may possibly be admitted with submission of other evidence of academic potential; i.e., satisfactory performance in postbaccalaureate work, professional experience as evidenced by publications or letters of recommendation, and/or high scores in the standardized tests referred to above. All

students are expected to maintain a cumulative average of B (3.00) or better. Students who do not maintain a cumulative B average will have their status reviewed and may be placed on provisional status or be dismissed. A student placed on provisional status must achieve a cumulative B average within one semester (or nine credits, if part-time) or be subject to dismissal.

Advanced Standing. Advanced standing refers to credits taken at URI by a nonmatriculating student, by a matriculating student while on nondegree status, or by a student in one degree program before acceptance to any other degree program. Credits earned at the University of Rhode Island by a nonmatriculating student may be applied as advanced standing toward degree requirements only upon the recommendation of the student's major professor and the graduate program director and with the approval of the Graduate School. For the credits to be applied to advanced standing, they must have been earned within a five-year period before the student matriculated into the degree program. For a master's degree program, advanced standing and transfer credit may not total more than 40 percent of the credits required for the degree. For Ph.D. candidates admitted without a master's degree, advanced standing may not total more than 20 percent of the credits required for the degree. In special cases, Ph.D. candidates admitted with a master's degree in the same or a closely related area may request up to nine credits of advanced standing. The request should be accompanied by a proposed program of study and satisfy the time constraints listed for transfer credit.

In certain cases, applicants who have been denied admission may be advised to take several courses in nonmatriculating status (see following paragraph) to provide a basis for later reconsideration of their applications. In such cases, these courses are usually regarded as if they were entrance deficiencies and are not accepted for advanced standing in minimum-credit programs of study.

Nonmatriculating Status. Individuals holding a bachelor's degree who are not candidates for an advanced degree may take courses during the academic year or in the summer in nonmatriculating status. Normally, to take courses for personal satisfaction or professional advancement, postbaccalaureate students enroll in the Alan Shawn Feinstein College of Continuing Education. Any nonmatriculated student wishing to take courses on the Kingston Campus must file an application with the Office of Enrollment Services. If nonmatriculated students later wish to be admitted to a degree program, they must complete the regular admission procedure.

Nonmatriculated students do not have the privileges regularly enjoyed by degree candidates. For example, on the Kingston Campus they may not register until one week before classes begin and must make payment before accessing the registration system. Their enrollment is subject to the accommodation of degree candidates wishing to take these courses. In addition, there is a limit to the number of courses taken in this status that may be used as advanced standing to satisfy degree requirements. Nonmatriculated students are not eligible for financial aid.

Registration

The responsibility for being properly registered rests with the student. Students must complete their registration within the time period announced by the University at uri.edu/es/calexams/detailedcalendar.pdf. The chairperson of the student's major department will assign an advisor to assist the new graduate student in planning a program. All students must register for courses through the Office of Enrollment Services in order to be properly enrolled.

For information on late registration, course schedule, payment of fees, drop and add, auditing, Veterans Administration educational benefits, transcripts, change of address, and required identification, please see the section on undergraduate registration, page 26–27.

Summer Session. Although some graduate-level courses are offered during the summer sessions, the University does not guarantee that any particular course will be offered. The availability of individual faculty members to supervise research or to participate in comprehensive examinations and in examinations in defense of theses or dissertations during the summer sessions varies from year to year. During the summer sessions, special arrangements must be made with both the Graduate School and the department for scheduling comprehensive examinations and thesis or dissertation defenses. Students must be registered to be eligible to schedule these exams. Graduate students must make prior individual arrangements for taking directed studies or special problems courses.

Time Limit and Continuous Registration. Graduate students are expected to complete their course work and research within the five-year time limit prescribed for the master's degree and the seven-year time limit for the doctorate. The time limit for a degree program may be extended for legitimate reasons such as military service or serious illness. An application to the Graduate School requesting such an extension requires the endorsement of the student's graduate program director or department chairperson (see the *Graduate Student Manual*, sections 7.42 and 7.51).

Graduate students must remain continuously enrolled—except for summer sessions, which are optional—until they have completed all requirements and have received their degree. Unless they are on a leave of absence approved by the department and the Graduate School, students who wish to maintain graduate status must pay the continuous registration fee each semester until the degree has been awarded, even if they do not require use of any University resources and are not registered for course work or research.

Students who are on a leave of absence or are on continuous registration do not have the privileges of consulting regularly with faculty on research or thesis preparation, nor of using laboratory, computer, or other educational facilities at URI. Students on continuous registration are not eligible for continuation of educational loan deferments based on student status.

A student who does not register for a semester, or obtain approval for a leave of absence, will be considered as having voluntarily withdrawn from the University. Students who are later permitted to re-enroll must pay the continuous registration fee for each semester in which they did not maintain graduate status.

Full-Time and Part-Time Students. Minimum full-time registration is nine credit hours during a regular semester and six credit hours during a summer session. Maximum registration of 15 credit hours during a regular semester and eight credits during each summer term may not be exceeded without prior written permission of the Graduate School, based on extraordinary circumstances. (Students on graduate teaching and research assistantships are limited to a minimum of six and a maximum of 12 credits.) Credits in excess of 15 will be billed at the per-credit rate. Full-time registration is required of all international students and of all students holding fellowships, assistantships, full scholarships, and traineeships administered by the University.

Credits Earned Off Campus. Students wishing to register for credits to be counted toward a degree, who will be earning these credits through off-campus activities (such as research or independent study at a national laboratory), must obtain prior approval from the Graduate School to have these activities listed as part of their programs of study.

Intellectual Opportunity Plan (Pass-Fail Option). To allow graduate students to venture into new areas of knowledge without fear that their scholastic average will suffer, the Graduate Council has approved the Intellectual Opportunity Plan. (Please note that courses below the 400 level are automatically excluded from the scholastic average.) To be eligible for this option, the student's major professor or advisor must certify that the course or courses are outside the student's major field of study, are not entrance deficiencies, and are not specific requirements of, but are relevant to, the student's program. A maximum of four credits may be taken by the master's degree candidate and a maximum of eight credits, including any taken as a master's candidate, by the doctoral candidate.

2009–2010 Calendar for Graduate Degree Candidates

Fall Semester 2009

September 8, Tuesday. New Graduate Student Orientation.

September 9, Wednesday. Classes begin, Kingston campus.

September 25, Friday. Deadline for December master's degree candidates and May doctoral degree candidates to submit thesis proposals.*

October 2, Friday. Final date for nominations for December graduation.

November 15, Sunday. Deadline for applications for Spring 2009, except for programs with earlier deadlines.

November 13, Friday. Final date for December candidates to submit completed defense copies of master's and doctoral theses in a form acceptable for examination purposes along with the request for oral defense of thesis. **NO EXTENSIONS OF TIME CAN BE GRANTED.** *Theses must be submitted at least 20 calendar days prior to the date requested for oral defense. Selection of date should allow sufficient time for necessary revisions and retyping before submission in final form. See December 11 deadline and note at the end of the calendar on the next page regarding scheduling examinations during the winter intersession.*

December 11, Friday. Classes end. Programs of study due for students admitted for Fall 2009.

December 11, Friday. Final date for December degree candidates to submit, in final form, master's and doctoral theses that have been successfully defended. **NO EXTENSIONS OF TIME CAN BE GRANTED.**

December 24, Friday. Final date for changes of grade, changes to programs of study, results of comprehensive exams, etc. for December degree candidates to be received in the

Graduate School office for certification for December graduation. **NO EXTENSIONS OF TIME CAN BE GRANTED.**

Spring Semester 2010

January 25, Monday. Classes begin, Kingston Campus.

February 1, Monday. Final date for admission applications from individuals seeking financial aid for 2010. Applications for financial aid received subsequent to this date cannot be assured of full consideration.

February 1, Monday. Deadline for international applications for Fall 2010.

February 5, Friday. Deadline for May master's degree candidates and August doctoral degree candidates to submit thesis proposals.*

February 12, Friday. Final date for nominations for May graduation.

March 1, Monday. Final date for nominations from departments for fellowships and scholarships.

March 26, Friday. Final date for May degree candidates to submit completed defense copies of master's and doctoral theses in a form acceptable for examination purposes, along with the request for oral defense of thesis. **NO EXTENSIONS OF TIME CAN BE GRANTED.** *Theses must be submitted at least 20 calendar days prior to the date requested for oral defense. Selection of date should allow sufficient time for necessary revisions and retyping before submission in final form. See the April 23 deadline.*

April 1, Thursday. Application deadline for summer 2010 admission, except for programs with earlier deadlines.

April 9, Friday. Deadline for August master's degree candidates and December doctoral degree candidates to submit thesis proposals.*

April 19, Monday. Deadline for submission of nominations for August degree candidates who wish to be listed in the commencement program.

April 23, Friday. Students who have both completed their coursework and defended their dissertations/theses (if required) by this date are eligible to march in the 2010 commencement ceremonies (refer to commencement section of URI Web site for complete listing of eligibility regulations regarding participation).

April 23, Friday. Final date for May degree candidates to submit, in final form, master's and doctoral theses that have been successfully defended. **NO EXTENSIONS OF TIME CAN BE GRANTED.**

Final date for changes of grades, changes to programs of study, results of comprehensive exams, etc. for May degree candidates to be received in the Graduate School office for certification for May graduation. **NO EXTENSIONS OF TIME CAN BE GRANTED.**

May 3, Monday. Classes end. Programs of study due for students admitted for Spring 2010.

May 14, Thursday. Final date for changes of grade for May degree candidates to be received in the Graduate School office for certification for May graduation. **NO EXTENSIONS OF TIME CAN BE GRANTED.**

May 22, Saturday. Commencement. Also see the University Calendar on page 3 and Summer Session Calendar on the next page.

** Thesis proposals should be submitted before or during the first semester in which the student registers for research credits.*

2010 Summer Sessions for Graduate Degree Candidates

NOTE: All courses taken by graduate students during summer sessions are subject to the same regulations regarding inclusion in programs of study and calculation of overall academic average, etc., as courses taken during the regular academic year. Students wishing to take directed studies or special problems courses during summer sessions must obtain individual approval for these courses from the Continuing Education office unless the specific offering is listed in the summer Course Schedule for that year. Students wishing to enroll for thesis or dissertation research during summer sessions must first determine that their major professors and/or members of their thesis or dissertation committees will be available and are willing to provide the necessary supervision. See also the important note at the end of this calendar regarding scheduling of examinations, including defense of theses, during summer sessions. See the schedule of summer courses available online at uri.edu, or visit the Continuing Education (Summer Session) office in Kingston.

Session I: May 24–25

May 24, Monday. Classes begin.

June 7, Monday. Final date for nominations for August graduation.

Week of June 21. Classes end. Exams.

Session II: June 28–July 30

June 28, Monday. Classes begin.

July 9, Friday. Final date for all August degree candidates to submit completed defense copies of master's and doctoral theses in a form acceptable for examination purposes, along with the request for oral defense of the thesis. **NO EXTENSIONS OF TIME CAN BE GRANTED.** *Theses must be submitted at least 20 calendar days prior to the date requested for the oral defense. Selection of date should allow sufficient time for necessary revisions and retyping before submission in final form. See July 29 deadline.*

July 15, Thursday. Deadline for Fall 2009 applications, except for programs with earlier deadlines.

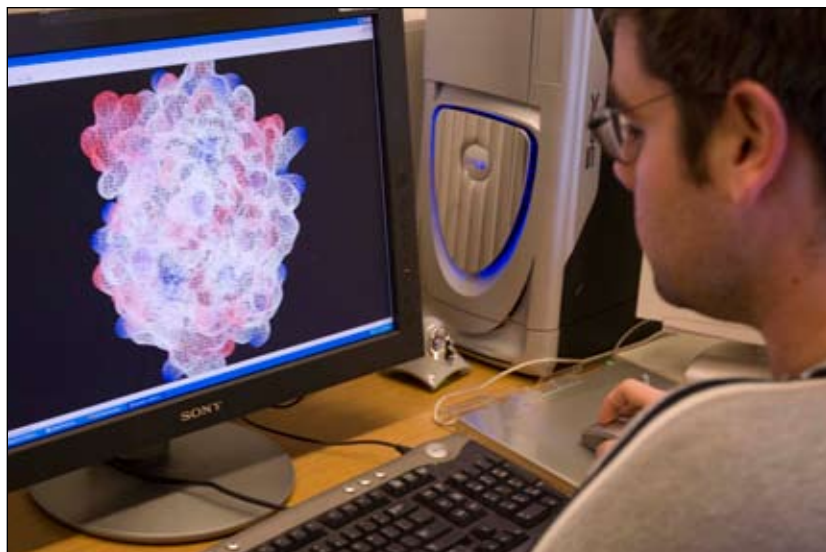
Week of July 26. Classes end. Exams.

August 4, Wednesday. Final date for all August degree candidates to submit, in final form, master's and doctoral theses that have been successfully defended. **NO EXTENSIONS OF TIME CAN BE GRANTED.**

Final date for changes of grades, changes to programs of study, results of comprehensive exams, etc. for August degree candidates to be received in the Graduate School office for certification for August graduation. **NO EXTENSIONS OF TIME CAN BE GRANTED.**

IMPORTANT: Requests for scheduling exams must be submitted to the Graduate School office at least 20 calendar days prior to the date(s) requested. Theses and dissertations must be distributed to members of the examining committee at least 15 days prior to the date of the defense. Oral and written (including qualifying and comprehensive) exams and defenses of theses will be scheduled only at the convenience of the faculty members involved and depending on the availability of the candidate's program committee and additional qualified examiners. Such exams will not be scheduled during periods when the University is in recess. Students wishing to take any exams should first check the availability of the faculty members. Each faculty member must initial the request to indicate his or her willingness to serve. Faculty should be consulted well in advance for exams being scheduled during the winter intersession and summer sessions. If they are not registered for course work or research during the summer sessions, students must register for one credit of research to defend theses.

GRADUATE PROGRAM REQUIREMENTS



Each advanced degree awarded by the University requires as a minimum the successful completion of a specified number of approved credits of graduate study at the University and the passing of prescribed examinations. Credit hours for a master's or doctoral degree may include formal course work, independent study, research, preparation of a thesis or dissertation, and such other scholarly activities as are approved by the candidate's program committee and the Graduate School.

It is the student's responsibility to know the calendar, regulations, and pertinent procedures of the Graduate School and to meet its standards and requirements. These are set forth in this catalog, the *Graduate Student Manual*, the *Statement on Thesis Preparation*, and other publications, all of which are available to graduate students at the Graduate School Office and at uri.edu/gsadmis. These documents are also available in some department offices. The student manual is available at the library and, for a fee, at commercial centers in Kingston.

These documents govern both master's and doctoral degree programs. The student manual gives detailed information on responsibilities of major professors and program committees, examination procedures, preparation of theses and dissertations, academic standards, and the Graduate Student Academic Appeals System.

The requirements immediately following are *general requirements* for all graduate students. *Specific requirements* for individual programs are itemized in the Graduate Programs section that follows.

Program of Study

The purpose of the program of study is to ensure that students, at an early stage in their graduate study, organize coherent, individualized plans for their course work and research activities. It is expected that the successful completion of students' programs of study along with collateral readings, research, etc., will enable them to demonstrate that they have achieved the high level of competence required of graduate students in their respective fields.

All degree candidates are required to prepare a program of study with the guidance of their major professors (for master's degree programs) or of their program committees (for doctoral programs) in accordance with the guidelines in the *Graduate Student Manual*. After the program has been approved by the major professor or by the program committee, the program of study is submitted for approval to the Graduate School.

Course Numbering System

All regular graduate courses are numbered at the 500 and 600 levels. All 900-level courses are special graduate courses for which no graduate program credit is given. Courses numbered at the 400 level are for advanced undergraduates, but may, with approval and to a limited extent, be accepted toward meeting degree requirements at the master's level. For doctoral candidates who have completed the master's degree in the same field or one closely related, all program work must be at the 500 or 600 level.

Scholastic Standing

Graduate work is evaluated by letter grades. All grades earned will remain on the student's record, and unless the courses were approved for no program credit prior

to registration, all unacceptable grades will be included in calculating the student's scholastic average.

A grade of C+ (2.33) or lower in courses numbered at the 400 level is considered a failing grade. In such cases of failure the course must be either repeated, if it is a required course, or else replaced by another course approved by the candidate's program committee and the Graduate School. When students receive more than one grade of C+ (2.33) or lower in courses at the 400 level, their graduate status is subject to review by the Graduate School.

Grades of C- or lower are failing grades in courses at the 500 and 600 levels and require immediate review of the student's status. Students failing these courses must repeat them, if they are required courses, or else they must replace them with courses approved by the candidate's program committee and the Graduate School.

The grades S (satisfactory) and U (unsatisfactory) are used for courses of study involving research undertaken for the thesis or dissertation and for certain courses and seminars so designated. The letter I (incomplete) is used for excused unfinished work. Graduate students have one year to make arrangements with the instructor to remove the incomplete. If the grade of I (incomplete) is not removed within three calendar years, it will remain on the transcript. Incomplete grades may not be used for program credit. Grades of S, U, I, and all grades in courses below the 400 level are not included in the academic average.

To qualify for continuation of degree candidate status and for graduation, a cumulative average of B (3.00 on a 4.00 scale) in all work is required, except for courses meeting entrance deficiencies or approved for no program credit prior to registration in the course. At any time when the academic record indicates unsatisfactory performance, the student's status is subject to review. A student who fails to maintain a satisfactory grade point average or to make acceptable progress toward the degree may be dismissed as a graduate student.

Degree Requirements

Master's Degree. There are no major or minor area requirements for the master's degree. However, no degree can be awarded for the accumulation of credits without a planned and approved program of study. Courses for the degree are expected to be concentrated in the candidate's field of interest and related areas to produce a well-developed and coherent program.

The requirements listed here must be met within five years after the date the candidate is first enrolled as a graduate student at the University. With the submission of a written request for an extension and a schedule for completion, endorsed by the major professor and the graduate program director, a specific, time-limited extension may be approved by the Graduate School. The master's degree may be earned through full- or part-time study, or a combination of the two.

Some departments offer both a thesis and a nonthesis option, while others offer only one plan. Please refer to the "Graduate Programs" section for specific information on each program. General requirements for these options are as follows.

Thesis Option. The minimum requirements for a master's degree are 1) the successful completion of 30 credits, including six to nine thesis research credits; 2) at the discretion of the department, the passing of written comprehensive examinations toward the end of the course work; 3) the submission of an acceptable thesis and the passing of an oral examination in defense of the thesis. Four copies of the thesis prepared in accordance with Graduate School requirements must be submitted to the Graduate School Office. A statement on the preparation of theses is available from that office.

Nonthesis Option. Depending on departmental requirements, some master's degrees may be earned without a thesis. The minimum requirements for a nonthesis master's degree program are: 1) the successful completion of a minimum of 30 credits;

2) completion of practicums, internships, or other experiences useful to the student's future professional career; 3) registration in one course that requires a substantial paper involving significant independent study; 4) the passing of a written comprehensive examination toward the end of the course work. Some departments may also require a final oral examination.

Research Competency. Although not normally required for the master's degree, a student's major professor or thesis committee may require proficiency in a foreign language, statistics, or computer science where appropriate for the subject chosen.

Professional Degrees. Students should refer to the specific program requirements for professional degrees and consult with the appropriate dean or director.

Doctor of Philosophy Degree. The Doctor of Philosophy degree must be completed within seven years of the date when the student first enrolled as a candidate.

The requirements for the doctoral degree are 1) the completion of a minimum of 72 credits of graduate study beyond the baccalaureate degree, of which a minimum of 42 credits must be taken at the University of Rhode Island; 2) the passing of a qualifying examination; 3) if required by the department, proficiency in one or more foreign languages and/or in an approved research tool; 4) the passing of a comprehensive examination; 5) the completion of a satisfactory dissertation; 6) the passing of a final oral examination in defense of the dissertation; and 7) fulfillment of the residence requirement by taking a minimum of six credits per semester (specific graduate programs may require more) for at least two consecutive semesters after satisfying qualifying examination requirements. Residence is interpreted as attendance on campus or in the Alan Shawn Feinstein College of Continuing Education during a regularly scheduled semester. Full-time registration for both terms of a summer session counts as one semester of residence.

The department in which the student studies for the doctoral degree may or may not require a master's degree preliminary to, or as part of, the regular course of study.

Qualifying Examination. This examination is intended to assess a student's potential to perform satisfactorily at the doctoral level. A student without a master's degree who is accepted as a doctoral candidate is expected to take a qualifying examination, usually after 24–30 credits have been completed. A student who holds a master's degree in the same or a closely related field is normally not required to take the examination. If an examination is required, it will be stipulated at the time of admission.

Research Competency. Each department, in cooperation with the Graduate School, is authorized to formulate and to amend its own requirements and methods of testing for competency in research tools such as foreign language(s), computer science, or statistics. The department may, in turn, delegate this responsibility to the program committee for each individual doctoral candidate.

Comprehensive Examination. Each doctoral candidate will take comprehensive examinations at or near but not later than 12 months after completion of the formal courses stipulated in the program of study. The examination is designed to assess the student's intellectual capacity and adequacy of training for scholarly research.

The comprehensive examination consists of two parts: written and oral. The student, with the approval of his or her program committee, applies to the Graduate School to take the examination. The oral examination committee includes the student's committee and two additional members of the graduate faculty appointed by the Graduate School. One of the additional members represents a field of study allied to that of the student's major. The candidate's major professor arranges for and chairs the examination. Unanimous approval by the examining committee is required for the passing of the comprehensive examination.

A candidate whose performance fails to receive unanimous approval may, with the committee's recommendation and the approval of the Graduate School, be permitted one re-examination in the part or parts failed, to be taken no sooner than ten weeks and no later than one year after the initial examinations.

Final Oral Examination. This examination is a defense of the dissertation and is open to all members of the faculty and, generally, to all students. The examination, usually a maximum of two hours, is conducted by an examining committee made up of the candidate's program committee and two additional graduate faculty members appointed by the Graduate School. One of the appointed members will be designated by the dean to chair the examination.

Unanimous approval of the examining committee is required for passing. If the candidate does not perform satisfactorily, the committee may recommend to the Graduate School that the candidate take one re-examination under stated conditions.

Theses and Dissertations

For the oral defense, a sufficient number of completed copies of the thesis or dissertation, acceptable in form and substance to each member of the examining committee and the Graduate School, is required. At least 20 calendar days prior to the proposed defense, the copies must be submitted to the Graduate School for scheduling of the examination.

Following a successful defense, and after all changes and corrections have been made, four copies prepared in accordance with requirements of the Graduate School and the library must be submitted to the Graduate School Office. Doctoral candidates must submit an additional abstract, not exceeding 350 words.

Students are advised to consult the *Statement on Thesis Preparation and Instructions for Thesis Defense*, both available in the Graduate School Office (and at uri.edu/gsadmis), and the most recent edition of Kate L. Turabian's *A Manual for Writers of Term Papers, Theses, and Dissertations*, published by the University of Chicago Press.

GRADUATE PROGRAMS

This section describes the admission and degree requirements for the University's graduate programs, which are included within the general requirements set forth previously, and do not reduce those requirements.

The specific program requirements that follow are also minimum requirements; additional course credits may be required for candidates whose academic background is considered insufficient.

For example, in nonthesis master's degree programs, all students must take at least one course requiring a substantial paper involving significant independent study, and all Ph.D. candidates who do not hold an earned master's degree in a closely related field are required to take the Ph.D. qualifying examination even if it is not listed in the individual program requirements.

The standardized test scores admission requirement is also specific to each particular program. For programs requiring a standardized test, applications will not be reviewed until scores have been received. In all other cases, scores may be submitted if applicants believe the test results will enhance their application. However, the test results should be submitted as early as possible. If an application package is received before test results, the admission decision may be made without the scores.

Successful completion of any course of study at URI does not guarantee that the student will find either a specific kind or level of employment. Graduate students interested in the career opportunities related to their program of study are encouraged to discuss their interests with the appropriate department chair or director of graduate studies, the Graduate School's dean, or Career Services staff. Students uncertain about career choices are also invited to use the services offered by the Counseling Center.

The availability of these programs of study and areas of specialization, administrative locations, requirements, and titles, are subject to change without notice.

For information on the background of your program's faculty, turn to the directory in the back of this catalog or visit uri.edu.

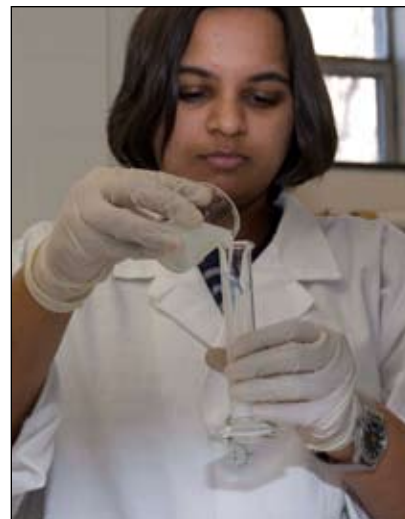
Accounting

M.S.
401.874.5000

Faculty: Professor Schwarzbach, *director of graduate studies.* Professors Beckman, Martin, and Matoney; Associate Professors Boyle and Hazera; Assistant Professors Graham, Jervins, and Blanthorne.

Master of Science

The Master of Science in accounting program is appropriate for students with a variety of educational backgrounds and professional interests. The program's objective is to provide an accounting and business foundation for the student with an undergraduate degree in an area other than accounting. These students graduate with a strong theoretical understanding of accounting along with the necessary technical background. They are equipped to perform exceedingly well in entry-level positions in accounting. An objective for students with undergraduate degrees in accounting is to provide a fifth year of conceptual, theoretical, and technical education in accounting, finance, management science, and other areas where the student and program director feel the student can gain the most toward achieving his or her educational objectives.



An applicant with a bachelor's degree in accounting from an accredited institution can complete the program of study in one year. Applicants with no prior education in business will need to spend two years in full-time study or longer if studying part-time. The course of study is divided into two parts. Part one is a common body of knowledge in business and accounting that is required for all students without a bachelor's degree in business. The student's undergraduate record is evaluated, and common body of knowledge courses are waived when a student has undergraduate equivalents. The second phase of the program allows the students to build on their accounting foundation and develop a high level of theoretical knowledge and a sound understanding of accounting principles and techniques. During the second part of the program, the student selects an area of specialization. Two areas are available: 1) financial reporting and auditing, or 2) taxation.

Admission requirements: An undergraduate grade point average of approximately B or above and a score at the 50th percentile or above on the GMAT examination are expected. The GMAT score and the under-

graduate grade point average are not the sole criteria for admission. However, those with undergraduate grade point averages of less than B or with lower than 50th percentile scores on the GMAT have a reduced probability of admission. The GRE may be used in lieu of the GMAT at the discretion of the director of graduate studies. Applicants for whom English is not the native language will be expected to demonstrate proficiency in written and oral communications (TOEFL score of 91 or above), or they may be required to correct deficiencies by taking selected courses for no program credit. The University minimum must be met on each of the four sections of the TOEFL; see page 120.

Program requirements: From 30 to 63 credits, depending on undergraduate program. A course requiring a major paper involving independent study is required in the nonthesis option. All graduate-level courses offered by the College of Business Administration are open to matriculated graduate students only.

Applied Mathematical Sciences

(Interdepartmental)

Ph.D.
401.874.2701

This interdepartmental program is sponsored by the departments of Computer Science and Statistics, Industrial and Manufacturing Engineering, Management Information Systems, and Mathematics. It is administered by a coordinating committee selected from the graduate faculty.

Coordinating Committee: Professor Merino, *chairperson*; Professors Freeman, Gonzalez, Kahn, Lamagna, Narasimhan, and Sodhi.

Faculty: Professors Eaton, Fay-Wolfe, Finizio, Grove, Hanumara, Jarrett, Kaskosz, Kowalski, Kulenovic, Ladas, Lamagna, Lewis, Merino, Montgomery, Narasimhan, Pakula, Peckham, Sodhi, and Tufts; Associate Professors Baglama, Baudet, DiPippo, Gonzalez, Kook, and Thoma; Assistant Professors Hervé and Wu; Adjunct Professor Ting; Adjunct Associate Professor Liu;

Professors Emeriti Carney, Driver, Roxin, Suryanarayan, and Verma.

Specializations

Applied mathematics, computer science, operations research, and statistics.

Doctor of Philosophy

Admission requirements: GRE with advanced test in undergraduate field; bachelor's degree in computer science, engineering, mathematics, management science, physical sciences, statistics, or equivalent. With permission, GMAT may be substituted for GRE by applicants with business background. Applicants with entrance deficiencies may be accepted subject to taking certain undergraduate courses in addition to the graduate program requirements. Although a person with a bachelor's degree may be admitted, this program is designed principally for people who have a master's degree.

Program requirements: dissertation; 54 credits beyond the bachelor's degree including MTH 435, 436; two courses selected from MTH 462, 513, 515, 535, 545, 547, 548, 561, 641, CSC 542 and 544 (one of these courses must be either MTH 513 or 515); and three core courses in each of two of the following areas: applied mathematics, basic analysis, computational mathematics, computer science fundamentals and theory, applied computer science, operations research, and statistics. (A maximum of 30 credits may be granted for a master's degree in a closely related area. In this case, 400-level courses cannot be counted for program credit.) Comprehensive examination in core areas and reading proficiency in one foreign language. The oral comprehensive examination should include a faculty member from the Mathematics Department. The Ph.D. qualifying examination is required of students admitted without the master's degree. All Ph.D. candidates must register full-time for two consecutive semesters prior to the Ph.D. comprehensive examination.

Also see Mathematics, in this section.

Audiology

As of fall 2007, admission to the doctoral program in audiology has been suspended. For related programs, see Speech-Language Pathology.

Biochemistry

See Cell and Molecular Biology.

Biological Sciences

M.S., Ph.D. (Biological Sciences)
401.874.2372

Faculty: Professor Goldsmith, *chairperson*. Professors Bengtson, Bibb, Bullock, Fastovsky, Heppner, Irvine, Kass-Simon, Killingbeck, Koske, A. Roberts, and Webb; Associate Professors Katz, Norris, Seibel, and Wilga; Assistant Professors Lane, Preisser, Sartini, and Thornber; Adjunct Professors Carlton, Deacutis, Fogarty, Lauder, and Sanford; Adjunct Associate Professors Cromarty, Ewanchuk, Gemma, Orwig, T. Roberts, and Thursby; Adjunct Assistant Professor Raposas; Professors Emeriti Albert, Beckman, Caroselli, Cobb, Costantino, Goertemiller, Goos, Hammen, Harlin, Hauke, Hyland, Lepper, and Twombly; Associate Professor Emeritus Krueger; Research Professor Hill.

Specializations

Behavior, ecology, and systematics: population and community ecology, biomechanics of aquatic plants and animals, functional morphology of marine vertebrates and invertebrates, systematics of marine invertebrates, ecology and physiology of plant nutrient resorption, role of mycorrhizal fungi in structuring plant communities and plant growth, invertebrate behavior and neuroethology, avian behavior.

Molecular, cell and developmental biology: developmental gene regulation in animals, role of endogenous and environmental signals in the regulation of plant cell expansion and differentiation, construction of

molecular linkage maps, genetic analysis of quantitative traits, plant-microbe interactions, signal transduction in plants.

Physiology: comparative physiology; behavioral physiology; neurobiology of marine invertebrates; physiology of nutrient resorption in plants; plant stress physiology; physiology of mycorrhizal fungi; and environmental physiology.

Master of Science

Admission requirements: GRE (general, i.e., verbal and quantitative sections) and bachelor's degree with major in the sciences. Candidates lacking undergraduate courses in organic chemistry, physics, mathematics through introductory calculus, and fundamental courses in biological sciences may be required to make up deficiencies without graduate credit. Applicants are normally admitted for the fall semester but may be considered for spring admission. For consideration for admission with financial aid, the completed application package including supporting material is due by January 15 for fall admission and September 15 for spring. The completed package for applicants not requesting financial aid is due by April 15 for fall admission and November 15 for spring.

Program requirements: The thesis option requires a minimum of 30 credits, six to nine of which may be earned through thesis research (BIO 599). BIO 581, 582 must be taken each year; thesis defense also required.

Doctor of Philosophy (Biological Sciences)

Admission requirements: same as for master's degree; master's degree not required. Applicants are expected, but not required, to have a reading knowledge of two languages in addition to their native language. Applicants are normally admitted for the fall but may be considered for spring admission. For consideration for admission with financial aid, the completed application package including supporting material is due by January 15 for fall admission and September 15 for spring. The completed

package for applicants not requesting financial aid is due by April 15 for fall admission and November 15 for spring.

Program requirements: comprehensive examination and dissertation defense; qualifying examination required for all candidates except those having an M.S. degree; a minimum of 72 credits, 18–28 of which can be earned through dissertation research (BIO 699). Thirty transfer credits will be accepted for students who have received a M.S. degree. Registration in BIO 581, 582 required each year.

Business Administration

M.B.A., Ph.D.
401.874.5000

Faculty: Professor Higgins, *dean*; Professors S. Chen and Rosen, *associate deans*.

Accounting: Professors Beckman, Higgins, Martin, Matoney, and Schwarzbach; Associate Professors Boyle, Graham, and Hazera; Assistant Professors Blanthorne, Jelinek, and Jervis.

Business Law: Professor Hickox; Associate Professor Dunn.

Decision Science: Professors Budnick, S. Chen, and Jarrett.

Entrepreneurial Management: Professors Beauvais, Comerford, Cooper, and Scholl; Associate Professors Creed and Dugal; Assistant Professors Dorado-Banacloche and Wheeler.

Finance: Professor Dash; Associate Professors Lee, Lin, and Oppenheimer; Assistant Professors DaDalt, Xu, and Yu.

Information Systems: Professor Westin; Associate Professors Lloyd and Shin.

Marketing: Professors Della Bitta, N. Dholakia, R. Dholakia, Mazze, and Rosen; Associate Professor Sheinin; Assistant Professors Cai and Leonard.

Supply Chain Management: Professor Mangiameli; Associate Professor Hales; Assistant Professors Y. Chen and Kroes.

Specializations

For the M.B.A.: finance, general business, management, marketing, and supply chain management.

For the Ph.D.: finance and insurance, management, operations and supply chain management, and marketing.

General Information

In addition to the University's Office of Information Services, business students have access to three other computer facilities: the Bruce S. Sherman trading room, the college's general computer facility, and a computer laboratory at the Alan Shawn Feinstein College of Continuing Education (in Providence).

Master of Business Administration

The Master of Business Administration (M.B.A.) program prepares students for leadership positions in business, government, and nonprofit organizations. The faculty seeks to develop a global perspective while stressing the ethical and environmental responsibilities inherent in all management activities. The program is offered on the Kingston Campus for full-time students, and in the evening through the Alan Shawn Feinstein College of Continuing Education (located in Providence) for part-time students. Full-time candidates may begin the program in the fall semester only and will complete the program in one calendar year. Part-time candidates may begin the program in the fall, spring, or summer semester.

Admission requirements: Graduate Management Admissions Test (GMAT) or Graduate Record Exam (GRE), a statement of purpose, application fee, a résumé, two letters of recommendation, and transcripts of all previous undergraduate or postbaccalaureate work are required. Work experience is valued. Applicants for whom English is not the native language are required to score 91 or above on the TOEFL (or 6.5 on the IELTS) and to meet the University minimum on each of the four sections of the TOEFL exam; see page 120. The GMAT or GRE

score and undergraduate grade point average are not the sole criteria for admission. However, those with undergraduate grade point averages of less than B or those with less than 50th percentile scores on the GMAT or GRE have a low probability of admission. Applications from well-qualified individuals who can contribute to the cultural and ethnic diversity of the College of Business Administration and the University are welcome. Part-time M.B.A. applications are due June 30 for September admission, October 31 for January admission, and March 31 for summer admission. Full-time M.B.A. applications are due April 15 for September admission.

Program requirements: The M.B.A. program curriculum has been updated to maintain a program that is current and relevant in the workplace.

The part-time M.B.A. program requires a minimum of 36 credits and a maximum of 45 credits. First, students are required to take the following seven courses: ECN 590, MBA 500, 502, 503, 504, 505, 565. Waiver exams are available for MBA 500, 504, and 505. MBA 500, MBA 503, and ECN 590 can be waived with permission of the program director based on successful completion of recent equivalent college-level courses at an AACSB-accredited institution. Students then must select five out of the following seven courses: MBA 510, 520, 530, 540, 550, 555, and 560. Finally, students are required to take three electives to complete their program of study.

The one-year full-time M.B.A. program is a nonthesis program consisting of a 45-credit integrated curriculum. Students take day classes during the fall and spring semesters. During the summer, they complete their program by taking two evening courses and participating in an internship or elective course work. Completed application packages must be received by April 15 for U.S. residents and February 15 for international applicants; applications received after that date are reviewed on a space-available basis.

Doctor of Philosophy

The Ph.D. program in Business Administration is a research-based program. In addition to advanced course work, students work closely with faculty to conduct research on business issues of national and global importance. The program prepares students for faculty positions at research colleges and universities. The Ph.D. program is highly selective—only a small number of students are accepted each year. To be admitted you must demonstrate both academic merit and research capabilities.

Admission requirements: GMAT or GRE, a master's degree, original online application, a statement of purpose, a résumé, three letters of recommendation, and transcripts of all previous degrees are required. Applicants with diverse academic backgrounds and previous industry experience are encouraged to apply.

Applicants are admitted for the fall semester only. Due to the selectivity of the programs, new admissions to the doctoral program must be limited to a small number each year. Since applicants are evaluated by the doctoral faculty in each of the specialization areas independently, all applicants must specify a single area of specialization on the application form. Completed application packages must be received by February 1.

Applicants for whom English is not the native language will be expected to score 575 (paper-based), 233 (computer-based), or 91 (iBT) or above on the TOEFL and to meet the University minimum on each of the four sections of the exam; see page 120. Students may substitute the IELTS (minimum score of 6.5) for the TOEFL. The GMAT or GRE scores and master's grade point average are not the sole criteria for admission. However, those with master's grade point averages of less than 3.20 on a 4.00 point scale or those who score lower than 600 on the GMAT or GRE have a low probability of admission. The average master's grade point average for current doctoral candidates is 3.60, and their standardized scores average is 640.

Program requirements: Students must have a broad understanding of the major disciplines that comprise the study of business administration and their application to organizational settings. If you do not have this prerequisite knowledge, you may be required to complete up to 12 credits of prerequisite course work in the following areas: behavioral science applications to business administration (management or marketing), financial economics (economics or finance), statistics, and accounting. These prerequisite courses are not included for program credit. Students with previous course work in these areas are normally exempted. There are other avenues for an exemption. Students should discuss these alternatives with the doctoral program director.

The advanced course work phase entails a minimum of 32 credit hours of advanced course work beyond the master's degree. It consists of 12 credits of doctoral research seminars in your area of specialization, six credits of research methods, and 12 credits of supporting electives. There are also two one-credit courses on teaching and research. As part of this phase, you will write two major papers of publishable quality. These papers are under the guidance of your professors. This phase culminates in written and oral comprehensive examinations covering your area of specialization, research methods, and other areas deemed appropriate by your doctoral dissertation committee.

After passing the comprehensive examination, doctoral candidates enter the dissertation research phase and engage in significant research under the supervision of their major professor and the doctoral committee. Doctoral dissertation research is expected to make a major contribution to the state of knowledge in the candidate's field. The dissertation defense is a final oral examination administered according to procedures established by the Graduate School.

The Management Information Systems area is also a sponsor of the Ph.D. program in applied mathematical sciences.

Cell and Molecular Biology

M.S., Ph.D. (Biological Sciences)
401.874.2201

Faculty: Professor Sperry, *chairperson and director of graduate studies.* Professors Bradley, Chandlee, Cohen, Goldsmith, Hufnagel, Kausch, Laux, Nelson, and Sun; Associate Professors Martin, Mottinger, and Norris; Assistant Professors N. Howlett and B. Jenkins; Adjunct Assistant Professor Mehta; Professors Emeriti Cabelli, Hartman, Traxler, and Tremblay; Associate Professor Emeritus Krul.

Specializations

Cell biology: bioanalytical chemistry, DNA-protein interactions, immunocytochemistry, electron microscopy, molecular biology and RNAi technology applied to signal transduction in mating protests, identification and localization of neurotransmitters and their receptors in Hydra, the role of actin in phagocytosis and cell contractility.

Medical microbiology: pathogenesis, immunology, virology, drug design and molecular mechanisms of antibiotic resistance.

Microbial ecology: marine and freshwater ecology, biodeterioration.

Microbial genetics, physiology, molecular microbiology: genetic and molecular relation of cellular morphogenesis and development, bacterial colonization of the mammalian intestine, messenger RNA metabolism in prokaryotes and eukaryotes, control of transport and metabolism, mechanism of survival, membrane structure.

Master of Science

Admission requirements: GRE and a bachelor's degree with a program of studies that included at least two semesters each of biological sciences, general chemistry, organic chemistry, physics, and mathematics including at least one semester of calculus. Applicants may be admitted with deficiencies, to be corrected with appropriate course work (to be excluded from program credit).

Program requirements: a minimum of six credits of thesis work and 24 credits of

course work. Core courses (all tracks)—MIC 413/415 (5), BCH 581, 582, BCH/MIC 695. Biochemistry track—core courses plus BCH 521, 453 and six elective credits. Microbiology track—core courses plus MIC 414/416 (5), and seven elective credits. Molecular genetics track—core courses plus BCH 437, six elective credits, and MIC 552 or BCH 453.

Doctor of Philosophy (Biological Sciences)

Admission requirements: same as for master's degree. A course in physical chemistry is also recommended.

Program requirements: same as for master's degree, plus all candidates must pass the Ph.D. qualifying exam. Of the credits earned beyond the master's degree, 18 should be in course work. Prior to the last semester, the candidate must pass a written and oral Ph.D., comprehensive examination in the major areas of his or her program.

Chemical Engineering

M.S., Ph.D.
401.874.2655

Faculty: Professor Bose, *chairperson;* Professor Brown, *director of graduate studies.* Professors Barnett, Brown, Gregory, and Lucia; Associate Professors Gray, Greenfield, and Rivero-Hudec; Assistant Professor Bothun; Associate Research Professor Crisman; Professors Emeriti Rockett and Rose.

Specializations

Biochemical engineering: reactors, purification methods, degradation, and chemical production.

Bionanotechnology: hybrid bio/nano materials, drug delivery, biomolecular processes, sensors and devices.

Energy engineering: analysis of energy systems, multiphase flow and water conservation.

Environmental engineering: separation methods, heavy metal removal, solvent recovery, hazardous waste minimization, and desalination.

Materials engineering: corrosion and erosion, electronic materials processing, ceramic processing, polymer films, conducting polymers and thin film materials and sensors.

Polymer process engineering: thermo-physical properties of polymers, polymer process modeling and control, and molecular modeling.

Process simulation: process design, optimization, and analysis; process control; numerical methods.

Surface, interfacial and colloidal phenomena: soft and hard colloids, nano composites, and imaging techniques.

Unit operations: mixing, vacuum processes, chromatography, electro dialysis, ultrafiltration and microfiltration.

Master of Science

Admission requirements: bachelor's degree in chemical engineering; candidates from other engineering fields or from mathematics, biology, chemistry, or physics may be accepted into the program with possible addition of prerequisite courses.

Program requirements: 30 credits including CHE 501, 502, 513, 541, 599 (6–12 credits). For 12 thesis credits, no special problems or graduate seminar credit is permitted, 18–24 credits of course work. Nonthesis option for part-time students, with permission of the chairperson; master's examination and comprehensive report with oral examination. Attendance in CHE 501 or 502 is required every semester for all on-campus students.

Doctor of Philosophy

Admission requirements: B.S. or M.S. degree in engineering.

Program requirements: Candidate's program will be determined in consultation with his or her committee and will be based on his or her background and career goals, but must include CHE 501, 502, 614, 641, 699 (24 credits). Twelve credits of course work in addition to the required courses would be needed. A comprehensive examination and an acceptable dissertation are required to complete the program, along with CHE 501, 502.

Polymer Certificate Program

The post-baccalaureate certificate program in polymers is targeted toward students who possess a bachelor's degree in an engineering or science field and are seeking further education in polymers. The program provides opportunities for students to improve their knowledge of polymers in areas outside of their specific field of expertise, to apply their technical knowledge to problems in polymer engineering and science, and to develop technical skills that can be applied in industrial polymer engineering positions.

Admission requirements: same as for M.S.

Program requirements: successful completion of four courses: CHE 513, 530, 531, and 537.

Chemistry

M.S., Ph.D.
401.874.2318

Faculty: Professor Euler, *chairperson*. Professors C. Brown, Dain, Freeman, Kirschenbaum, Lucht, Oxley, Rosen, Smith, and Yang; Assistant Professors DeBoef, Major, and Narayanan; Professors Emeriti P. Brown, Cheer, Cruickshank, Fasching, Fisher, Goodman, Nelson, Rosie, Traficante, and Vittimberga.

Specializations

Analytical chemistry: vibrational spectroscopy, separations science, laser spectroscopy, bioanalyses, surface science, explosives.

Biological chemistry: enzyme inhibition, neurochemistry, oxidative stress, macromolecular recognition.

Inorganic chemistry: metals in high oxidation states, solution kinetics, coordination complexes, electron transport, polymers.

Organic chemistry: reaction mechanisms, synthesis, electron transfer, heterocycles, polymers, organometallics.

Physical chemistry: theoretical chemistry, molecular spectroscopy, polymer arrays, statistical mechanics, smart materials.

Master of Science

Admission requirements: Preference is given to candidates with undergraduate majors in chemistry or chemical engineering including mathematics through calculus. GRE only for graduates of non-U.S. universities, with advanced test strongly recommended.

Program requirements: placement examination to determine specific program requirements and successful completion of master's qualifying examinations. For thesis option (31 credits), 12 credits of graduate core courses in at least three of the four areas of chemistry; one additional graduate-level course in chemistry; CHM 642 or 643; and thesis. For nonthesis option (30 credits), 18 credits of graduate core courses; six additional credits of graduate course work; CHM 642 (1 credit); CHM 551, 552 (minimum 5 credits); and a written comprehensive examination.

The 30-credit nonthesis option is also offered on-site at Pfizer, Inc. (Groton, Conn.)—18 credits of graduate core courses; six additional credits of graduate course work; CHM 642 (1 credit, taken in Kingston), CHM 551 (minimum 5 credits); and a written take-home comprehensive exam.

Doctor of Philosophy

Admission requirements: same as for master's degree.

Program requirements: successful completion of qualifying examination; 15 credits of graduate core courses; one additional graduate-level course in chemistry; and CHM 642–644 (3 credits). Comprehensive examination and dissertation.

Civil and Environmental Engineering

M.S., Ph.D.
401.874.2692

Faculty: Professor Tsiatas, *chairperson*; Associate Professor Gindy, *director of graduate studies*. Professors Lee, Veyera, and Wright; Associate Professors Baxter, Hunter,

Karamanlidis, Thiem, and Thomas; Assistant Professor Craver; Adjunct Professors Baird, Harr, and O'Neill; Adjunct Associate Professor Apostol; Adjunct Assistant Professors Badorek and George; Professors Emeriti Kovacs, Marcus, McEwen, Poon, and Urish.

Specializations

Environmental engineering: water supply and treatment facilities, municipal and industrial waste treatment, flocculation and coagulation of wastes, solid waste and hazardous waste management, modeling of environmental systems, groundwater pollution, groundwater exploration, coastal groundwater, nonpoint source pollution, stormwater management, river and estuary hydrology, hydraulics and water quality.

Geotechnical engineering: geoaoustic modeling and properties of marine sediments, sediment sampling, in-situ testing, deep-sea sedimentary processes, sediment transport, creep processes, environmental geotechnology, dredge material disposal, experimental geomechanics, soil-structure interaction, constitutive modeling of geological materials, particulate mechanics, applications of nonlinear finite element and discrete element methods to geomechanics problems, earthquake engineering, wave propagation in granular media, dynamic soil properties, liquefaction, geosynthetics.

Structural engineering: matrix and finite element analysis, computer and numerical methods, deterministic and stochastic structural dynamics, earthquakes, system identification, fatigue, design of steel and concrete structures, marine structures, structural stability, thin-walled structures, coastal structures, vibration control, soil-structure interaction, condition assessment and rehabilitation of bridges, structural safety and reliability, structural health monitoring, extreme event analysis.

Transportation engineering: properties of pavement materials, pavement theory and design, pavement management system, highway location, geometric design, traffic operation and control, transportation cost, transportation supply and demand analysis, and transportation system analysis.

Master of Science

Admission requirements: bachelor's degree in civil or environmental engineering. Candidates in other engineering fields or in mathematics, biology, chemistry, or physics may be accepted with the possibility of additional undergraduate prerequisite courses being required.

Program requirements: thesis or nonthesis option. Thirty credits plus CVE 601, 602 except for part-time students. For the thesis option, the thesis counts as six to nine of the required credits. The nonthesis option requires a comprehensive technical report and a written comprehensive exam.

Doctor of Philosophy

Admission requirements: master's degree in civil or environmental engineering or a related field. Exceptional students with a bachelor's degree will also be considered.

Program requirements: a minimum of 42 credits plus CVE 601 and 602 except for part-time students beyond the M.S. degree. Students take between 18 and 24 dissertation credits, including the two-course minor outside of the candidate's area of specialization, where required by the candidate's committee; a comprehensive examination; and a dissertation. Although there is no formal departmental language requirement, the committee may require proficiency with a research tool or in a foreign language.

Clinical Laboratory Science

M.S.
401.874.2315

Faculty: Professor Sperry, *chairperson*; Clinical Professor Paquette, *director of graduate studies*. Professors Boulmetis and Goldsmith; Associate Professors Norris and Rivero-Hudec; Research Professors A. DeGroot and L. DeGroot; Assistant Research Professor Moise; Clinical Assistant Professors Bozzi, Klitz, and Uhnak; Adjunct Professors Mehta, Mello, Pisharodi, and Vezza; Adjunct Associate Professors Balkovic, Opal, and Tantravahi; Adjunct Assistant Professors Aucoin, Cadenazzi, Gamble, Heelan,

Kenney, LaFazia, Mayer, Meglio, and Zielinski; Professors Emeriti Campbell, Laux, and Traxler.

Specializations

Major specializations in biotechnology, cytopathology, medical laboratory sciences, and public health laboratory sciences; minor specializations in adult education and management.

Master of Science

Admission requirements: GRE recommended; bachelor's degree in clinical laboratory sciences, life sciences, physical sciences, or health sciences (for cytopathology, must include 20 semester hours of biological science [anatomy and physiology are recommended] and eight semester hours of chemistry); certification, or certification eligibility, by a nationally recognized certifying agency, or a minimum of one year's postbaccalaureate laboratory experience. One course in statistics is required. Applicants with deficiencies in background courses may be required to complete appropriate course work without graduate credit. Acceptance into the cytopathology specialization is contingent upon acceptance into the Rhode Island School of Cytotechnology.

Program requirements: MTC 510, 512, 513, and 551 (or BIO 437, MIC 534, MTC 590, 591, and 594 for cytopathology), and nine to 24 credits in the area of specialization (for biotechnology: nine credits from BIO 437, MIC 422 and 534, and MTC 501, 541, 571, and 594; for cytopathology: MTC 561 through 566; for medical laboratory sciences: nine credits from BIO 437, MIC 534 and 538, MTC 501, 502, 520, 530, 541, 543, and 591; for public health laboratory sciences: nine credits from MIC 534 and 538, MTC 501, 541, 591, and 594). The remainder of courses are to be selected from education, management, or other specializations for a total of 33 credits (39 credits for cytopathology). Comprehensive written examination. Major research paper (MTC 512).

The following are recommended for a minor specialization in management: PHP 680 and two graduate MBA courses selected in consultation with your major professor. The following are recommended for a minor specialization in adult education: four courses selected from EDC 505, 529, 582, 583, and 584.

Communication Studies

M.A.
401.874.2552

Faculty: Associate Professor Derbyshire, *chairperson*; Professor Mundorf, *director of graduate studies*. Professors Brownell, Chen, Grubman-Black, Ketrow, Logan, Salazar, Swift, and Wood; Associate Professors Leatham, McClure, Quainoo, and Torrens; Assistant Professors Diccio and Ye; Professors Emeritae Anderson, Devlin, and Doody.

Specializations

Specializations offered in interpersonal communication, media studies, organizational communication, and public discourse. In consultation with advisors, students prepare for careers in public and private industry, government, or academic areas. Students are encouraged to develop their course plans to foster their evolving academic and career needs. Thus, one might advance specific interests and competencies in areas such as college teaching, communication technology, conflict management, political media, organizational communication training and development, or public relations. Individual specialties can be developed within each of the specialization areas.

For students' convenience, most courses are offered in late afternoon or evening in Providence and Kingston. Full- and part-time programs of study are available.

Master of Arts

Admission requirements: Generally, GRE General Test (current GRE test format with analytical writing, verbal, and quantitative sections is requested), not older than five

years, and bachelor's degree with undergraduate credit in communication studies. Applicants should submit a paper with a research focus written for an undergraduate course. Students from other academic backgrounds may be admitted with the permission of the director of graduate studies, although some basic courses may have to be taken for no program credit. Nonnative speakers of English are expected to demonstrate proficiency in written and oral English communication (TOEFL score of 230 CBT or 88 iBT for admission; minimum of 250 CBT or 100 iBT, including 23 speaking score, for consideration for teaching assistantships. In all cases, the University minimum must be met on each of the four sections of the TOEFL exam; see page 120). Applications should be completed online (uri.edu/gsadmis); completed application packets with support materials should be sent directly to Director of Graduate Studies, Department of Communication Studies, 60 Upper College Road, Suite 1, URI, Kingston, RI 02881-0812. Completed applications, including support materials, must be received by February 1 for applicants who wish to be considered for financial aid. Applications received after that deadline but before July 15 will be reviewed on a space-available basis until the program is filled.

Program requirements: an approved program will include a minimum of 30 credits for both the thesis and nonthesis options. COM 501 and 502 are required for all students, and must to be completed prior to seminar or other course work. All students must complete one seminar in each of the four focus areas (12 credits): COM 510—interpersonal communication; COM 520—media studies; COM 530—organizational communication; and COM 540—public discourse. An additional course in research methods, statistics (e.g. STA 409 or PSY/STA 532), or data analysis is strongly recommended.

For the thesis option, the requirements are 24 course credits plus thesis (6 credits) and its oral defense. For the nonthesis option (admission with approval of the director of graduate studies), requirements

are 30 credits of course work that includes a course requiring a substantial paper based on significant independent study, plus a comprehensive examination. The comprehensive consists of two sections: the written section, which examines the student's proficiency and knowledge in each of the four focus areas; and the oral section, which allows for the student to strengthen written answers, and to address material related to the written questions.

For thesis students, six elective credits beyond their 18 specified credits may be taken. For nonthesis students, up to 12 credits of free electives may be taken. A limited number of 500- and 600-level courses in other departments and programs may be used for program credit if approved by the graduate program director as part of the student's program of study before the courses are taken.

Students who take six credits per semester, plus one summer, may complete their studies in two years.

Financial Aid

All requests for assistantships must be sent to the director of graduate studies with the application packet. A limited number of teaching assistantships and an occasional research assistantship are available. In addition, some graduate assistantships outside the department may be available, such as in student life or residential housing. Priority will be given to applications received by February 1; therefore, assistantships will be awarded on a space-available basis.

Community Planning

M.C.P., M.C.P./J.D. (with RWU)
401.874.2982

Faculty: Professor Atash, *chairperson*. Associate Professors Feldman and Gordon; Professor Emeritus Feld.

Admissions to the Community Planning Program have been suspended effective June 30, 2005.

Computer Science

M.S., Ph.D.
401.874.2701

Faculty: Professor Kowalski, *chairperson*; Professor Fay-Wolfe, *director of graduate studies*. Professors Lamagna and Peckham; Associate Professors Baudet and DiPippo; Assistant Professors Hamel and Hervé; Adjunct Assistant Professors Dickerman, Encarnação, Henry, Ravenscroft, and Stephenson; Professors Emeriti Carney and Carrano.

Specializations

Analysis of algorithms, artificial intelligence, computer architecture, parallel computing, theory of computation, databases, data mining, operating systems, distributed computing, real time systems, computer graphics, software engineering, computer algebra, VLSI systems, numerical analysis, statistical computation, simulation, computer-aided education.

Master of Science

Admission requirements: bachelor's degree in computer science or a closely related field. Applicants with a bachelor's degree in an unrelated field will be considered provided they have completed course work covering the material in CSC 211, 212, 301, 305, 340 and MTH 141, 142, 215, 243. Students may be admitted who have completed only a part of the above course work but they will be required to complete the deficiencies before taking more advanced classes.

The GRE General test is required. A subject test in computer science or a related field is not required but may be considered by the admission committee.

Program requirements: The M.S. curriculum in computer science has three tracks: thesis, nonthesis, and applied nonthesis. For the purpose of describing degree requirements, computer science courses are organized into the following groups:

Algorithms: CSC 440, 541, 542, 550
Programming Languages: CSC 402, 501, 502

Computer Architecture: CSC 411, 415, 511, 517

Computer Systems: CSC 412, 512, 517, 519

Theory of Computation: CSC 445, 544
Software Design: CSC 505, 509

Applications: CSC 406, 436, 481, 485, 486, 522, 536, 581, 583, 585, 586

A program of study can include at most three courses at the 400-level. Students who have undergraduate credits for a particular 400-level course (or equivalent) cannot repeat the course for graduate credit.

Program requirements for thesis option: 1) at least one course from each of the following course groups: algorithm or theory of computation, programming languages or software design, computer architecture or computer systems; 2) at least five other courses chosen with the approval of the major professor (at least two of these must be CSC courses or approved equivalents); 3) at least two separate semesters of one credit of CSC 592, *Computer Science Seminar Series*; 4) eight credits of thesis.

Program requirements for nonthesis option: 1) at least one course from each of the following groups: algorithms, programming languages, computer architecture, computer systems, theory of computation, and software design; 2) at least two courses from the applications group; 3) at least two more courses chosen with the approval of the advisor; 4) at least one of the ten courses listed above should include writing a substantial paper based on significant independent research; 5) passing a written comprehensive examination.

Program requirements for applied nonthesis option: 1) at least one course from each of the following course groups: algorithms, programming languages, computer architecture, computer systems, and software design; 2) at least two courses from the applications group; 3) at least one course should include writing a substantial paper based on significant independent research; 4) an approved concentration in another discipline consisting of a minimum of four graduate courses in the area of con-

centration; 5) passing a written comprehensive examination; 6) minimum of 40 credits required.

Approved applied nonthesis option concentrations exist for Computers and Business Management, Computers and Operations Research, and Computers and Statistics. Other concentrations are possible. Students should meet with their faculty advisor to discuss requirements.

The department encourages other application areas in the physical, biological, mathematical, and social sciences. Students in the applied track will have an advisor in computer science and an advisor in their application area. Together, these advisors will approve the student's program of study.

Doctor of Philosophy

Admission requirements: Bachelor's degree in computer science or a closely related field. Applicants with a bachelor's degree in an unrelated field will be considered provided they have completed course work covering the material in CSC 211, 212, 301, 305, 340 and MTH 141, 142, 215, 243. Students may be admitted who have completed only a part of the above course work but they will be required to complete the deficiencies before taking more advanced classes.

The GRE general test is required. A subject test in computer science or a related field is not required, but may be considered by the admission committee.

Program requirements: The student must complete 54 credits of course work beyond the bachelor's degree in addition to 18 credits for the doctoral dissertation. A program of study can include, at most, three courses at the 400-level. Students who have undergraduate credits for a particular 400-level course (or equivalent) cannot repeat the course for graduate credit. A student entering the program with an M.S. degree in computer science or a related area may be granted up to 30 credits toward the Ph.D. in computer science.

Students must complete at least one course from each of the following course groups (the groups are those listed above

in the master's degree section): algorithms, programming languages, computer architecture, computer systems, theory of computation, and software design; at least two courses from the applications group; and at least two separate semesters of one credit of CSC 592, *Computer Science Seminar Series*. Other courses must be selected in order to meet the 54-credit minimum and will be selected in consultation with the student's advisor or major professor.

Students must take a comprehensive examination, which is composed of a written examination and an oral examination. The written examination, which will be held at least once a year, covers the first six core course areas listed above. Success in the written examination is conditional upon obtaining passing grades in all core areas, and is a prerequisite for taking the oral examination. Typically, a student would be expected to take the comprehensive examination within two years after joining the program. The objective of the oral examination is for the student to present an intended research program and demonstrate satisfactory knowledge and understanding of the scientific literature of the corresponding research domain. A candidate whose comprehensive exam performance is deemed as failing by the Computer Science Graduate Committee may, with the recommendation of the committee and the approval of the Graduate School, be permitted one re-examination, to be taken no sooner than four months and no later than one year after the initial examination.

Students enrolled in the program must give at least one presentation in the regular department research seminar series prior to defending their Ph.D. dissertation.

Dietetic Internship Certificate Program

See Nutrition and Food Sciences.

Economics

See Environmental and Natural Resource Economics.

Education

M.A. 401.874.2564
Ph.D. 401.874.4150

Professor Boulmetis, *coordinator of graduate studies*.

Faculty for the M.A.: Professors Boulmetis, Brand, Byrd, Eichinger, Favazza, Hammadou-Sullivan, McKinney, Purnell, Willis, and Young; Associate Professors Adamy, Hicks, Peno, Seitsinger, and Shim; Assistant Professors Ciccomascolo, Coiro, Deeney, deGroot, Fogleman, and Kern; Professors Emeriti Bumpus, Croasdale, Heifetz, Kellogg, Long, MacMillan, and Russo; Associate Professor Emeritus Nelson.

URI Faculty for the Ph.D. in Education Program: Professors Boulmetis, Brady, Brand, Byrd, Eichinger, Hammadou-Sullivan, McKinney, Purnell, Roush, George Willis, Grant Willis, and Young; Associate Professors Adamy, Branch, Hicks, Kovarsky, McCurdy, and Shim; Assistant Professors Ciccomascolo and Deeney; Professor Emeritus Heifetz.

RIC Faculty for the Ph.D. in Education Program: Professor Gleason, *RIC co-director*; Professors Barton, Carey, Castagno, Cordeiro, Dufour, Enos, Filinson, Fluehr-Lobban, Gleason, Kochanek, Panofsky, Roemer, and Rowell; Associate Professors Bigler, Brell, Medeiros-Landrand, and Ozcan; Assistant Professors Bogad and Niska.

Master of Arts

Admission requirements: A faculty interview is required. Individuals seeking to undertake the initial certification options in elementary and secondary education are expected to have a substantial academic background in the field of interest. In addition, applicants should contact the department regarding the required admissions portfolio, interview process, and yearly admission deadline (or visit the Web site at uri.edu/hss/education/applicants/default). For foreign applicants, a TOEFL score of 600 PBT, 250 CBT, or 100 iBT is required, and the University minimum must be met on each of the four sections of the exam; see page 120.

Program requirements: Individuals may choose the thesis or nonthesis option. Required are 30 credits for the elementary and secondary specialization; 33 credits for the adult education specialization; and a minimum of 34 credits for reading education; including a required core of at least six credits (a foundation and a research methodology course); two electives (six credits), and an academic specialization (18–24 credits). The nonthesis option requires a written comprehensive examination and at least one designated course with a substantial paper involving significant independent research.

Teacher certification option (MATCP): applicants who wish to pursue the initial teacher certification option of the elementary or secondary specializations take 19–34 additional credits. Students may obtain certification prior to completing the requirements for the M.A., as listed above. See Teacher Certification on page 162.

Specializations: Applicants seeking the Master of Arts degree must declare an area of specialization. A specialization may be one predefined by the department or designed in accordance with the applicant's background and interest. Defined specializations include:

Elementary education—advanced study for elementary teachers; the MATCP option is available for students seeking initial certification in elementary teaching.

Secondary education—advanced study for secondary teachers of English, history, languages, mathematics, science, and social studies; the MATCP option is available for students seeking initial certification in these areas.

Reading education—program leading to advanced certification as reading specialist/consultant. Applicants must hold initial teaching certification in early childhood, elementary, or secondary education. Application materials can be obtained from the URI Graduate Admissions Office, Quinn 204, Kingston, RI 02881; 401.874.5930. A résumé of experience must be submitted with an application.

Adult education—administration; adult literacy; education, training, and manage-

ment (ETMS); gerontology; training and development; and vocational education.

M.A. in Special Education

Admission requirements: A faculty interview is required. Applicants seeking special education certification need to have the necessary certification in elementary education. Applicants should contact the department or check the School of Education Web site for complete admission information.

Program requirements: The graduate program in special education enables students to meet the Council for Exceptional Children standards and the requirements for a RI special education teaching certificate in the area of mild/moderate disabilities at the elementary and middle school levels (grades K–8). Students complete a total of 36 credits over a 3-semester sequence. Students must also achieve a passing score on the comprehensive exams and on all state or University tests or outcome measures.

Doctor of Philosophy (Joint with Rhode Island College)

Rhode Island College and the University of Rhode Island offer a Ph.D. in education which prepares scholar practitioners for new professional roles as educational leaders, mentors, and scholars. The program is grounded in the knowledge bases of school teaching and learning. The program's four objectives provide a framework for the preparation of scholar practitioners to:

- 1) develop and employ collegial relationships through professional collaboration;
- 2) acquire and apply the skills and processes of scholarly inquiry;
- 3) demonstrate expertise in an area of specialization that advances the mission of American education; and
- 4) implement professional practices that promote progress in educational settings.

Designed for professionals involved in prekindergarten through adult education, the doctoral program admits 12 to 15 students per year. This cohort-based research program is for students who previously earned a master's degree in education or an allied field or have earned at least 30 graduate credits from a regionally accredited institution. The graduate-level

work must include three credits in each of the following areas: a) educational foundations; b) curriculum; and c) research. A major segment of each student cohort will be made up of teachers and administrators from Rhode Island who are committed to developing advanced teaching, leadership, and research skills.

Admission requirements: Graduate Record Exam (GRE) scores no older than 5 years, official transcripts, curriculum vitae, and letters of recommendation are required. Finalists in the application process must participate in a personal interview. Applicants are admitted for the fall semester only. The completed application package must be received by January 27. The program is offered jointly by the two institutions with single admission and administrative processes. Prospective applicants should address inquiries concerning the program to one of the co-directors at either Rhode Island College or URI. All applicants must complete the electronic graduate application for admission, available online at uri.edu/gsadmis.

Program requirements: the program requires a minimum of 56 credits beyond the master's degree or 86 graduate credits. Three year-long core seminars emphasize different aspects of education from history, culture, and foundations, to curriculum development, teaching, and learning, and finally to administration, leadership, and policy analysis (EDP 610, 611; 620, 621; 630, 631, for a total of 18 credits). Field research seminars (EDP 641, taken six times for a total of six credits) are taken in parallel with the core seminars. Field-based research (EDP 622, two credits, taken in the second year) explores community service and service learning in the context of schools. Students gain research expertise to help their development as school leaders through course work (EDP 615, 625, for a total of six credits) and the field research seminars. Scholarly expertise in a professional area is acquired through specialization courses (12 credits).

All students must complete a doctoral dissertation (12 credits). To progress

through this program, students must 1) receive positive recommendations from core seminar professors; 2) pass a qualifying examination upon completion of the first core seminar (EDP 610, 611) and the course in research methodology (EDP 615) if they have not previously completed a master's degree in education or a closely related field; 3) pass a comprehensive examination after completion of all core seminars and research courses; and 4) complete a successful dissertation and defense.

Electrical Engineering

M.S., Ph.D.
401.874.2506

Faculty: Professor Boudreaux-Bartels, *chairperson*; Professor Fischer, *director of graduate studies*; Professors L. Jackson, Kay, Kumaresan, Lo, Mardix, Ohley, Ying Sun, Sunak, Swazek, Vaccaro, and Q. Yang; Associate Professors Sendag and Vetter; Assistant Professors Besio, Huang, and Yan Sun; Professor-in-residence Uht; Adjunct Professors Banerjee, Chiaramida, and Cooley; Adjunct Associate Professor Jennanne; Adjunct Assistant Professors Davis and Sepe; Professors Emeriti Daly, Haas, Lengyel, Lindgren, Mitra, Sadasiv, Spence, and Tufts.

Specializations

Acoustics and underwater acoustics: communication, detection, classification, and localization for underwater acoustic channels, speech processing.

Biomedical engineering: modeling and control of physiological systems; medical instrumentation and biosignal processing, pattern recognition and image processing (texture analysis, image classification, and segmentation) in medicine; assistive technology to aid persons with disabilities; cardiac anatomy, electrophysiology, and mechanics and resuscitation; neural engineering.

Circuit and devices: mixed signal integrated circuits, VLSI design and simulation, high-level synthesis and design tools, design automation and optimization, high-resolu-

tion data converters, low-poser CMOS circuits, device physics and device modeling.

Communication theory: statistical and computer communications; data compression and coding; modulation and demodulation; Monte Carlo simulation; local area networks, reliable and secure communication.

Computer architectures and digital systems: processor architectures, memory structures, I/O systems, reliable data storage systems, RAID/SAN/NAS storages, parallel and distributed systems, FPGA designs, VHDL/Verilog, VLSI designs and layouts, adaptive systems, control and data speculation.

Computer networks: computer network architectures and protocols, TCP/IP, local area networks (LAN), Internet applications, wired and wireless computer communication, network security, distributed computing systems.

Digital signal processing: detection and parameter estimation; prediction and filtering; spectrum analysis; array processing; digital filter synthesis; adaptive filtering, algorithm design.

Embedded systems and computer applications: embedded system designs, hardware/software designs in embedded applications for networking devices, automobiles, image processing, home appliances, and computer forensics.

Fault-tolerant computing: fault-tolerant computer systems, hardware/software testing, error control coding, data protection and data recovery technologies, reliability and availability modeling, system simulations for performance and reliability analysis of computer systems.

Materials and optics: electrical and optical properties of materials, laser-matter interaction, photocathodes; crystallographic techniques for submicron X-ray lithography; radiation damage in nonmetallic solids; mode characteristics in optical and infrared fiber waveguides; fiber optic sensors; fiber optical amplifiers; electro-optic modulators.

Systems theory: control and estimation theory, intelligent systems; multivariable systems; nonlinear systems, modeling of deterministic and stochastic systems; model

order reduction; optimal smoothing, filtering and prediction; pattern recognition, classification, computer vision; computerized imaging systems and image analysis.

Graduate Certificate in VLSI

The department offers a graduate certificate in Very Large Scale Integrated (VLSI) circuit design and testing. Students are required to complete four courses from a pre-approved list, subject to certain distribution requirements. Interested students are encouraged to speak with the department graduate program director to discuss course requirements.

Master of Science

Admission requirements: GRE and B.S. degree in electrical, computer, or biomedical engineering, physics, mathematics, or computer science. GRE may be waived for candidates who earned the B.S. degree from an accredited U.S. program with a GPA of 3.00 or higher. Preparation in related fields such as mechanical engineering or in the life sciences may be acceptable.

Program requirements: thesis or non-thesis option—minimum of 30 credits in science and engineering with a minimum of 16 credits in graduate-level electrical engineering courses. One credit of the departmental seminar (ELE 601 and/or 602) is required of all students. Up to two credits of seminar may be used toward the 30-credit master's requirement. Individual programs are designed in accordance with students' backgrounds and interests, but require departmental and Graduate School approval. For the thesis option, the thesis counts as six to nine credits. For the non-thesis option, a written master's examination and one course involving significant independent research and a substantial paper are required.

Doctor of Philosophy

Admission requirements: GRE and M.S. degree or equivalent in electrical, computer, or biomedical engineering, physics, mathematics, or computer science, or a related field. Exceptional candidates may be admitted directly from the B.S. degree.

Program requirements: a minimum of 72 credits beyond the B.S. degree. The M.S. degree may count up to 30 of these credits; the remaining credits are split between course work and dissertation research. Students with an M.S. in an appropriate field complete between 18–24 dissertation credits; students without the M.S. may take between 18 and 30 (in either case additional dissertation credits may be taken for no program credit). A qualifying examination is required. A comprehensive examination is required after all formal course work is completed. Two credits of the departmental seminar (ELE 601 and 602) are required of all students. These credits may not be counted as part of the 42 credits required beyond the master's degree.

English

M.A., M.A./M.L.I.S., Ph.D.
401.874.4663

Faculty: Associate Professor Barber, *chairperson*; Associate Professor Trimm, *director of graduate studies*. Professors Arakelian, Campbell, Cappello, Donnelly, Dvorak, Gititi, Leo, Okeke-Ezigbo, Reynolds, Schwegler, Shamon, Stein, and Walton; Associate Professors Durand, Karno, Mandel, Martin, and Miles; Assistant Professors Betensky, Covino, Davis, Dunson, Dyehouse, Frankel, Hensley Owens, Jones, Pennell, Rojas, Valentino, and Williams; Professors Emeriti Burke, Cuddy, Neuse, and Pearlman; Associate Professor Emeritus Cane.

Specializations

American and British literature and culture; critical and cultural theories; rhetoric and composition studies.

Master of Arts

Admission requirements: a B.A. in English or the equivalent, with a grade point average of B (3.00 on a 4.00 scale) or better in all English courses. Complete application packages are to be sent directly to the Director of Graduate Studies, English Department, Swan Hall, University of Rhode Island, and must be received by January 15.

Applicants will be accepted for September admission only. A writing sample of 20 pages maximum is required. Nonnative speakers of English must have a minimum score of 91 on the TOEFL iBT in order to be considered for admission, and the University minimum must be met on each of the four sections of the exam; see page 120.

Program requirements: there are two options for fulfilling requirements—24 credits plus thesis (six credits); or 30 credits (including ENG 595) plus a portfolio and a related oral examination. ENG 510, 511, and 514 are required. The specialization in rhetoric and composition studies requires ENG/WRT 512 and 524. WRT 524 can be substituted for ENG 514 to satisfy the WRT/Rhet specialization within the English degree.

M.A. in English and M.L.I.S. Cooperative Program

By proper selection of course work, a student may simultaneously earn the degree of Master of Arts in English and Master of Library and Information Studies.

Admission requirements: Requirements listed for English and library science. Applicant must apply and be accepted in both programs. The application for each program must indicate English/library and information studies as the field of specialization.

Program requirements: Students must submit individual programs of study for the 42-credit M.L.I.S. program and the 30-credit M.A. in English. The integrated pursuit of the two degrees makes it possible for six credits of appropriately selected course work from one program to serve as electives in the other, and for six credits of course work to be applied in the opposite direction. ENG 510, 511, and 514 are required. WRT 524 can be substituted for ENG 514 to satisfy the WRT/Rhet specialization within the English degree. Thus, when planned and taken jointly, the two programs can be completed with a total of 60 credits rather than 72. Students must complete at least 36 credits in librarianship and at least 24 credits in English. See page 149.

Doctor of Philosophy

The Ph.D. program stresses faculty/student mentoring. Admission is competitive and based mainly on academic merit, demonstrated capability to do research, and the match of research interests between the applicant and faculty in indicated or developing areas of specialization.

Admission requirements: M.A. in English or equivalent. Although grades are not the only criterion, applicants having less than a 3.50 grade point average (on a 4.00 scale) have a low probability for admission. Complete application packages should be sent to the Director of Graduate Studies, English Department, Swan Hall, University of Rhode Island, and must be received by January 15. Applicants will be accepted for September admission only. GREs are required; a writing sample of 20 pages maximum is required. Nonnative speakers of English must have a minimum score of 91 on the TOEFL in order to be considered for admission, and the University minimum must be met on each of the four sections of the exam; see page 120.

Program requirements: 72 credits—30 credits approved for M.A. work; 24 credits of course work plus 18 credits of dissertation research. ENG 510, 511, and 514 are required. WRT 524 can be substituted for ENG 514 to satisfy the WRT/Rhet specialization within the English degree. Two written comprehensive examinations, one publishable article, and an oral examination. A dissertation and an oral defense. For specialization in rhetoric and composition studies, ENG/WRT 512, 645, and 647 are required. A limited number of 500- and 600-level courses in other departments and programs may be used for program credit if approved as part of the student's program of study before the courses are taken. (In some cases, a research tool may be required by a student's doctoral committee in consultation with the director of graduate studies.)

Financial Aid

All requests for assistantships must be sent to the director of graduate studies with the application packet.

Environmental and Natural Resource Economics

M.S., Ph.D.
401.874.2471

Faculty: Professor J.L. Anderson, *chairperson*; Associate Professor C. Anderson, *director of graduate studies*. Professors Gates, Grigalunas, Opaluch, Roheim, and Swallow; Assistant Professors Schnier, E. Uchida, and H. Uchida; Adjunct Professors Asche, Edwards, Holland, Mazzotta, Rubino, and Ward; Professors Emeriti Gates, Sutinen, and Tyrell.

Specializations

Environmental economics, renewable and nonrenewable natural resource economics, fisheries management, international fisheries development, international trade, fisheries marketing, coastal zone land use and management, quality of the marine environment, aquaculture economics, offshore oil and gas management, and natural resource pricing policies.

Master of Science

Admission requirements: the GRE is required. A strong undergraduate record in economics, statistics, and mathematics is highly desirable.

Program requirements: for the thesis option, 24 credits including EEC 501, 502, 528, 534, 535, and 576, in addition to a written comprehensive examination, and at least six EEC 599 M.S. thesis credits. For the nonthesis option, 33 credits including 501, 502, 528, 534, 535, and 576, in addition to a written comprehensive examination, and one EEC 598 credit given for a substantial paper requiring significant independent research. EEC 501 must be taken each semester by full-time graduate students in residence, but only one credit may count toward the program.

Doctor of Philosophy

Admission requirements: GRE, six credits in statistics, and the following courses or their equivalents—ECN 327, 328, and 375.

Program requirements: the Ph.D. qualifying exam is required of students admitted without the master's degree. EEC 501, 502, 527, 528, 534, 535, 576, 602, 624, 628, 630, 634, 676, and 699 are required. EEC 501 must be taken each semester by full-time graduate students in residence, but only one credit may count toward the program. Students with a master's degree in a closely related field may transfer up to 30 credits toward their Ph.D. Additional courses may be elected from appropriate offerings in economics, resource economics, engineering, geography, oceanography, mathematics, natural resources science, political science, statistics, computer science, finance, marine affairs, and management science. The Ph.D. dissertation will be written on a problem involving marine resources, coastal issues, or an associated industry, such as minerals, petroleum, fisheries, water, transportation, recreation, or waste disposal.

Environmental Science and Management

(Interdepartmental)

M.E.S.M.
401.874.4880

Steering committee: Assistant Professor F. Meyerson, *chairperson*; Professors Bengtson, Golet, LeBun, and Y.Q. Wang; Associate Professors Boving and Thompson.

Faculty: Professors Alm, Amador, J.L. Anderson, August, Bengtson, Boothroyd, Burroughs, Cain, Casagrande, Fastovsky, Gates, Ginsberg, Gold, Golet, Grigalunas, Hennessey, Hermes, Husband, Juda, LeBrun, Logan, Marti, T. Mather, B. Maynard, Murray, D. Nixon, Opaluch, Paton, Pollnac, Rice, Roheim, Sutinen, Swallow, Swift, and Y.Q. Wang; Associate Professors C. Anderson, Boving, Gomez-Chiari, McWilliams, Stolt, Thompson, and Veeger; Assistant Professors R. Brown, Macinko, F. Meyerson, L. Meyerson, and Mitkowski; Adjunct Associate Professor Abedon.

The Master of Environmental Science and Management (M.E.S.M.) is an interdisciplinary, interdepartmental, professional degree program designed for students who seek professional environmental positions in areas other than research. It is considered to be a terminal degree; students who plan to pursue a Ph.D. should enroll in the Master of Science in Environmental Sciences degree program. The M.E.S.M. degree program serves graduate students from six departments within URI's College of Environment and Life Sciences (CELS): Environmental and Natural Resource Economics; Fisheries, Animal and Veterinary Science; Geosciences; Marine Affairs; Natural Resources Science; and Plant Sciences. It is administered by a steering committee selected from the graduate faculty.

Specializations

Conservation biology; earth and hydrologic science; environmental policy and management; remote sensing and spatial analysis; sustainable systems; and wetland, watershed, and ecosystem science.

Master of Environmental Science and Management

Admission requirements: GRE and bachelor's degree in biological science, physical science, environmental science, natural resources, or engineering. Applicants with course deficiencies may be required to take appropriate undergraduate courses for no program credit and to demonstrate, by their performance in such coursework or through a qualifying exam, basic knowledge of the subject matter in the area(s) of deficiency. Application must be made to one of the six specializations.

Program requirements: A minimum of 36 credits of course work consisting of 21–25 credits of core courses, including at least 9 credits in natural sciences, at least 6 credits in social sciences, and at least 3 credits in numerical methods; 6–10 credits of electives, up to 3 credits of which might be an internship (EVS 597) with an environmental agency, nongovernmental agency, or private firm; an independent research

project (EVS 598) that culminates in a substantial, high-quality, written report; and at least 2 credits of graduate seminar, including a terminal oral presentation. Written comprehensive examination on coursework. There are more specific course requirements and an approved course list for each of the six specializations. Course requirements that are unique to each of the specializations are as follows. *Conservation biology:* 12–16 credits in natural sciences, including at least 3 credits in plant and animal biology, at least 3 credits in ecology, and at least 3 credits in biodiversity analysis and management; and at least 2 credits of graduate seminar from EEC, NRS, or PLS. *Earth and hydrologic science:* 12–16 credits in natural sciences from any or all of the following categories: earth surface processes, hydrology, solid earth materials and processes, or spatial analysis and remote sensing; and at least 2 credits of graduate seminar from GEO, MAF, or NRS. *Environmental policy and management:* 12–16 credits in social sciences, including at least 6 credits in policy, planning, and law and at least 6 credits in economic theory and methods; 9 credits in natural sciences from any or all of the following categories or from numerical methods: geology, hydrology, and soil science; ecology and management; or remote sensing and spatial analysis; and at least 2 credits of graduate seminar from CPL, EEC, GEO, MAF, or NRS. *Remote sensing and spatial analysis:* 12–16 credits in natural sciences, including at least 9 credits in remote sensing and spatial analysis, and 0–7 credits in earth and ecosystem science; and at least 2 credits of graduate seminar from GEO or NRS. *Sustainable systems:* 12–16 credits in natural sciences, including at least 3 credits in natural ecosystems and at least 3 credits in managed ecosystems; and at least 2 credits of graduate seminar from AFS, EEC, NRS, or PLS. *Wetland, watershed, and ecosystem science:* 12–16 credits in natural sciences, including at least 6 credits in ecosystem science and management and at least 3 credits in earth science, soils, and spatial analysis; and at least 2 credits of graduate seminar from EEC, GEO, MAF, or NRS.

Environmental Sciences

M.S., Ph.D.

Entomology

401.874.2791, cels.uri.edu/pls

Faculty: Professor Maynard, *interim chairperson*; Professor Mather, *director of graduate studies*. Professors Alm, Casagrande, LeBrun, and Logan; Professor in Residence Ginsberg; Adjunct Assistant Professor Gettman.

Fisheries, Animal and Veterinary Science

401.874.2477, uri.edu/cels/favs

Faculty: Professor Bengtson, *chairperson*; Associate Professor Gomez-Chiarri, *director of graduate studies*. Professors Bradley, Costa-Pierce, DeAlteris, Mallilo, Recksiek, Rhodes, and Rice; Assistant Professors Peterson and Sartini; Adjunct Professors Hoey, Klein-MacPhee, Musick, Serra, and Smolowitz; Adjunct Associate Professors Colwill and Hare; Adjunct Assistant Professors Brumbaugh, Castro, Dudzinski, Gleason, Hancock, Leavitt, Rheault, Petersson, Schwartz, and Wetherbee; Professor Emeritus Chang.

Geosciences

401.874.2265, uri.edu/cels/geo

Faculty: Professor Murray, *chairperson*; Assistant Professor Boving, *director of graduate studies*. Professor and State Geologist Boothroyd; Professors Cain, Fastovsky, and Hermes; Associate Professor Veeger; Adjunct Professors Burks, Fischer, and Spiegelman.

Natural Resources Science

401.874.2495, nrs.uri.edu

Faculty: Professor Paton, *chairperson*; Professor Golet, *director of graduate studies*. Professors Amador, August, Forrester, Gold, Husband, McWilliams, Stolt, and Wang; Assistant Professors F. Meyerson and L. Meyerson; Adjunct Professors Lashomb, Paul, and Perez; Adjunct Associate Professors Abedon, Cerrato, Gorres, Groffman, Jarecki, Nowicki, and O'Connell; Adjunct Assistant Professors Dabek, Kellogg, McKinney, Milstead, Peters, Rubenstein, Saltonstall, Steele, and Tefft; Professor Emeritus Brown and Wright.

Plant Sciences

401.874.2791, cels.uri.edu/pls

Faculty: Professor Maynard, *interim chairperson*; Professor Mather, *director of graduate studies*. Professors Casagrande, LeBrun, and Sullivan; Associate Professors Englander and Ruemmele; Assistant Professors Adkins, Brown, and Mitkowski; Professors Emeriti Beckman, Hull, and Jackson.

Specializations

Entomology: insect ecology, pest management, aquatic entomology, plant-insect interactions, biological control, and biology and ecology of disease-transmitting arthropods. The entomology program has a biological quarantine laboratory, the only university-affiliated facility in the Northeast. Faculty and students search abroad for natural enemies of pest species and study them in the laboratory under secure conditions. The laboratory, certified by the U.S. Department of Agriculture as an insect-quarantine facility, is an important component of a long-standing program on insect ecology and the development of environmentally sensitive pest-control measures.

Fisheries, Animal and Veterinary Science: aquacultural production of finfish and shellfish, production of terrestrial livestock, physiological and endocrinological aspects of stress in animals, genetics of cultured and wild populations of fish and shellfish, fish population dynamics, physiological ecology of economically important fish and invertebrates, the pathology of aquatic animals, and the effects of environmental pollution on marine organisms.

Geosciences: sedimentology, stratigraphy-paleontology, coastal geology, geoarchaeology, glacial geology, hydrogeology, applied geophysics, GIS mapping, petrology, and structure and tectonics.

Natural Resources Science: ecosystem ecology, biogeochemistry, soil genesis and classification, soil ecology and microbiology, biodegradation and bioremediation, hydrology and watershed science, wetland science and management, restoration ecology, landscape ecology, GIS and spatial analysis, wildlife and conservation biology, and avian ecology.

Plant Sciences: plant ecology and physiology, plant molecular biology and genetics, plant pathology, environmental horticulture, environmental plant biology, sustainable agriculture, and golf and sports turf management. The department operates 50 acres of turfgrass, horticulture, and plant science research and education farm centers. URI's Turfgrass Center is the oldest turfgrass research and teaching program in the U.S.

Master of Science (*All Environmental Sciences departments or programs except for Fisheries, Animal and Veterinary Science. See separate listing in following section.*)

Admission requirements: GRE and bachelor's degree in a biological or physical science, or engineering. Applicants with course deficiencies may be required to take appropriate undergraduate courses for no program credit, and to demonstrate, by their performance in such course work or through a qualifying exam, basic knowledge of the subject matter in the area(s) of deficiency.

Program requirements: six credits of thesis and a minimum of 24 credits of course work, including graduate seminar. An oral preliminary examination and advanced seminars may be required in certain fields of study.

Doctor of Philosophy (*All Environmental Sciences departments or programs*)

Admission requirements: GRE and bachelor's degree in a biological science, physical science, natural resources science, or engineering; specific undergraduate majors or course work may be required for certain fields of study. Master's degree with thesis in biological science, physical science, or natural resources science is highly recommended.

Program requirements: a minimum of 72 credits of advanced course work beyond the bachelor's degree (a master's degree may count for up to 30 credits), 18 of which are dissertation credits and at least two of which are graduate seminar credits; comprehensive examination; and dissertation. A qualifying examination will be required

for students who are admitted without a master's degree and may be required for students whose prior degrees are outside of the proposed Ph.D. field of study.

Fisheries, Animal and Veterinary Science

M.S.
401.874.2477

See Environmental Sciences for the Ph.D.

Faculty: Professor Bengtson, *chairperson*; Professor Gomez-Chiarri, *director of graduate studies*. Professors Bradley, Costa-Pierce, DeAlteris, Mallilo, Rhodes, and Rice; Assistant Professors Peterson and Sartini; Adjunct Professors Hoey, Klein-MacPhee, Musick, Serra, and Smolowitz; Adjunct Associate Professors Colwill, Hare, and Leavitt; Adjunct Assistant Professors Brumbaugh, Castro, Dudzinski, Gleason, Hancock, Leavitt, Rheault, Petersson, Schwartz, and Wetherbee; Professors Emeriti Chang, Nippo, and Recksiek.

Specializations

In the specialization *animal science*, regional, national, and global problems are studied in the areas of animal behavior, endocrinology, nutrition, physiology, and reproductive biology. Both domestic livestock and laboratory animals are used in a research context. In the specialization *animal health and disease*, animal health problems of regional, national, and global significance are studied. Infectious diseases are characterized, and the contributions of stress and pathologic conditions to disease are considered.

The *aquaculture* specialization includes the study of aquaculture of finfish and shellfish and the genetics, nutrition, and physiology of fishes. The specialization in *fisheries* includes the study of fisheries science and technology. *Aquatic pathology* deals with the pathology of aquatic animals and the management of infectious diseases in aquaculture.

Master of Science

Admission requirements: GRE and an undergraduate major in the biological sciences with a concentration in animal science, fisheries technology, biology, marine biology, microbiology, preveterinary medicine, or zoology, or postgraduate professional degrees (M.D., D.V.M., V.M.D.); one year of organic chemistry and physics. Courses in statistics, microbiology, histology, and physiology are strongly recommended. A strong background in calculus is expected for *fisheries*.

Program requirements: for *animal science*, thesis and 24 credits of course work to include two credits of AFS 501 and/or 502; AVS 412, 472; STA 532. Thesis topic and additional course work will be selected by the student after consultation with, and approval of, the major professor. For *animal health and disease*, thesis and 24 credits of course work to include two semesters of graduate seminar, AFS 501 and/or 502; AFS 503; MIC 533 or 534; STA 532. Thesis topic and additional course work will be selected by the student after consultation with, and approval of, the major professor.

For *fisheries*, thesis and 24 credits of course work to include two semesters of graduate seminar, AFS 501 and/or 502; two courses in statistics (at least one at the 500 level); AFS 415, 421. A total of 14 credits of AFS course work must be included in the program of study. Thesis topic and additional course work will be selected by the student after consultation with, and approval of, the major professor. For *aquaculture*, thesis and 24 credits of course work to include two semesters of graduate seminar, AFS 483, 500, 581, 586. Thesis topic and additional course work will be selected by the student after consultation with, and approval of, the major professor. For *aquatic pathology*, thesis and 24 credits of course work to include two semesters of graduate seminar, AFS 501 and/or 502; AFS 486, 500, 503; MIC 533 or 534. Thesis topic and additional course work will be selected by the student after consultation with, and approval of, the major professor.

History

M.A., M.A./M.L.I.S.
401.874.2528

Faculty: Professor Schwartz, *chairperson*; Associate Professor Sterne, *director of graduate studies*; Professor Mather, *director of Archaeology and Anthropology option*. Professors Cohen, Honhart, Rollo-Koster, Strom, Thurston, and Weisbord; Associate Professors Ferguson, George, Pegueros, and Rusnock; Assistant Professors Buxton and Widell; Professors Emeriti Findlay, Kim, and Klein.

Specializations

United States, Europe, or archaeology and anthropology option.

United States or European History: Students may complement their work with courses in Latin American or Asian history or with courses taken outside the department, particularly in political science, education, English, and languages. Students might also develop programs of study that emphasize regional studies or themes such as race, gender, or family.

The master's program in history includes both class work and individual instruction in the form of 500-level seminars; small 400-level courses that include undergraduates; tutorials; and directed study courses, as well as master's thesis research for those who qualify for the thesis option. All graduate work stresses independent research and is designed to promote critical reading and writing. The diversified program—with its requirement for work in more than one field of history and the opportunity it offers of work in another discipline—should be of service both to students who wish to continue their graduate education at the doctoral level and to those who are interested in secondary teaching. Students are required to develop a systematic program of studies with the director of graduate studies during their first semester as a master's degree candidate.

For tutorials (HIS 502, 503, 536, 537, 588, and 589), students participate in 300-level courses and complete additional projects assigned by the instructors. Tutorial arrangements are made with the instructor at the beginning of the semester. To be eligible, a graduate student must not have taken the 300-level course—or one closely resembling it—as an undergraduate.

Students may also take up to six credits from the graduate offerings at Rhode Island College (in Providence), or at the Summer Graduate Program in Maritime History of the Munson Institute, Mystic Seaport, New London. These courses must be approved for program credit prior to registration and are included in the six-credit maximum for transfer credit and the 12-credit maximum for advanced standing.

Archaeology and anthropology: Students study method and theory in history, anthropology, and archaeology and the connections among the disciplines. The option is offered in cooperation with the Department of Sociology and Anthropology and the Department of Art (Art History). It includes both class work and individual instruction in the form of 500-level seminars, small 400-level courses, tutorials, and directed study courses. Students enrolled in this option are encouraged to work on thematic links across the disciplines such as maritime history and underwater archaeology, social history and cultural anthropology, or ancient history and classical archaeology.

The archaeology and anthropology option serves the needs of students looking for interdisciplinary opportunities in history, anthropology, and archaeology. It also provides essential humanistic and social science training for Ph.D. students in geological/archaeological oceanography.

Master of Arts

Admission requirements: GRE and bachelor's degree. While 24 credits of history are usually required, majors in related fields may be admitted with permission of the director of graduate studies and the department chairperson. For the archaeology and anthropology option, credits in anthropology, archaeology, art history, and

related fields may be accepted with permission of the director of graduate studies, in consultation with graduate faculty from the Departments of History, Art, and Sociology and Anthropology.

Program requirements: For the United States or Europe specializations, there are thesis and non-thesis options. In both options, the student must declare a primary concentration in European or United States history, and a secondary concentration in another area of history or in a related field outside the department. For students in the archaeology and anthropology specialization, a thesis option will not be available, but each student must complete a major research paper in HIS 591. For all specializations, an approved program will require 30 credits.

United States or European History specialization program requirements: Of the 30 required credits, at least three must be from HIS 401, 441, or 481 and at least nine credits from HIS 506, 507, and 508. Three of these nine credits may be filled by a 500- or 600-level seminar in another department. The non-thesis option will require completion of a research paper in HIS 495, or, in exceptional circumstances, in another graduate-level course with permission of the instructor and the graduate director or department chair. Admission to the thesis option will be granted after evaluation by the director of graduate studies and two faculty members who are familiar with the student's first year of graduate work.

In the nonthesis option, the student may earn no more than 12 credits in tutorials (502, 503, 536, 537, 588, and 589) and directed studies (591). Nine credits will normally be taken in the secondary concentration. A written comprehensive examination in the student's primary and secondary concentrations and a follow-up oral examination are required. The examining committee will normally consist of two faculty members from the student's primary concentration and one from the secondary concentration. In the thesis option, the student may earn a maximum of nine credits of HIS 599, a maximum of three credits of Directed Study (HIS 591), and a maximum

of nine credits of tutorials (HIS 502, 503, 536, 537, 588, 589). Work in the secondary concentration may be limited to six credits.

Archaeology and anthropology specialization program requirements: Of the 30 required credits, students must select at least three from HIS 401, 441, or 481; at least three credits from APG 401, 413, or 427; and at least three credits from HIS/APG 490, APG 417, and ARH 475/575. Students must take an additional six credits of 500-level history courses, including at least three credits from HIS 506, 507, or 508. Students must also take ARH/APG 465 or 565. The remaining credits are to be selected from the following approved electives: Any 400- or 500-level history course, any anthropology course listed above; any art history course listed above; APG 470; ARH 469, 470, 480; NES 400; TMD 440, 510, 520, 524, 570. Up to six credits of other graduate courses may be substituted for approved electives with approval of the student's major professor and option coordinator. A comprehensive examination and a follow-up oral examination are required. The examining committee will normally be comprised of at least two faculty members from history, and one each from anthropology and art.

M.A. in History and M.L.I.S. Cooperative Program

By proper selection of course work, a student may simultaneously earn the degrees of Master of Arts in history and Master of Library and Information Studies.

Admission requirements: GRE and other requirements listed for history and library science. Applicant must apply and be accepted in both programs. The application for each program must indicate history/library and information studies as the field of specialization.

Program requirements: students must submit individual programs of study for the 42-credit M.L.I.S. program and the 30-credit program for the M.A. in history. The integrated pursuit of the two degrees makes it possible for six credits of appropriately selected course work from one program to serve as electives in the other, and for six

credits of course work to be applied in the opposite direction. Thus, when planned and taken jointly, the two programs can be completed with a total of 60 credits rather than 72 credits.

Human Development and Family Studies

M.S. (specializations listed below)
401.874.2150

Faculty: Professor Adams, *chairperson*.

Human Development and Family Studies

Associate Professor McCurdy, *director*. Professors Gray Anderson, Clark, Cohen, Newman, and Xiao; Associate Professor Kalymun; Assistant Professors Adams-LaBonte and Harper; Adjunct Professors P. Newman and Prochaska; Professor Emerita Rae.

Marriage and Family Therapy

Professor Adams, *director*. Associate Professor Sparks; Assistant Professor Kisler; Professors Emeriti Maynard and Rae.

College Student Personnel

Associate Professor Branch, *director*. Associate Professor Knott; Assistant Professor Vaccaro; Professor Emeritus Schaffran.

Human Development and Family Studies

This program is designed to immerse students in a specialized area of human development and family studies, while providing a strong emphasis on policy, research, and practical knowledge of the field. Graduates from this program are prepared for leadership positions in human service and education administration, research and policy organizations, and for advanced academic work at the Ph.D. level.

Admission requirements: GRE or MAT, and 18 undergraduate credits distributed among the following areas: human development and family studies, psychology, and sociology. Majors in related fields (e.g. nursing, political science, education) may be admitted with the permission of the director of graduate studies. Three letters of recommendation are required with at least one

from an academic reference. Application deadline for fall admission is March 30. Applications received after this date will be reviewed on a space-available basis.

Program requirements: a minimum of 41 credits of approved graduate courses that include a developmental seminar; a sequence in policy, research, and statistics; and a professional seminar. In addition, students will select a minimum of 9 credits in a specialization, such as child development, early childhood education, adult development/gerontology, public policy/administration, family studies, and family financial counseling/education. Students complete a master's thesis. Students will have the option of including up to six credits of a policy, administrative, or research internship as part of the program of study.

Postbaccalaureate Early Childhood Education (ECE): If you wish to pursue a post-baccalaureate early childhood education teacher certification (nursery to grade 2) and do not have a human development and family studies background, you will need to take certain courses from the HDF undergraduate curriculum and should consult an HDF advisor. Students apply to URI's Teacher Certification Program (nondegree status) administered through the Graduate School and must submit a candidate's statement, official transcripts of all previous course work, and two letters of recommendation. Applicants must also complete the same ECE admission process as undergraduate students, including the portfolio, admission tests, and interview coordinated through the University's Office of Teacher Education.

Marriage and Family Therapy

Admission requirements: GRE or MAT; at least 12 credits of relevant preparation, including courses in family relations, developmental theory, abnormal psychology, and introduction to counseling or equivalent courses. Two letters of recommendation should be from supervisors in a related field attesting to observed experience, emotional stability, and maturity. After initial screening, qualified applicants will be required to come to campus for a personal interview.

The goal of the personal interview is to determine whether the applicant possesses the full range of academic qualifications, experiential background, clinical competency, and readiness to undertake the rigors of an academically and emotionally demanding clinical preparation program. Program faculty members will conduct the interviews. Selection for admission to this program is competitive and enrollment is limited. Diversity among the students in the program is a major program goal. The program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education. Review of applications begins February 1.

Program requirements: a minimum of 45 credits of approved graduate courses, including 12 credits of practica and internship, a comprehensive examination, and a research project. This program involves intense clinical practice and requires a year-long clinical placement at approved agencies or the department's Family Therapy Clinic.

College Student Personnel

The mission of URI's College Student Personnel program is to prepare reflective practitioners for professional careers in student affairs. Graduates seek entry-level positions such as advisors, coordinators, directors, and deans at institutions of higher education. Our vision is to engage one another in an extended community of co-learning relationships that inspire optimal development and promote growth in leadership, all based on creating and sustaining the best practices in college student personnel preparation and professional work. The program is designed in accordance with the guidelines established by the Council for the Advancement of Standards in Higher Education (CAS).

For students' convenience, most courses are offered in the late afternoon or early evening in Kingston. Full- and part-time programs of study are available.

Admission requirements: Online submission of an application through the Graduate School Web site is preferred; send all supporting materials to CSP Graduate Program

Director, Quinn Hall, Room 220, 55 Lower College Road, Kingston, RI 02881. Supporting materials must include at least two letters of recommendation (one academic and one student affairs professional), official transcripts of all previous college course work, and a current résumé. The completed application package, including supporting materials, is due for fall admission by January 15; materials received after this date and prior to April 1 are reviewed on a space-available basis. After initial screening, selected applicants will be invited to interview either in person or via the telephone with a faculty representative. Selection for admission to this program is competitive and enrollment is limited; preference is given to applicants with experience in college student affairs. Diversity among students is valued by the program and student affairs profession. If admitted into the program, you will be given information on applying for Graduate Assistantships or other direct links to practice in college student affairs settings.

Program requirements: 42-credit program consisting of 26 credits in core HDF courses: 551, 560, 562, 567, 568, 570, 572 [1], 573 [1], 574, 575 [1], 576 [2], six elective credits, a multi-part comprehensive examination, plus one of the following capstone options: nonthesis internship (HDF 580 [2], 581 [2], 583, 584), nonthesis action research project (HDF 595 [6], HDF 580 [1], HDF 553), or thesis (HDF 599 [6], HDF 580 [1], HDF 553).

Industrial and Systems Engineering

M.S. (Systems Engineering)
Ph.D. (Industrial and Systems Engineering)
401.874.2455

Faculty: Professor Wang, *chairperson*; Professor Dewhurst, *director of graduate studies*. Professor Sodhi; Assistant Professor Maier-Speredelozzi; Adjunct Professors Miller and Jones; Professors Emeriti Boothroyd, Knight, and Nichols; Associate Professors Emeriti Lawing and Shao.

Specializations

Service and enterprise systems—project planning and management in systems engineering; systems simulation; quality systems; lean systems; design and analysis of experiments; nonlinear systems optimization.

Manufacturing systems—computer-aided manufacturing systems; manufacturing systems: analysis, design, and simulation; product design for manufacture; quality systems; design and analysis of experiments; production control and inventory systems; lean systems.

Distributed network systems—computer networks; topics in distributed systems; ocean systems engineering; introduction to mechanical engineering systems, systems simulation; oceanographic sciences (a multidisciplinary specialization with courses from several departments).

Financial Aid

A number of graduate and research assistantships are available for qualified graduate students.

Master of Science

Admission requirements: B.S. degree in engineering, mathematics, physics, chemistry, computer science, or management science. Applicants may be required to take courses that are prerequisites to specific courses required for completion of the program. Prerequisite course credits might not be counted as program credits. GRE required for graduates of non-U.S. universities except under specific university partnership agreement.

Program requirements: thesis or nonthesis option—minimum of 30 credits with at least 15 credits in graduate-level industrial and systems engineering courses including ISE 533, 555; and three courses in one of the specialization areas. For the thesis option, the thesis counts as six to nine credits. The nonthesis option is available to part-time students, or in exceptional circumstances, to students with permission from the graduate studies committee.

For the nonthesis option, a comprehensive examination, and one course involving significant independent research and a term paper are required.

Doctor of Philosophy

Admission requirements: M.S. degree in engineering, mathematics, physics, chemistry, computer science, or management science. Applicants may be required to take courses that are prerequisites to specific courses required for completion of the program. Prerequisite course credits might not be counted as program credits. Although a person with a bachelor's degree may be admitted, this program is designed principally for people who have master's degrees. GRE required for graduates of non-U.S. universities except under specific university partnership agreement.

Program requirements: A minimum of 72 credits beyond the B.S. degree. An M.S. degree may count up to 30 of these credits; the remaining credits are split between course work and dissertation research, 18–24 of which are dissertation credits and the remaining credits are course work. At least 15 credits of course work should be in graduate-level industrial and systems engineering courses including ISE 533, 555; and three courses in one of the specialization areas. Qualifying examination may be waived for a student with a master's degree in industrial engineering, systems engineering, or other related fields. A comprehensive examination must be taken after all formal course work is completed.

Kinesiology

M.S.
401.874.2976

Faculty: Associate Professor Ciccomascolo, director of graduate studies. Professors Lamont, Manfredi, and Riebe; Associate Professors Blissmer and Kusz; Assistant Professors Delmonico and Xu; Professor Emerita Bloomquist.

Specializations

Exercise science; adapted physical education; physical education pedagogy; cultural studies of sport and physical culture; psychosocial /behavioral aspects of physical activity.

Master of Science

Admission requirements: MAT or GRE with B.S. degree in physical education, exercise science, kinesiology, or related discipline. An applicant with a degree in an unrelated field who possesses a strong emphasis in the sport sciences may be considered. Completed application packages should be sent to the Director of Graduate Studies, URI Department of Kinesiology, 126 Tootell, and must be received by April 15 for September admission, or October 15 for January admission. Applications received after April 15 but before July 15 will be reviewed on a space-available basis.

Program requirements: 32 credits, including 11 credits in core courses and six (nonthesis option) to nine (thesis option) of research requirements. The required core courses are KIN 501 (must be repeated twice), 508, 578, and 515 or 562. The required research courses are KIN 530 and 599 (thesis option) or 591 (nonthesis option). Required courses for exercise science include selecting nine to 12 credits from KIN 559, 563, 564, 565, 524, 531, and 592, plus up to six credits of electives. Required courses for adapted physical education include KIN 545, 585, and 580, plus three to six credits of electives. Required courses for physical education pedagogy include KIN 510, 545, and 580, plus three to six credits of electives. Required courses for cultural studies of sport and physical culture include KIN 478 and 465, plus six to nine credits of electives. Required courses for psychosocial/behavioral aspects of physical activity include KIN 563 and 581, plus six to nine credits of electives.

Labor Relations and Human Resources

M.S., M.S./J.D.
401.874.2239

Faculty: Professor Scholl, *director, Schmidt Labor Research Center.* Professors Beauvais, Burkett, Cooper, Croasdale, Lardaro, McIntyre, Miller, Molloy, Overton, Poggie, Rothstein; Associate Professor Bodah; Adjunct Professors Keating and Taylor; Professors Emeriti Gersuny, Rayack, and Schmidt.

This program is designed for union, government, neutral, or human resource management, labor, and industrial relations professionals, or for those students who aspire to such positions. Students in other graduate programs may find it rewarding and professionally desirable to enroll in one or more of the labor relations and human resource courses. All courses are offered in the very late afternoon or in the evening in Providence and Kingston so that they are convenient for working students. Full-time and part-time programs are also available.

Specializations

Areas of specialization include labor relations and human resources, both with elective and required courses. Substitutions may be made with permission of the director of the Schmidt Labor Research Center and approval of the Graduate School. Exceptional students who come into the program with a well-defined interest, as well as a proposed plan of study, may choose to create their own specializations by choosing four courses in an area that satisfies their professional needs, e.g., computer science or statistics, economics or social policy, law and legal processes, or workplace issues such as alcohol and drug abuse, sexual or age discrimination, or racism.

Master of Science

Admission requirements: GRE or MAT or GMAT. Undergraduate majors in any field are considered for admission; those with

majors in social science, history, management, and labor studies are especially encouraged to apply, as are those with engineering, nursing, education, urban affairs, black studies, and women's studies backgrounds. Professional experience in labor and industrial relations will carry additional weight in admission decisions.

Program requirements: minimum of 39 credits, including 27 credits in core courses and 12 credits of specialization. The required courses are LRS/HIS 544; LRS/PSC 521; LRS/ECN 526; LRS 531, 541, 542, 500, 551, and 580. For a specialization in labor relations, select two courses from LRS 520, 543, and 545; and two courses from LRS 432, 503, 532, 533, 546, 579, 581, 591, and MBA 577 and 578. For a specialization in human resources, required courses include two courses from LRS 432, 503, 520, 532, 533, 543, 545, 546, 579, 581, 591, and MBA 502, 577, and 578. Students are advised that many of the core required courses and electives in the program assume competence in basic statistics and economics as well as a working knowledge of computers. Students should remedy any deficiencies in these areas either prior to or during enrollment in the program. Please contact the director of the Schmidt Labor Research Center for further advice.

Joint Program: Master of Science in Labor Relations and Human Resources (URI) and Juris Doctorate (Roger Williams University School of Law)

A cooperative dual degree program offered at URI and Roger Williams University School of Law permits dual enrollment leading to an M.S. in labor relations and human resources and a J.D. The integrated program of the two degrees allows a student to complete both programs in four years instead of the five required if both degrees are pursued separately.

Admission requirements: Students must apply and be accepted into each program under the separate admission requirements currently in effect at each school. Applicants must indicate the M.S./J.D. on the "Degree Sought" section of the URI application form.

Program requirements: At Roger Williams University, the J.D. program requires 90 credits, which can be completed on a full-time basis in three years. The M.S. degree in labor relations and human resources at URI requires 39 credits, which can be completed on a full-time basis in two years. A student matriculated in the joint program will take some credits in one program that will help satisfy the overall credit requirements of the other degree program as well. Students in the joint program must complete the following core required courses as part of their 30-credit requirement at URI in addition to nine credits taken at Roger Williams: LRS 542, 500, 551, and 580; LRS/PSC 521; LRS/ECN 526; and LRS/HIS 544. Students who specialize in human resources must also take MBA 577 and 578, while students specializing in labor relations must take LRS 520 and 545. Students must complete the required law school curriculum at Roger Williams. For students matriculated in the joint program, Roger Williams will accept the following 15 URI credits to satisfy the requirements for the J.D. degree: LRS 542, 500, and 580; LRS/ECN 526; and LRS/PSC 521.

Graduate Certificate Programs in Labor Relations and Human Resources

Admission requirements: Applicants with undergraduate majors in any field are considered for admission; applicants must submit two official transcripts of all academic work, two letters of recommendation, and a resume of professional experience.

Program requirements: To earn a graduate certificate in Labor Relations, students must satisfactorily complete four of the following courses: LRS 432, 500, 520, 521, 526, 531, 532, 533, 541, 542, 543, 545, 546, and 579. To earn a graduate certificate in Human Resources, students must satisfactorily complete four of the following courses: LRS 500, 503, 526, 531, 532, 533, 541, 542, and 551; MBA 502, 577, and 578.

Languages

See Spanish.

Library and Information Studies

M.L.I.S., Cooperative Programs
401.874.2947

Faculty: Professor Eaton, *director, Graduate School of Library and Information Studies;* Professor Carson, *assistant director and coordinator of distance learning.* Professors Gilton, Ma, and McCarthy; Associate Professor Caldwell; Assistant Professor Adams.

The Master of Library and Information Studies (M.L.I.S.) degree prepares students for professional service and leadership in libraries and other organizations, including information positions in business and government. Specializations include service to children and young adults, reference and bibliography, organization of information, technical services, information literacy instruction, special collections and rare books, automation, information science, and others. The program leading to the M.L.I.S. is accredited by the American Library Association (ALA).

The School Library Media Specialist certification program leads to both the M.L.I.S. and K-12 certification. It is approved by the Rhode Island Department of Education and accredited by the National Council for the Accreditation of Teacher Education (NCATE).

Master of Library and Information Studies

Admission requirements: bachelor's degree (B average); if undergraduate GPA is below 3.00 or equivalent, GRE or MAT at the 50th percentile or above. The completed application package should be received by October 15 for spring admission, March 15 for summer admission, and June 15 for fall admission.

Program requirements: 42 credits, 18 in required core courses (LSC 502, 503, 504, 505, 508, and 557) and 24 in electives, six of which may be taken in courses outside library science when relevant to the student's specialization; one course with major paper requiring significant independent research; and a written comprehensive examination. Students in the school library media program must take both LSC 530 and LSC 531 and are not required to take LSC 503. Other students who take both LSC 530 and LSC 531 may also waive LSC 503. No more than nine credits or three courses may be taken in nonmatriculating status for transfer into the degree program.

Requirements for the M.L.I.S. must be completed within a period of four calendar years. A one-year extension, to five calendar years, may be granted for good cause by the G.S.L.I.S. faculty with notice to the dean of the Graduate School in response to a student's petition. Further extensions, to a maximum of seven calendar years, are possible under Graduate School policy, but are generally undesirable because of the rapid change in library and information services. If such extensions are granted, courses completed more than five calendar years prior to graduation will no longer be valid, and must be replaced by new courses or reinstated by examination to ensure that the graduate's knowledge of the field is current.

Teacher certification track: To meet state requirements, students in the M.L.I.S. program who wish to pursue teacher certification as school library media specialists must take specific courses including three graduate credits in education/instruction (unless already certified as a teacher). Students should consult with their advisors to be sure they are meeting all certification requirements. See Teacher Certification.

G.S.L.I.S. also offers a teacher certification program (TCP) with a specialization in school library media for individuals who already hold accredited M.L.I.S. degrees. Candidates for certification must apply for admission following G.S.L.I.S. guidelines and complete the same requirements as M.L.I.S. students in the school library media track.

Certificate in Information Literacy Instruction

A 15-credit post-baccalaureate certificate in Information Literacy Instruction (ILIC) is open to current students (who may take it as part of their M.L.I.S. program) and college graduates with or without the M.L.I.S. Completion of the following courses is required: LSC 504, *Reference and Information Studies*; LSC 524, *Teaching About Information*; LSC 525, *Multiculturalism in Libraries*; LSC 527, *Information Literacy Instruction*; LSC 528, *Instructional Technology in Library and Information Services*.

Candidates for the ILIC must apply for admission following G.S.L.I.S. guidelines and will be required to earn a grade of B or better in each course. A maximum of three graduate credits will be accepted from another graduate library school program for transfer of credit.

M.A. in History and M.L.I.S. Cooperative Program

By proper selection of course work, a student may simultaneously earn the degrees of Master of Arts in history and Master of Library and Information Studies.

Admission requirements: GRE and other requirements listed for history and library science. Applicant must apply and be accepted in both programs. The application to each program must indicate history/library and information studies as the field of specialization.

Program requirements: Students must submit individual programs of study for the 42-credit M.L.I.S. program and the 30-credit program for the M.A. in history. The integrated pursuit of the two degrees makes it possible for six credits of appropriately selected course work from one program to serve as electives in the other, and for six credits of course work to be applied in the opposite direction. Thus, when planned and taken jointly, the two programs can be completed with a total of 60 credits rather than 72 credits.

M.P.A. and M.L.I.S. Cooperative Program

A cooperative program permits joint enrollment in the Master of Library and Information Studies and Master of Public Administration programs. The integrated pursuit of the two degrees makes it possible for nine credits of appropriately selected course work from one program to serve as electives in the other, and for six credits to be applied in the opposite direction. Thus, when planned and taken jointly, the two programs can be completed with a total of 63 credits.

Admission requirements: GRE and other requirements listed for M.L.I.S. and M.P.A. Applicant must apply and be accepted in both programs. The application to each program must indicate M.L.I.S./M.P.A. as the field of specialization.

Program requirements: Each student must complete the required core courses for both programs plus three credits of PSC 590 for the M.P.A. After consultation with, and approval of, both departments, students must file separate programs of study for each degree, indicating the courses to be jointly counted. Each student must pass the separate comprehensive examination for each degree.

M.A. in English and M.L.I.S. Cooperative Program

By proper selection of course work, a student may simultaneously earn the degree of Master of Library and Information Studies and Master of Arts in English.

Admission requirements: GRE and all other requirements listed for M.L.I.S. and M.A. in English. Applicant must apply to both programs and be accepted by both. The application to each program must indicate English/library and information studies as the field of specialization.

Program requirements: Students must submit individual programs of study for the 42-credit M.L.I.S. program and the 30-credit M.A. in English. The integrated pursuit of the two degrees makes it possible for six credits of appropriately selected course work from one program to serve as electives in the other, and for six credits of

course work to be applied in the opposite direction. ENG 510, 511, and 514 are required. Thus, when planned and taken jointly, the two programs can be completed with a total of 60 credits rather than 72. Students must complete at least 36 credits in librarianship and at least 24 credits in English.

Other Cooperative Programs

Under existing University policy, students may be able to establish cooperative programs with other master's degree programs within the University. Interested persons should consult with the director.

Marine Affairs

M.A., M.M.A., M.M.A./J.D.–RWU, Ph.D.
401.874.2596

Faculty: Professor Juda, *chairperson*; Professor Burroughs, *director of master's studies*; Assistant Professor Macinko, *director of Ph.D. studies*. Professors Hennessey, Marti, Nixon, and Pollnac; Assistant Professors Dalton, Macinko, and Thompson; Adjunct Assistant Professor Fletcher; Professors Emeriti Alexander, Knauss, and West; Associate Professor Emeritus Krausse.

Specializations

Ecosystem-based management of coastal/ocean areas, coastal zone management, marine transportation and port planning, fisheries law and management, international marine policy and law.

Master of Arts (M.A.)

Admission requirements: GRE and bachelor's degree in related science or social science. For international students, minimum TOEFL scores on the iBT as follows: Reading, 20, Writing 22, Listening 17, and Speaking 17 (total of 213 CBT or 550 PBT). Full-time applicants are admitted for the fall semester only.

Program requirements: thesis and MAF 482, 502, 577, 651; MAF 511 or appropriate oceanography substitute; EEC 514 or appropriate resource economics substitute;

plus a minimum of 21 elective credits for a total of 45 credits.

Master of Marine Affairs (M.M.A.)

Admission requirements: (1) Individuals with a prior graduate degree or five years of equivalent experience in marine areas, or (2) law students in good standing who have completed one year of full-time study at Roger Williams University School of Law, or (3) students who have successfully completed the comprehensive examinations in the oceanography doctoral program may apply through the Graduate School. For international students, minimum paper TOEFL scores on the iBT as follows: Reading 20, Writing 22, Listening 17, and Speaking 17 (total of 213 CBT or 550 PBT). GREs are not required for admission to this program.

Program requirements: nonthesis program; EEC 514; MAF 577, 589, 651, 511 or appropriate oceanography substitute; plus 15 elective credits for a total of 30 credits; written comprehensive examination. Roger Williams School of Law students may transfer in up to six credits from that curriculum to meet the requirements of the M.M.A. degree. Students in the oceanography doctoral program may count up to six credits of courses taken for that degree toward the M.M.A. degree.

Doctor of Philosophy

Admission requirements: the Ph.D. program is small and selective. Admission is based on academic merit, research capability, availability of faculty, and match of interests between applicant and faculty. Applicants must have completed work for the master's degree in some related area. GRE, letters of recommendation, writing samples including master's thesis or major research paper, statement of purpose, and interview are required.

The statement of purpose shall include a description of the intended research topic and the names of the professors most suited to direct the research. Consult the department Web pages (cels.uri.edu/maf) for current research interests of the faculty.

Program requirements: students must complete the following required courses

or their equivalents (18 credits): MAF 482, 502, 511, 577, 651; EEC 514. Beyond the courses indicated above, Ph.D. candidates are required to complete a minimum of 48 additional credits, of which no more than 24 will be awarded for dissertation research. The course credits earned to meet this requirement will be selected by the student from among 500- and 600-level courses with the approval of the student's Ph.D. committee. Students will have to demonstrate proficiency in research tools, foreign language(s), and/or statistics as appropriate for the proposed course of study and dissertation. Required capabilities will be determined by the Ph.D. committee.

Upon completion of course work, students will have to pass written and oral comprehensive examinations in major and minor fields of marine affairs. Each student is to write and successfully defend a dissertation of high quality.

Mathematics

M.S., Ph.D.
401.874.2709

Faculty: Professor Eaton, *chairperson*; Associate Professor Kook, *director of graduate studies*. Professors Finizio, Grove, Kulenovic, Ladas, Merino, and Pakula; Associate Professors Baglama, Kook, Thoma, and Wu; Assistant Professors Bella, Comerford, and Medina-Bonifant; Professors Emeriti Datta, Driver, Fraleigh, Roxin, Schwartzman, Suryanarayan, and Verma.

Specializations

Research activities are mainly concentrated in the areas of combinatorics and graph theory, complex dynamical systems, difference equations, numerical analysis, and applied analysis.

General Information

Programs of study can be designed for individuals who are employed on a full-time basis. However, all Ph.D. candidates must register full-time for two consecutive semesters prior to taking the doctoral comprehensive examination.

Master of Science

Admission requirements: bachelor's degree with strong undergraduate background in mathematics. Applicants with deficiencies in mathematics may be accepted subject to taking certain undergraduate courses in addition to the graduate program requirements.

Program requirements: 30 credits (or 24 plus thesis), including at least 18 credits in mathematics of which at least 15 must be at the 500 level or above. A course requiring a substantial paper involving significant independent study and a written comprehensive examination are required for the nonthesis option. MTH 435 and 513 must be completed with a grade of A or B. Recommended courses include MTH 515, 525, 535, 536, and 562.

Doctor of Philosophy

Admission requirements: same as for master's program.

Program requirements: MTH 513, 515, 525, 535, 536, and 562, plus specialized courses and electives. Reading ability (in candidate's specialty and with a dictionary) in one language chosen from French, German, or Russian. A Ph.D. qualifying examination is required of all students admitted without a master's degree in mathematics.

Also see the listing under Applied Mathematical Sciences.

Mechanical Engineering and Applied Mechanics

M.S., Ph.D.
401.874.2524

Faculty: Professor Shukla, *chairperson and Simon Ostrach professor*; Professor Sadd, *director of graduate studies*. Professors Chelidze, Datseris, Faghri, Ghonem, Jouaneh, Kim, Lessmann, Palm, Taggart, and Zhang; Associate Professors Meyer and Rousseau; Adjunct Associate Professor Tucker; Adjunct Assistant Professor Gomez; Professor Emeritus White.

Specializations

Fluid mechanics: boundary layers, separated flows, turbulence, particle-flow interactions, flow measurement, computational fluid dynamics, flow in human airways, flow in microgeometrics, biotribology (lubrication, friction, wear), ferrography, flow of drug delivery in human body; micro- and nano-fluidics and heat transfer with applications to pumping, valving, and detection of pathogens; manipulation of flow and heat transfer in micro- and nano-channels with application to lab-on-a-chip devices.

Robotics and design: robotics, automation, automated assembly, expert systems, plasma welding and fusion, design optimization, computer-aided design, precision engineering, manufacturing.

Solid mechanics: elasticity, plasticity, continuum mechanics, fracture mechanics, photomechanics, impact mechanics, wave propagation and dynamic geomechanics, computational methods, composite and ceramic materials, micromechanics, nonlinear mechanics, waterjet processing, fiber optic sensors, tribology (lubrication, friction, wear).

Systems and control: robotics, control systems, microprocessor and digital control, system dynamics, damage evolution, precision engineering, advanced dynamics, vibrations.

Thermal science: phase change problems, ice making, microscale convection heat transfer, direct contact heat transfer, direct energy conversion, solar energy, new engine designs, thermal pollution, computational heat transfer.

General Information and Financial Aid

Programs of study can be designed for individuals who are employed full-time. However, all Ph.D. candidates must register full-time for two consecutive semesters prior to taking the comprehensive exam.

A number of graduate and research assistantships are also available for qualified M.S. and Ph.D. students.

Master of Science

Admission requirements: B.S. degree in mechanical engineering, applied mechanics, aerospace engineering, or a related field such as engineering science, civil engineering, applied mathematics, or applied physics. Students admitted to the program will be expected to have the equivalent of MCE 372. Students without this background may be required to make up this deficiency with no program credit. GRE required of foreign applicants only.

Program requirements: for thesis option, 30 credits exclusive of seminar, including six to nine credits of thesis (required of all full-time students) and 21–24 credits of course work; one course in each of the three department core areas from the following selections: fluid mechanics/thermal sciences—MCE 545, 551; solid mechanics—MCE 561, 571; mechanical systems—MCE 563, 564, 566; and MCE 501, 502, graduate seminar (required of all on-campus students). For nonthesis option for part-time students only, 30 credits, one course in each of the department core areas; one special problems course requiring a substantial paper involving significant independent study; and a comprehensive examination.

Doctor of Philosophy

Admission requirements: master's degree. Exceptional students with a bachelor's degree and superior master's candidates will also be considered. GRE required of foreign applicants only.

Program requirements: Ph.D. candidacy review after completion of first year of full-time study (or nine credits for part-time students). The purpose of this review is to determine the candidate's initial progress toward the doctorate, and it is conducted jointly by the department's graduate committee and student's doctoral committee, evaluating both the student's course work and any beginning research activity. Completion of a minimum of 24 credits of course work beyond the master's degree, exclusive of seminar (48 credits of course work after bachelor's degree); MCE 501, 502, graduate seminar (required of

all on-campus students). Comprehensive examination and dissertation.

Microbiology

See Cell and Molecular Biology.

Music

M.M.
401.874.2431

Students selecting the Master of Music degree program choose from two specializations: *music performance* or *music education*.

Faculty: Professor Lee, *chairperson*; Assistant Professors Aberdam and Takasawa, *co-directors of graduate studies*. Professors Dempsey, Kent, Ladewig, Livingston, and Pollart; Associate Professors Conley, Danis, and Parrillo; Assistant Professor A. Cardany; Lecturers B. Cardany, de la Garza, Frazier, Murray, and Thomas; Professors Emeriti Abusamra, Burns, Ceo, Fuchs, Gibbs, and Rankin.

Specializations

M.M. in Music Performance: 12 credits of performance in MUS 510 (minimum of three in a semester) appropriate to the music performance option selected and the principal applied music area, plus MUS 548 (3), 550 or 552 appropriate to the option selected (0), 567 (2), 580 (0), 581 (1), and three credits distributed according to the music performance option selected.

Voice or Instrument option: For *vocalists*, two credits in MUS 598 and one credit music elective. All twelve performance credits must be in MUS 510A, concluding with MUS 550 Graduate Performance Recital in the last semester of applied music study. *Vocalists* must be proficient in English, German, French, Italian, and Latin diction, and have general phonetic knowledge and skills that can be applied to other languages. Such proficiency includes language competency sufficient to understand texts in the repertory. The proficiency examination includes written and sung portions, and

is given by the instructor of vocal diction. *Vocalists* may wish to take MUS 583 Vocal Diction to meet the proficiency levels required. For *pianists*, two credits in MUS 590 or 598 and one credit music elective. All twelve performance credits must be in MUS 510B, concluding with MUS 550 Graduate Performance Recital in the last semester of applied music study. For *organists, guitarists, and other instrumentalists*, two credits in MUS 598 and one credit music elective. All twelve performance credits must be in the principal applied music area (MUS 510C, E–U, or W), concluding with MUS 550 Graduate Performance Recital in the last semester of applied music study.

Conducting option: Three credits of electives appropriate to conducting. All twelve performance credits must be in MUS 510Y and/or 510Z, concluding with MUS 550 Graduate Performance Recital in the last semester of applied music study.

Composition option: Three credits of electives appropriate to composition. All twelve performance credits must be in MUS 510V, concluding with MUS 552 Graduate Composition Recital in the last semester of applied music study.

All performance candidates must also take nine credits of electives in music history, music theory, or applied areas other than in the student's music performance option (9), and pass a written comprehensive examination in music history, music theory, and the performance option after 15 hours have been completed. A minimum of 30 credits is required for graduation.

M.M. in Music Education: MUS 548 (3), 579 (2), 580 (0), 581 (1), six credits in graduate music education courses (6), and nine credits in one of the following music education options (9):

Performance/essay option: Six credits of MUS 510 (three semesters at two credits each, or two semesters at three credits each), concluding with 550 (0) in the last semester of applied music study, and 570 (3).

Conducting option: Four credits of MUS 510Y (two semesters at two credits each, or one semester at four credits) and four credits of MUS 510Z (two semesters at two

credits each, or one semester at four credits) concluding with MUS 551 (1) in the last semester of applied music study.

Composition (classical or studio) option: Six credits of MUS 510V (three semesters at two credits each, or two semesters at three credits each) concluding with 552 (0) in the last semester of applied music study and MUS 510Y or MUS 510Z (3). Credits recommended for studio composition are MUS 510V in jazz arranging and composition, MUS 579 in the jazz/studio area (e.g., a professional recording studio), 596, or 598J.

Thesis option: at least six credits in MUS 599 and three elective credits.

All music education candidates must also take a minimum of nine credits of electives in music history, music theory, or applied areas other than in the student's music education option (9). Students in a *thesis option* must pass a written qualifying examination before thesis work is begun and defend the thesis in a final oral examination. All other music education candidates must pass a written comprehensive examination in music history, theory, and music education after 15 or more graduate credits have been completed. A minimum of 30 credits is required for graduation.

Graduate Teacher Certification Program: The graduate teacher certification program is taken at the graduate level, in conjunction with the music education specialization in Master of Music degree. It presumes that a candidate has completed the equivalent of the URI Bachelor of Music degree program with courses in music theory, music history, performance, and vocal and instrumental ensembles. Additional requirements include the MUS 169–179 Performance Classes; MUS 311 and 312 Conducting; MUS 416 Form or MUS 417 Instrumentation and Choral Arranging; MUS 238, 339, 340 Methods; PSY 113; EDC 250; MUS 341; and EDC 484 Student Teaching; MUS 480 Graduate Portfolio in Music; and the piano proficiency examination. Advanced standing by examination in the above areas is possible. Certain 500-level music education courses may be used as substitutes with permission of the department.

Students pursuing the graduate teacher certification must also apply for admission to the Office of Teacher Education in the School of Education; see pages 41 and 107 for admission requirements. The piano proficiency examination, the Praxis II: Principles of Learning and Praxis II: Music Content Knowledge, and all courses required for the graduate teacher certification program, with the exception of MUS 480 [capstone], must be successfully completed before supervised student teaching (EDC 484). The passing score for Praxis II: Principles of Learning is 167, and for Praxis II: Music Content Knowledge is 153. Students may wish to enroll in EDC 312 (3) in order to prepare the Praxis II: Principles of Learning.

Completion of the teacher certification program can require as many as 36 credits (or more, if remedial studies in music are needed) in addition to what is required for the M.M. degree alone.

Master of Music

Admission requirements: undergraduate major, or the equivalent, in music with a grade point average of 2.50 or above.

M.M. in Music Performance. *Voice or instrument option:* Audition or an audition tape. Deficiencies may be made up by study at the MUS 410 level. *Conducting option:* Audition or an audition tape. Deficiencies may be made up by study at the MUS 311 or 312 levels. *Composition option:* A portfolio of original compositions. Deficiencies may be made up by study at the MUS 410V level. **M.M. in Music Education.** *Performance/essay option:* Audition or an audition tape. Deficiencies may be made up by study at the MUS 410 level. *Conducting option:* Evidence of baton technique must be demonstrated through an audition or videotape. *Composition option:* Scores and tapes of original compositions. Deficiencies may be made up by study at the MUS 410V level. *Thesis option:* Writing sample of a major paper from undergraduate work or the equivalent.

Program requirements: post-admission placement examinations in appropriate areas (music history, theory, composition, and/or music education) determine whether

background deficiencies must be made up with no program credit. A minimum of 30 credits is required for graduation. One-half of the program credits must be at the 500 level. (The graduate teacher certification program requires additional courses in education at the undergraduate level.)

Nursing

M.S., Ph.D.
401.874.2766

Faculty: Professor Joseph, *dean*; Associate Professor Lauzon-Clabo, *associate dean*; Professor Mary Sullivan, *director of graduate studies*. Professors Burbank, Dufault, Dunphy, and Schwartz-Barcott; Associate Professors Coppa and Ferszt; Assistant Professors Martins and O'Brien; Clinical Professor Mercer; Clinical Assistant Professors Carley and Gerzevitz.

Specializations

For the M.S.: administration, education, and advanced practice nursing (including a clinical nurse specialist concentration with an emphasis in psychiatric mental health or gerontology, and a nurse practitioner concentration with emphasis on the family and gerontology).

For the Ph.D.: clinical nursing research in the domains of client, client-nurse interactions, and nursing practice.

Master of Science

Admission requirements: MAT or GRE; a bachelor's degree from a CCNE or NLN-accredited program with an upper-division major in nursing and an undergraduate course in statistics. For specialization in primary health care, two years of professional nursing practice. Students are required to pass an elementary pathophysiology course with a grade of C or better prior to entering the program. There is a challenge exam established for those incoming students who have not taken a pathophysiology course within five years prior to enrolling in the nurse practitioner program. For specialization in nurse-midwifery, two years of professional nursing practice, preferably in

maternal-infant health nursing, and completion of a course in expanded assessment skills in nursing, equivalent of NUR 503. Students who have not completed upper-division undergraduate nursing course work will be required to make up this deficiency prior to admission. Completed application package with two letters of reference (academic and professional) and a curriculum vita must be received by November 15 for spring admission and April 15 for summer and fall admission. Acceptance is based on a full review of the applicant's record and not on any one single component.

Program requirements: 41 credits for administration, education, and advanced practice nursing in the clinical nurse specialist concentrations; 42 credits for nurse practitioner concentration; 46 credits for nurse-midwifery concentration. Required courses include 14 credits in core courses (NUR 500, 505, 507, 510, and 520) for all students; nine to 32 credits in the area of specialization (NUR 551, 552 for administration; NUR 538, 539, 541, 542 for education; NUR 511, 512, 515, 516, 517 for clinical nurse specialist concentration in psychiatric mental health; NUR 555, 556, 557, and 558 for clinical nurse specialist concentration in gerontology; NUR 503, 504, 531, 532, 533, 534, 535, 582, and 590 for nurse practitioner concentration in family; NUR 503, 508, 535, 561, 562, 563, 564, 582, and 590 for nurse practitioner concentration in gerontology; and NUR 535, 571, 572, 573, 574, 575, 576, 577, and 582 for nurse-midwifery concentration); 18 credits of restricted electives for administration, 12 credits for education and clinical nurse specialist concentrations; a major paper involving significant independent study; and a written comprehensive examination.

Doctor of Philosophy

Admission requirements: GRE (scores at 60th percentile or above are desirable); a bachelor's degree in nursing from a CNNE or NLN-accredited program or its equivalent in nursing and a master's degree or its equivalent (cumulative averages of 3.00 and

3.30, respectively, desired); two scholarly papers (one theoretical and one empirical) or a master's thesis or equivalent; three professional recommendations for doctoral study, including one by a doctorally prepared person; a statement of purpose indicating goals congruent with those of the program and institution; a curriculum vita; and a course in statistics, including inferential statistics. Acceptance is based on a full review of the applicant's record and not on any one single component.

Program requirements: a minimum of 43 credits of course work, including core courses in nursing (19 credits) and cognates (six credits); electives in nursing (nine credits) and in research methods (six credits); free electives (three credits); and 18 credits of doctoral dissertation research, plus written and oral comprehensive examinations in nursing theory, research methods, and one substantive area.

Nutrition and Food Sciences

M.S., Ph.D. (Biological Sciences)
Dietetic Internship Certificate Program
401.874.2253/2467

Faculty: Professor English, *chairperson*; Professor Greene, *director of graduate studies*. Professors Fey-Yensan and Lee; Associate Professor Gerber; Assistant Professor Melanson; Adjunct Professor Sebelia; Adjunct Associate Professor Pivarnik; Professors Emeriti Caldwell, Constantinides, and Rand.

Food Science

URI's food science graduate program is an interdepartmental program. Admission is based on academic merit, ability to do research, and the match of research interests between the applicant and faculty in the areas of specialization listed: marine food product and process development, physical properties, and rheology; fish mince and surimi technology; bioconversion technology; seafood flavor, food safety and quality assessment.

Master of Science

Admission requirements: GRE and bachelor's degree in food science or closely related field. Candidates lacking adequate courses in biological sciences, general chemistry, organic chemistry, biochemistry, physics, statistics, and calculus may be required to make up deficiencies without graduate credit.

Program requirements: thesis; two credits of NFS 511; a minimum of three credits in biochemistry, chemistry, or microbiology; NFS 431, 432, 435, and 502; STA 409, 412 or equivalent. Additional course work will be selected as appropriate for the student's area of specialization in consultation with, and approval of, the major professor. All resident students are required to be continuously registered in NFS 511 or 512, but no more than two credits of NFS 511 can be used for program credit.

Doctor of Philosophy (Biological Sciences)

Admission requirements: GRE and master's degree in food science or related physical or biological science. Either the undergraduate or M.S. degree must be in food science.

Program requirements: dissertation; BCH 521, 542, 581, or CHE 574; same as master's degree plus BCH 581 and either BCH 521 or 542; a total of three credits in NFS 511, STA 532, or equivalent, and a research problem (NFS 691, 692) under the supervision of an advisor other than the major professor. All resident students are expected to be continuously registered in NFS 511 or 512, but no more than three credits of NFS 511 can be used for program credit.

Nutrition

Specializations: nutritional status and food behavior of high risk population groups; dietary behavior change to reduce chronic disease risk; nutrition issues related to aging and weight management; diet and exercise; energy and macronutrient metabolism; metabolic regulation and energy balance.

Master of Science

Admission requirements: GRE and bachelor's degree. All applicants must have completed a minimum of two semesters of chemistry, and one each of biochemistry, anatomy or biology, human physiology, nutrition, and statistics. Students from other academic areas are encouraged to apply but must have physiology, biochemistry, nutrition, and statistics prior to admission.

Program requirements: There is a thesis option and a nonthesis option. The thesis option is designed for students who plan to pursue research-based careers in nutrition and/or advanced training in nutrition. The nonthesis option is designed for practitioners who do not intend to pursue a career in research; it provides career training that will be valuable for professional development.

Thesis option (30 credits): Thesis (6 credits), two credits of NFS 511; a minimum of three credits in 400- or 500-level science courses; NFS 505, 551, and 552; three credits in statistics. All resident students are required to be continuously registered in NFS 511 or 512, but no more than two credits of NFS 511 can be used for program credit. Applicants without undergraduate training in nutrition may be required to make up background courses without graduate credit.

Nonthesis option (35 credits): experiential learning (NFS 580 [6 credits]); independent study leading to the production and evaluation of a product (NFS 591/592 [6 credits]); NFS 505, 506, 551, and 552; two credits of NFS 511/512; a 400- or 500-level science course; three credits in graduate-level statistics; three credits of electives; successful completion of a written examination. Applicants without undergraduate training in nutrition may be required to make up background courses without graduate credit.

Doctor of Philosophy (Biological Sciences)

Admission requirements: GRE and master's degree in nutrition. Students from other academic areas are encouraged to apply, but must meet entrance requirements for the M.S. program.

Program requirements: dissertation, two 500- or 600-level courses in statistics/experimental design; a total of three credits in NFS 511, and a research problem (NFS 691/692) under the supervision of an advisor other than the major professor. Students who have not taken the courses required for the M.S. must do so as part of the Ph.D. program. All resident students are expected to be continuously registered in NFS 511 or 512, but no more than three credits of NFS 511 can be used for program credit.

Dietetic Internship Certificate Program

Admission requirements: students wishing to complete URI's Dietetic Internship Certificate Program (DICP) must be admitted to a graduate degree program at URI. Students may either be admitted to a degree program prior to application to the DICP or may apply to the Department of Nutrition and Food Sciences master's degree program with the internship option. Applicants must have an earned bachelor's degree with completion of the American Dietetic Association (ADA) Didactic Program in Dietetics (DPD) requirements. Applicants must submit an ADA verification form or declaration of intent form signed by their DPD director. In addition, applicants must submit two official transcripts of all academic work, an internship application form, three letters of recommendation using internship recommendation forms, and a personal statement of objectives. Admission is highly competitive and for the fall term only. Final selection of qualified applicants is determined by the national computer matching process. Criteria used for admission include academic achievement, relevant work experience, personal statement of objectives, and recommendation letters. Enrollment is expected to be limited to eight students. Program information, application forms, and application deadlines can be obtained by calling 401.874.2253.

Program requirements: the DICP is an ADA-accredited internship administered by the Department of Nutrition and Food Sciences. The DICP is accredited by the Commission on Accreditation for Dietetics Education of the ADA, 120 South Riverside

Plaza, Suite 2000, Chicao, IL 60606, 312-899-0040, ext. 5400. DICP students are governed by the same academic standards as other graduate students. The program consists of nine courses including more than 1,200 hours of supervised practice experience in health care facilities. Students satisfactorily completing the program will receive a certificate qualifying them to take the Dietetic Registration Examination as well as to apply for licensure to practice dietetics in Rhode Island.

Ocean Engineering

M.S., Ph.D.
401.874.6139

Faculty: Professor Miller, *chairperson*. Professors S. Grilli, Hu, Moran, Spaulding, Stepanishen, and Tyce; Associate Professor Baxter; Assistant Professor Roman; Associate Research Professor Vincent; Assistant Research Professors A. Grilli and Potty; Adjunct Professors Corriveau, Muench, Sharpe, and Shonting; Adjunct Associate Professor Vincent; Adjunct Assistant Professors Cousins and Newman; Professors Emeriti Kowalski, Middleton, and Silva.

Specializations

Ocean instrumentation and seafloor mapping, underwater acoustics and data analysis, marine hydrodynamics and water-wave mechanics, coastal and nearshore processes, marine geomechanics, coastal and offshore structures, and ocean systems.

General Information and Financial Aid

Programs of study can be designed for individuals employed full-time. Graduate and research assistantships are available for highly qualified students; some industrial and other fellowships are also available.

Master of Science

Admission requirements: B.S. degree in engineering, physics, applied mathematics, or other technical disciplines. Students with a non-engineering background may be required to take undergraduate courses in

thermodynamics, fluid mechanics, strength of materials, electrical circuits, and applied mathematics.

Program requirements: the thesis option requires 30 credits with a minimum of 12 credits of course work in ocean engineering and nine credits for thesis research. The nonthesis option requires permission of the chairperson and a total of 30 credits with a minimum of 18 credits of course work in ocean engineering, with one course requiring a paper involving significant independent study and a written comprehensive examination. OCE 605 and 606 are required of all full-time students.

Doctor of Philosophy

Admission requirements: M.S. degree in engineering or equivalent; exceptional students with a Bachelor of Science in engineering will also be considered. All students will be required to complete courses equivalent to those for the M.S. degree in ocean engineering if not included in their master's degree.

Program requirements: a total of 42 credits beyond the M.S. degree (or 72 credits beyond the B.S. degree), composed of at least 18 credits of course work and 24 credits of dissertation research. Courses must include one in advanced applied mathematics, one in engineering or oceanography, and a minimum of two in ocean engineering. Qualifying, written, and oral comprehensive examinations are required for all doctoral students. OCE 605 and 606 are required for all full-time students.

Oceanography

M.O., M.S., Ph.D.
401.874.6246

Faculty: Professor Farmer, *dean*; Professors K. Moran and Smith, *associate deans*. Professors Ballard, Carey, Collie, Cornillon, D'Hondt, Durbin, Ginis, Hara, Hebert, Heikes, Kincaid, King, Mather, Merrill, Miller, S. Moran, Nixon, Oviatt, Rossby, Rothstein, Shen, Smayda, Specker, Spivack, Watts, and Wishner; Associate Professors

Donohue and Lohmann; Assistant Professors Jenkins, Kelley, Mendon-Deuer, Robinson, Roman, and Rynearson; Professors in Residence Donaghay, Hanson, Kenney, Rines, Sheremet, and Sutyryn; Professors Emeriti Hargraves, Jeffries, Knauss, Leinen, Pilon, Quinn, Rahn, Saila, Schilling, Sieburth, Sigurdsson, Swift, Wimbush, and Yoder; Associate Professor Emeritus Napora; Emeriti Professors in Residence Gifford and Sullivan-Watts.

Specializations

Biological, chemical, geological, and physical oceanography. Also archaeological oceanography (see below).

Financial Support

A variety of assistantships are available for M.S. and Ph.D. candidates.

Master of Oceanography

Admission requirements: GRE (aptitude required) and bachelor's degree in natural sciences or engineering. Most international students at GSO have a paper TOEFL score above 600 or a computer TOEFL score above 250, corresponding to 100 on the new Internet-based test (iBT). The University minimum must be met on each of the four sections of the TOEFL; see page 120. Most applicants are admitted for the fall semester, but admission for the start of the spring semester is possible. No application will be considered that shows an undergraduate average of less than B unless there is post baccalaureate work indicating outstanding ability. To ensure full consideration for admission, the complete application packet should be received by January 15.

Program requirements (total of 30 credits): written comprehensive examination; OCG 695 (two credits); major paper (three credits); OCG 501, 521, 540, 561; six credits in oceanography or other science departments; three credits in policy, management, economics, or a related field; three credits in statistics, data analysis, or scientific writing.

Master of Science

Admission requirements: GRE (aptitude required, advanced in the applicant's undergraduate major recommended) and bachelor's degree in natural sciences, engineering, or mathematics. Most international students at GSO have a paper TOEFL score above 600 or a computer TOEFL score above 250, corresponding to 100 on the new Internet-based test (iBT). The University minimum must be met on each of the four sections of the TOEFL; see page 120. Most applicants are admitted for the fall semester, but admission for the start of the spring semester is possible. Due to the limited number of students who can be accepted as degree candidates, no application will be considered that shows an undergraduate average of less than B unless there is postbaccalaureate work indicating outstanding ability. To ensure full consideration for admission and financial support, the completed application packet should be received by February 1.

Program requirements: thesis, OCG 695, and participation in a regular ocean research cruise. For specialization in biological or chemical oceanography, OCG 501, 521, 540, and 561; for specialization in geological oceanography, six credits of 500- and 600-level OCG courses outside the geological oceanography discipline (not including OCG 695); for specialization in physical oceanography, OCG 501, 510, and any two of OCG 605, 610, and 613.

Doctor of Philosophy

Admission requirements: GRE (aptitude required, advanced in the applicant's undergraduate major recommended); and bachelor's degree in natural sciences, engineering, or mathematics. Most international students at GSO have a paper TOEFL score above 600 or a computer TOEFL score above 250, corresponding to 100 on the new Internet-based test (iBT). The University minimum must be met on each of the four sections of the TOEFL; see page 120. Most applicants are admitted for the fall semester, but admission for the start of the spring semester is possible. Due to the limited number of students who

can be accepted as degree candidates, no application will be considered that shows an undergraduate average of less than B unless there is postbaccalaureate work indicating outstanding ability. To ensure full consideration for admission and financial support, the completed application packet should be received by January 15.

Program requirements: comprehensive examination, dissertation, OCG 695, participation in a regular ocean research cruise, six credits of 600-level OCG courses (excluding problems and research courses and OCG 695). For specialization in biological or chemical oceanography, OCG 501, 521, 540, and 561; for specialization in geological oceanography, OCG 540 and any two of OCG 501, 521, and 561; for specialization in physical oceanography, OCG 501, 510, 605, and 613 and any six credits of 500- and 600-level OCG courses outside the physical oceanography discipline. A Ph.D. qualifying examination is required of all doctoral students. This requirement is satisfied by completing, with a grade of B or better, the courses specified for the appropriate discipline.

The Doctor of Philosophy degree in oceanography offers an option in marine policy. Ph.D. students who have successfully completed their comprehensive examinations and obtained approval from cognizant major professor may apply to the Master of Marine Affairs program (page 149) to expand their skills in ocean/coastal policy, management, and law relevant to professional positions both inside and outside of government. Students who successfully complete the M.M.A. degree may transfer up to six credits from that program into the oceanography Ph.D. at the discretion of their major professor in oceanography.

Business/Oceanography/M.B.A./M.O. Joint Degree Program

The College of Business and the Graduate School of Oceanography offer a joint degree program in which students are simultaneously enrolled in the M.B.A. and the M.O. programs and may complete both

degrees within 16 months. Students take courses in business, oceanography, and economics. An internship with a business is also embedded in the curriculum.

Oceanography/History Ph.D./M.A. Joint Degree Program

The Graduate School of Oceanography and the Department of History in the College of Arts and Sciences offer a joint degree program focused on archaeological oceanography. Students in this program are simultaneously enrolled for the oceanography Doctor of Philosophy degree and the history (anthropology and archaeology option) Master of Arts degree. A twelve-credit reduction (six in each degree) is allowed for students in this program.

Pharmaceutical Sciences

M.S., Ph.D. (Pharmaceutical Sciences)
401.874.2789

Faculty

Medicinal Chemistry and Pharmacognosy: Professor Cho; Associate Professors King, Parang, and Rowley; Assistant Professors Seeram and Udwarly; Professor Emeritus Shimizu.

Pharmaceutics and Pharmacokinetics: Professors Kislalioglu, Lausier, Rosenbaum, and Zia; Associate Professor Akhlaghi; Professor Emeritus Needham.

Pharmacoepidemiology and Pharmacoeconomics: Professors Larrat, Rosenbaum, and Temkin; Associate Professors Kogut and Lasky; Assistant Professor Quilliam; Clinical Assistant Professors Laplante, Marcoux, and Ward.

Pharmacology and Toxicology: Professor Chichester, *chairperson*; Professors Rodgers, Shaikh, Yan, and Zawia; Associate Professors Babson, King, and Parang; Assistant Professors Deng and Kovoov; Assistant Research Professors Slitt and Stoner; Professor Emeritus Swonger.

Specializations

Medicinal Chemistry and Pharmacognosy: Molecular mechanisms of chemical carcinogenesis; mutation and repair; combinatorial chemistry; solid-phase peptide synthesis; screening, isolation, and structure elucidation of physiologically-active natural products; biosynthesis of microbial and plant natural products; herbal medicine; bioinformatics.

Pharmaceutics and Pharmacokinetics: Design, development, production, evaluation, and regulatory approval of pharmaceutical and self-care products as well as pharmacokinetic and pharmacodynamic studies using virtual, clinical, and preclinical data, often with an emphasis on population approaches.

Pharmacoepidemiology and Pharmacoeconomics: Health and economic outcomes research pertaining to pharmacotherapy as used in human populations. Specializations include medication adherence, decision and cost-effectiveness analyses, post-marketing surveillance, epidemiologic methods, and quality improvement and measurement.

Pharmacology and Toxicology: Mechanisms involved in disease states and their pharmacological intervention, and mechanisms of toxicity of environmental agents. Ongoing topics include the effects of hormonal imbalances on cardiac function and metabolism in hypertension, biomarkers and treatment of arthritis, developmental neurotoxicity of environmental agents, hepatotoxicity and nephrotoxicity of heavy metals, pharmacogenomics, drug interactions, hepatic responses to neuroactive chemicals, hormonal regulations of gene expression in breast cancer, drug metabolism and drug transporter, and the development of inhibitors to cell signaling events.

Master of Science

Admission requirements: GRE and Pharm.D. or bachelor's degree in pharmacy, chemistry, biological sciences, or allied sciences; TOEFL (waived for applicants from countries where English is the primary language).

Program requirements: Successful completion of 30 credits of graduate study, including PHC 502, 2 seminar credits, 6–9 thesis research credits, thesis.

For specialization in medicinal chemistry and pharmacognosy: ACS placement exam (organic) to determine specific program requirements; either BPS 530 or BPS 535; nine credits selected from CHM 427, 521, 522; BCH 581; BPS 525 and 551, and BPS 691A in consultation with student's major professor.

For specialization in pharmaceuticals and pharmacokinetics: STA 409 or 411 or equivalent; 6–9 credits of 500- or 600-level BPS courses; 3–6 credits of elective in consultation with student's major professor.

For specialization in pharmacoepidemiology and pharmacoeconomics: PHP 540, 550, and 580, in consultation with student's major professor.

For specialization in pharmacology and toxicology: BCH 581; one course of either BPS 530, 535, or 587; and three courses from BPS 525, 544, 546, 572, 587, 641, 644, and BCH 582, in consultation with student's major professor.

Doctor of Philosophy

Admission requirements: GRE and master's degree in pharmacy, chemistry, biological sciences, or allied sciences, or bachelor's degree in one of these areas with evidence of superior ability. Qualifying examination is required for candidates accepted without the master's degree. Qualified students may be admitted directly to the Ph.D. program.

Program requirements: Successful completion of 72 credits of graduate study, including up to 24 research credits, PHC 502, written and oral comprehensive examination, dissertation. Students are expected to attend and participate in the departmental seminars during their entire tenure in the Ph.D. program, for a maximum of three credits assigned to the core credit requirement.

For specialization in medicinal chemistry and pharmacognosy: ACS placement exam (organic) to determine specific program

requirements; courses required for master's degree, plus one additional credit from BPS 523 or 524, in consultation with student's major professor.

For specialization in pharmaceuticals and pharmacokinetics: M.S. core requirements, plus one additional credit from BPS 523 or 524, 12 credits of 500- or 600-level BPS or PHP courses, and 12 credits of concentration courses. Suggested courses include analytical chemistry, immunology, human genetics, and statistics of clinical trials, microbiology, and BPS 525, in consultation with student's major professor.

For specialization in pharmacoepidemiology and pharmacoeconomics: courses required for master's degree plus one additional credit from PHP 693 or 694, and nine credits of concentration courses. Suggested concentrations include health services research, outcomes research, decision analysis, medication adherence, epidemiologic methods, and others. Tutorials may be arranged in areas of special interest to the student, in consultation with student's major professor.

For specialization in pharmacology and toxicology: courses required for master's degree plus one additional credit from BPS 523 or 524; BPS 530, 535; two additional graduate-level courses from BPS or BCH 582, in consultation with student's major professor.

Joint Doctor of Pharmacy/Master of Business Administration Program

The University of Rhode Island Colleges of Pharmacy and Business Administration offer a joint program that allows students the opportunity to develop management and administrative skills as they study for the Doctor of Pharmacy (Pharm.D.) degree. This program qualifies individuals to assume leadership and management roles in the health care industry. A unique combination of management and pharmacy coursework, coupled with innovative practicum experiences, provides students with a knowledge base of theoretical and applied information. The joint program requires the student to complete a total of 224 credits.

Students enrolled in the Doctor of Pharmacy program are eligible to apply for admission to the joint program after their second professional year (by July 15). The following are required at that time: GMAT, statement of purpose, résumé, two letters of recommendation, and TOEFL (waived for applicants from countries where English is the primary language).

Joint Doctor of Pharmacy/Master of Science Degree Program

The University of Rhode Island College of Pharmacy offers a joint program that allows students the opportunity to pursue the Master of Science degree while studying for the Doctor of Pharmacy degree. Students may elect to study in any one of the four specialization areas described in the graduate program: medicinal chemistry and pharmacognosy, pharmaceuticals and pharmacokinetics, pharmacoepidemiology and pharmacoeconomics, or pharmacology and toxicology.

This program is designed for highly qualified and motivated students who are interested in simultaneously pursuing the Pharm.D. and M.S. degrees. Students are expected to complete the Pharm.D. program as described in this catalog. In addition, students must complete all additional credits required for the M.S. degree, complete a research project, and write and defend a thesis. It is expected that the motivated student will be enrolled during the summer sessions after the fourth, fifth, and sixth years with the objective of completing both degrees at the same time or in one additional semester.

Students enrolled in the Doctor of Pharmacy program are eligible to apply for admission to this joint degree program in the second semester of their first professional year (by May 1). The following are required at that time: GRE score, statement of purpose, résumé, and two letters of recommendation.

Physical Therapy

D.P.T.
401.874.5001

Faculty: Professor Marcoux, *chair*. Professors Blanpied and Roush; Associate Professor Agostinucci; Clinical Assistant Professors Audette, Dupre, Hulme, and McLinden.

URI's physical therapy program is an entry-level Doctor of Physical Therapy program that prepares students for the state professional licensure examination. There is an emphasis on the development of clinical skill and research capability through the three-year graduate study plan.

The physical therapy program is located in the Independence Square II facility and has a clinical service and research unit that includes a computerized anatomical study center, BIODEx and KINCOM muscle performance dynamometry, postural analysis, electromyography, Gait Rite computerized gait analysis system, and kinetic and kinematic analysis systems. SwimEx is available for therapeutic and research activities. Research is currently conducted in the treatment and prevention of spine problems, muscular stiffness, neuromuscular control mechanisms, patient satisfaction, and quality of life.

Specializations

Research activities are focused on biomechanics, neuromuscular control, muscle performance, neuromuscular rehabilitation, disability, and patient satisfaction. Clinical speciality skills are enhanced through faculty clinical practice and regional internships.

Doctor of Physical Therapy

Admission requirements: GRE (aptitude test scores at the 50th percentile or above are desired) and a bachelor's degree with 12 credits of biological sciences (including a minimum of eight credits of human anatomy and human physiology courses, which must include a lab); physical sciences (16 credits, eight in chemistry and eight in physics, both of which must include a

lab); six credits of social sciences (including general and developmental psychology); three credits in mathematics (precalculus or higher); three credits in communications (preferably writing or speech). An introductory statistics course is required, preferably through ANOVA. At URI, this means PSY 300 or STA 308. Courses in abnormal psychology, computer science, exercise physiology, and research design are strongly recommended but not required.

A clinical experience with a physical therapist is required. The experience should include observing and aiding a physical therapist in treatment or evaluation procedures. The minimum number of hours recommended for the clinical experience is 30–40 hours of voluntary or paid time. Most successful applicants demonstrate a diversity of clinical experience and a number of hours exceeding the minimum required in a physical therapy setting. The experience may be part of field work study for credit in a health-related discipline. Evidence of such experience should be documented by a recommendation from the physical therapist addressing the nature and duration of the experience, which should be submitted as part of the application process. Special recommendation forms and a form for the listing of completed prerequisites are available online through the Physical Therapy Department Web site at ptp.uri.edu. Baccalaureate requirements must be completed prior to final acceptance into the D.P.T. program. The completed application package must be received by the second Friday in December. While applications will be reviewed as early as November 15, applicants will be admitted for the fall semester only.

Program requirements: a minimum of 109 credits of specified physical therapy course work, including 15 credits of internship. This program is a three-year plan of required course work, with the first two semesters at the 500 and 600 levels (42 credits), followed by four semesters and a summer session of graduate-level course work, including an internship at an affiliated institution between the second and third

years. As for all internships, the student may have to pay travel and living expenses for summer internships. Internships and clinical course work of the first year also require a criminal background check and immunization for the hepatitis B virus and instruction in HIV precautions, as required by OSHA standards. Both are at the student's expense.

Though this is essentially a nonthesis program, a substantial paper involving significant independent research is required. A course in statistical methods is required prior to entry into the program. All courses involving clinical skill development require skill competency testing via practical examination. All clinical competencies determined necessary by the faculty of the respective course must be demonstrated as adequately learned by the student in these courses for achievement of an adequate scholastic course grade. (See "Scholastic Standing," pages 125–126.) A comprehensive examination is also required. In addition to academic requirements, all students must meet the requirements of generic abilities described in the PT Student Handbook.

Physics

M.S., Ph.D.
401.874.2633

Faculty: Professor Northby, *chairperson*. Professors Heskett, Kahn, Kaufman, Malik, Meyerovich, Muller, Nightingale, Nunes, and Steyerl; Assistant Professors Reshetnyak and Yoon; Adjunct Professor McCorkle; Adjunct Associate Professors Bozyan, Karbach, and Ruffa; Adjunct Assistant Professor Briere; Professors Emeriti Desjardins, Hartt, Letcher, and Pickart.

Specializations

Acoustics and optics: underwater acoustics, optical and piezo-electric biosensors.

Astronomy: astrometry, low-frequency radio sources and optical counterparts.

Computational physics: classical and quantum Monte Carlo methods, large-scale

parallel computations, optimization, many-body interactions and invariants, finite-size scaling, recursion method.

Experimental condensed matter physics: electronic and structural properties of surfaces and thin films studied via low-energy electron diffraction, Auger electron spectroscopy, X-ray standing wave and photoemission techniques (in-house and at the Brookhaven National Laboratory synchrotron facility); surfaces and interfaces in thin films and multilayers studied via X-ray and neutron reflection and diffraction (in-house and at the National Institute of Standards and Technology reactor facility); epitaxial growth, magnetism in nanoparticles and on surfaces via neutron and X-ray scattering; characterization of electromigration by electrical and optical techniques, Rutherford backscattering, and scanning tunneling microscopy.

Experimental low-temperature physics: atomic cluster beams, quantum liquids.

Experimental neutron physics: ultracold neutrons used to study beta-decay, neutron optics (at the Institut Laue-Langevin, Grenoble).

Nonlinear dynamics and chaos: turbulence, Hamiltonian chaos, integrability in quantum mechanics.

Theoretical condensed matter physics: surface physics, phase transitions and critical phenomena, critical dynamics, superconductivity, quantum transport, nano-scale films and clusters, disordered systems, low-dimensional systems, spin dynamics, Bethe ansatz.

Theoretical low-temperature physics: Fermi and Bose quantum liquids, solids and gases; spin-polarized quantum systems.

Master of Science

Admission requirements: GRE and advanced test recommended; bachelor's degree with major in physics preferred.

Program requirements: PHY 510, 520, 525, 530, 560, 570, and 580 are required of all students. For both the thesis and the nonthesis options, the student will complete 30 credits, of which no more than six may

be below the 500 level. For the nonthesis option, at least one course will require a substantial paper involving significant independent study, and the student must pass a final written and oral examination.

Doctor of Philosophy

Admission requirements: GRE and advanced test recommended; bachelor's degree with major in physics preferred. Master's degree is not required.

Program requirements: PHY 510, 520, 525, 530, 570, 580, 610, 625 (or 626), 630, 670, and 680. There is no formal departmental language requirement, although the candidate's committee may require demonstration of language proficiency. Successful completion of a qualifying examination is required of all students. *This examination is normally expected to be taken in the second year of studies.*

Political Science

M.A., M.P.A., M.P.A./M.L.I.S.
401.874.2183; 401.277.5200

Faculty: Professor Tyler, *chairperson*. Professors Hamilton, Hennessey, Killilea, Petro, and Rothstein; Associate Professor Krueger; Assistant Professors Hutchison and Johnson; Adjunct Professors Leazes and Profughi.

Specializations

International relations, comparative politics, American politics, public policy, and public administration.

Master of Arts

Admission requirements: generally, GRE, GMAT, or MAT, and undergraduate credit in basic political science and political theory.

Program requirements: a minimum of 30 credits, including PSC 553 and either 580 or 583 for both thesis and nonthesis options, depending on area of specialization; nonthesis option requires one course including a substantial paper requiring significant independent research and an oral exami-

nation in addition to the comprehensive examination.

Master of Public Administration (M.P.A.)

The Rhode Island Master of Public Administration Program (RIMPA) leads to the M.P.A. degree conferred by the University of Rhode Island. It is a collaborative undertaking, governed and offered by a committee of University faculty that includes adjunct faculty from Rhode Island College. The RIMPA is offered at URI's Providence campus and provides federal, state, city, and nonprofit officials and agencies easy access to its instructional programs and research expertise. In addition to delivering its degree and certificate programs, internships, and workshops, the RIMPA faculty conducts research into the formation and implementation of public policy and the administration of public and nonprofit agencies. Current research areas include public professional ethics, the training of public managers, water resource management, the governance and financing of nonprofits, state prison administration, the public administration of technology, industrial policy at the state and national levels, and case management in mental health agencies.

Admission requirements: generally, based on the applicant's undergraduate academic record, current scores for one of the following exams: GRE, MAT, GMAT. Exam requirement waived for applicants holding an advanced degree from an accredited institution of higher education.

Program requirements: This is a nonthesis program. Requirements include one course with a substantial paper and significant independent research; comprehensive examination; internship (may be waived); minimum total of 36 credits including PSC 501, 503, 504, 505, 506, 524, and 573. Competency in computer science and statistics is required and may be demonstrated by completion of a basic course at the undergraduate level. Competence in basic computing skills may be demonstrated by completion of a basic course at the under-

graduate level, or, after review by the M.P.A. program director, by professional, worksite training completed by the candidate, or by virtue of the professional responsibilities of an M.P.A. candidate.

Students in the RIMPA program taking elective courses at the participating institutions will be governed by the same regulations effective for courses taken at URI. Under this rule, grades (including failures) for all graduate courses taken at a participating institution will be included in the grade point average and will become part of the student's record.

M.P.A. and M.L.I.S. Cooperative Program

A cooperative program permits joint enrollment in URI's Master of Public Administration and Master of Library and Information Studies programs. The integrated pursuit of the two degrees makes it possible for nine credits of appropriately selected course work from one program to serve as electives in the other, and for six credits of such course work to be applied in the opposite direction. Thus, when planned and taken jointly, the two programs can be completed with a total of 63 credits.

Admission requirements: GRE and other requirements listed for M.P.A. and M.L.I.S. Applicant must apply and be accepted in both programs. Applications to both programs must indicate M.P.A./M.L.I.S. as the field of specialization.

Program requirements: each student must complete the required core courses for both programs plus three credits of PSC 590 for the M.P.A. After consultation with, and approval of, both departments, students must file separate programs of study for each degree, indicating the courses to be jointly counted. Each student must pass the separate comprehensive examination for each degree. A student who fails to complete one of the programs may, of course, complete the other in accordance with the separate program of study.

Psychology

M.S., Ph.D.
401.874.2193

Faculty: Professor Morokoff, *chairperson*. Professors Biller, Boatright-Horowitz, Brady, J.L. Cohen, Collyer, de Mesquita, Faust, Florin, Gorman, Harlow, LaForge, Park, Prochaska, Quina, Rossi, Stevenson, Stoner, Velicer, Willis, and Wood; Associate Professors Flannery-Schroeder, S. Harris, Robbins, Rogers, L. Stein, Walls, and Weyandt; Assistant Professor Loftus; Adjunct Professors Abrams, Celebucki, Colby, Lester, Lipsitt, T. Malloy, Redding, Stern, and Wiener; Adjunct Associate Professors Bernon, Fava, Gallagher, Garrido, Haspel, Hurley, D. Miller, Monti, Seifer, and Varnagaris; Adjunct Assistant Professors Aloia, Anatchkova, Arruda, J. Brown, Cady-Webster, Erickson, Evers, Frenzel, Friend, J. Johnson, S. Johnson, Kenna, Little, Mena, Paiva, Plante, Reiter, Schneider, and Silver; Professors Emeriti Grebstein, Gross, A. Lott, B. Lott, Merenda, Silverstein, N. Smith, Valentino, Vosburgh, and Willoughby.

Specializations

Programs are offered in clinical, behavioral science, and school psychology. Specializations are offered within each program. The clinical program encourages students to develop a focus in one of the following areas: health psychology, children and families, community psychology, diversity and multicultural issues, neuropsychology, and applied methodology. Students in the school psychology program focus their interests in one or more of the roles and functions of school psychologists emphasized in the program such as assessment, intervention, consultation, prevention, reading and literacy, decision making, early intervention and school readiness, cross-cultural development, and multicultural competence. Students in the behavioral science program tailor their own program but tend to emphasize one or more of the following areas: research methodology, gender/multi-

cultural issues, health/prevention, and child/family/community. Additional individual specialties can be developed within each of the program areas. For more information, go to uri.edu/arts/psy.

Master of Science (School Psychology Only)

Admission requirements: GRE (verbal and quantitative), advanced test recommended. Undergraduate major in psychology recommended. Applicants are admitted for the fall semester only. The completed application package must be postmarked by January 15.

Program requirements: Nonthesis: internship; total of 60 credits with a minimum of 30 for the master's degree plus additional credits for certification as a school psychologist; one course with a major paper involving significant independent research; and a written comprehensive examination.

This program is recognized by NASP as a 60-credit "specialist-level" program, is accredited by NCATE/NASP, and meets the requirements for certification in Rhode Island.

Doctor of Philosophy (Clinical, Behavioral Science, and School Psychology)

Admission requirements: GRE (verbal and quantitative), advanced test recommended; evidence of research competency; personal statement addressing research and clinical experience and interests; curriculum vitae. Applicants are admitted for the fall semester only. The completed application and all supporting materials must be postmarked or electronically submitted by December 1 for clinical, January 15 for school, and January 20 for behavioral science. See program Web sites for details. Prospective applicants are asked to address initial inquiries concerning the desired specialization to the department. The formal application materials can be obtained from the Graduate School Web site, and the completed application package must be submitted online or sent to the department. Applicants to the clinical and

school programs are evaluated on the basis of previous academic achievement, GRE scores, previous life experience, previous applied clinical and research experience, letters of recommendation (three required), personal interview, and match between applicant and program needs. For more information, go to uri.edu/artsci/psy.

Due to limited facilities, new admissions to the doctoral programs are limited to a small number per year. Finalists in the school and clinical specializations must participate in a personal interview to complete the evaluation process. Although test scores and cumulative averages are not the sole criteria for admission to the clinical program, those with overall grade point averages of less than 3.00 (on a 4.00 scale) are advised that there is little chance for admission.

Program requirements: Completion of a minimum of 90 credits (66 course work, 6 thesis, 18 dissertation). Students entering with an approved master's degree can transfer 30 credits. Research course requirements: a minimum of two courses in statistics (STA/PSY 532, PSY 533) and a research methods course (PSY 611). In addition, all students must complete a multicultural competency requirement, and four courses from among those numbered 600–609. Each of the three program areas (i.e., clinical, behavioral science, and school) also include specific research, content, and application requirements that are specified on their individual Web pages. The research competency requirement may be met by successfully defending a master's thesis or by successfully completing a research competency project under the direction of the major professor. The research competency project option is limited to those who have nonthesis master's degrees in psychology. Students who successfully complete the thesis option will earn a Master of Arts degree in psychology. A Ph.D. qualifying examination is required of all doctoral students entering without the master's degree. This requirement is met by completing, with a grade of B or better, four courses from

STA/PSY 532, PSY 533, 611, and those numbered 600–609. These courses are usually completed prior to earning 24–30 credits. For students in the applied areas (clinical and school), course work must be completed in each of the following content areas of psychology: biological bases of behavior; cognitive and affective bases; social bases; individual differences; and history and systems of psychology; as well as psychological assessments, interventions, human development/personality, multicultural psychology, and psychological ethics.

Both the clinical and the school psychology programs are accredited by the American Psychological Association. (Committee on Accreditation, American Psychological Association, 750 First Street NE, Washington, D.C. 20002-4242; phone 202.336.5979). Both programs subscribe to the scientist-practitioner model, and thus course requirements are consistent with maintaining such accreditation. These requirements generally include courses in foundations of psychological science, professional practices, research, and completion of an approved supervised internship. Practicum and individual research projects can be specifically tailored to help the student prepare for the professional role of his or her choice. These programs also have a strong experiential base, including field activity in each year. Students are expected to be involved in research for a substantial portion of their program.

The department emphasizes a close working relationship between faculty and students. No single theoretical or philosophical model is espoused.

Spanish

M.A.
401.874.5911

Faculty: Professor Morello, *chairperson*; Professor White, *director of graduate studies*. Professors Manteiga, Morin, and Trubiano; Associate Professor de los Heros; Assistant Professor Echevarria; Professor Emeritus Gitlitz.

Specializations

The Master of Arts in Spanish helps students advance to a professional level in the general area of Hispanic studies, including Spanish language mastery, and an understanding of Hispanic linguistics and literature as an expression of civilization and culture. The curriculum includes linguistics as well as the literary production of Spain, Spanish America, and the Spanish-speaking peoples of the United States, any of which could provide a field for specialization.

Master of Arts

Admission requirements: undergraduate major in Spanish or equivalent, including 12 credits in Spanish or Hispanic-American literature, linguistics, and/or pedagogy. Promising applicants with fewer than 12 credits in these areas may be asked to make them up without graduate credit.

Program requirements (30 credits): Students electing the thesis option may include six thesis research credits. All course work must be carried out in Spanish unless otherwise approved by the Spanish Section. Course work in URI-approved graduate study abroad programs will be counted toward the degree. Candidates must pass a comprehensive examination with both a written and an oral component.

Speech-Language Pathology

M.S.
401.874.5969

Faculty: Professor Singer, *chairperson*. Professors Kovarsky and Weiss; Associate Professor Kim; Assistant Professor Mahler.

The speech-language pathology program is accredited by the American Speech-Language-Hearing Association.

Master of Science

Admission requirements: GRE or MAT scores are required for admission. Strong consideration will be given to the cumulative GPA. In addition, performance

within a communicative disorders major or prerequisite courses will be viewed as a particularly important criterion for admission. The completed application package must be received by October 15 for spring admission and March 1 for fall admission.

Program requirements (54 credits):

Required courses consist of the following: CMD 493, 504, 550 (A, B, C), 560, 561, 564, 569, 570, 581, 582, 583, 584, 585, and 592. Nonthesis option: required courses as noted above; written comprehensive examination. Thesis option: 6 credits of CMD 599 (thesis); required courses as noted above; electives chosen from CMD 492, 494, 563, 571, 580, 594, 595, and 598.

Accelerated Bachelor's-Master's Degree in Speech-Language Pathology

Admission requirements: GRE or MAT for speech-language pathology; URI sixth-semester standing in communicative disorders with all major requirements completed and 24 elective credits remaining; a 3.00 cumulative grade point average and 3.20 in the major through the fifth semester; and two letters of recommendation from URI communicative disorders faculty.

URI undergraduate communicative disorders majors who have met requirements for early acceptance in the graduate program in speech-language pathology, which includes successful application to the program, may follow a special sequence of graduate-level course work and clinical practicum during their senior year (see page 106 for more information). If eligible, following the award of the Bachelor of Science degree in communicative disorders, students may complete a 30-credit master's degree (rather than the usual 54-credit master's degree) in speech-language pathology in one year plus a summer of full-time graduate study.

Program requirements: Speech-language pathology students must take 24 specified graduate credits (at the 400 or 500 level) of communicative disorders course work in the senior year to complete the bachelor's

degree in communicative disorders; 30 credits of course work in the fifth year (postbaccalaureate) at the 400 or 500 level. Specific course requirements are as stated in the regular two-year master's program (see above).

Statistics

M.S.
401.874.2701

Faculty: Professor Kowalski, *chairperson*; Associate Professor Gonzalez, *section head*. Professors Hanumara and Heltsh; Adjunct Professor Ting; Adjunct Assistant Professor Warnes; Professor Emeritus Carney.

Specializations

Experimental design, sampling, ecological statistics and biostatistics, statistical computation, simulation, multivariate analysis, nonparametric methods, classification and discrimination, analysis of variance, bootstrap and jackknife estimation, sequential methods, spatial statistics.

Master of Science

Admission requirements: bachelor's degree including the equivalent of MTH 141, 142; MTH 243; MTH 215; CSC 201; STA 409, 412. GRE; advanced test in mathematics or undergraduate field is desirable.

Programs of study can be designed for individuals who are employed full-time.

Thesis option program requirements: a minimum of 24 credits (exclusive of thesis) including MTH 451, 452, either STA 501 or 502, and at least nine additional credits selected from STA 500, 501, 502, 520, 535, 541, 542, 550, 592, 611.

Nonthesis option program requirements: 33 credits distributed as follows: 1) MTH 451, 452, and either STA 501 or 502; 2) at least nine credits selected from STA 500, 501, 502, 520, 535, 541, 542, 550, 592, 611; 3) at least six of the remaining credits must be at the 500 level or above (exclusive of STA 591); 4) the above course work must include at least one course that requires a

substantial paper involving significant independent study; and 5) written comprehensive examination.

Doctor of Philosophy

See Applied Mathematical Sciences.

Teacher Certification

401.874.4068

Students who did not obtain Rhode Island teacher certification as part of their undergraduate studies may do so by being admitted to a certification program or a master's degree program with a certification option and satisfactorily completing a prescribed set of courses in the appropriate fields. Applicants for elementary or one of the secondary fields described below must apply as master's degree students. Applicants for early childhood education, music education, or school library media certification may indicate the specific TCP program code on the application forms and submit two official transcripts of all prior academic work, showing receipt of the bachelor's degree, plus a personal statement of objectives and two letters of recommendation.

Applications for the School of Education programs are reviewed by each individual specialization (see below). Admission is competitive, and admission into the elementary and secondary education programs occur once a year. Typically, the deadline for admission is early January. Interested students should contact the Office of Teacher Education, or the contact person (listed at the end of this section) in their area, for information on admission deadlines; they may also visit the School of Education's Web site at uri.edu/hss/education. If space becomes available for any particular program, completed applications for that program may be reviewed subsequently.

Passing the PPST is required as part of the application process (Reading 172, Writing 171, Math 171), or a score of 1,100 on the SAT (Mathematics and Critical Reading

only), or a score of 1,000 on the GRE. Please contact the appropriate department(s) in the following list for additional information relative to this requirement.

An interview is also required of all applicants. Students admitted to the TCP program are governed by the same academic standards as matriculated graduate students. Students in the School of Education, graduate and undergraduate certification and licensure programs, will be required to take and pass a content area exam(s) in their area of certification and any other exam required for state licensure prior to student teaching or final internship. Contact the Office of Teacher Education for the “passing” scores required for each discipline.

Further information can be obtained from the Office of Teacher Education at 401.874.5930 or from the following areas of specialization:

Early Childhood Education: Professor Susan Brand, 401.874.2426

Elementary Education: Associate Professor Sandy Jean Hicks, School of Education, 401.874.5976

Secondary Education

English: Assistant Professor Diane Kern, 401.874.9490

Mathematics: Associate Professor Cornelius de-Groot, School of Education, 401.874.4149

Science: Assistant Professor Jay Fogleman, 401.874.4161

Social Studies: School of Education, 401.874.7418

Languages: Professor JoAnn Hammadou-Sullivan, Department of Modern and Classical Languages and Literatures, 401.874.4712

Music Education: Assistant Professor Audrey Cardany, Department of Music, 401.874.2763

School Library Media: Professor Cheryl McCarthy, Graduate School of Library and Information Studies, 401.874.2878

Reading Assistance Program: Professor Theresa Deeney, Assistant Professor Julie Coiro, 401.874.2682.

Textiles, Fashion Merchandising, and Design

M.S.
401.874.4574

Faculty: Professor Welters, *chairperson*. Professors Bide and Ordoñez; Associate Professors Hannel and Harps-Logan; Assistant Professors Kapstein and Kim; Adjunct Associate Professor Warner; Adjunct Assistant Professor Warburton; Professors Emeriti Emery and Higa; Associate Professor Emerita Helms.

The department offers a wide variety of individualized programs in close association with other departments (Art, Chemistry, Education, History, Human Development and Family Studies, Marketing) and with various social science fields.

Specializations

Textile science, historic textiles and costume, textile conservation, cultural analysis, and fashion merchandising.

Master of Science

Admission requirements: GRE and a bachelor's degree with adequate preparation for the proposed area of study.

Program requirements: for thesis option, completion of a minimum of 30 credits, including six credits of thesis research. For nonthesis option, completion of a minimum of 33 credits, half of which must be TMD courses numbered 500 or above, including at least one course that requires a substantial paper or practicum involving significant independent study, and written comprehensive examinations. TMD 510 is a requirement for all students. For the textile science specialization, TMD 503 and 510; a statistics course. For the specializations focusing on historic textiles and costume, textile conservation, and cultural analysis, TMD 510, 518, 500 or 524, and a supervised internship (TMD 530, 2–4 credits); half of the remaining elective credits must be from TMD courses numbered 500 or above. A minimum of nine credits is required to

achieve a competency level in an allied field such as art history, history, or anthropology; this may result in a program of more than 30 credits. The committee may elect to waive this requirement if the candidate has adequate preparation in the allied field as an undergraduate. Candidates lacking undergraduate courses in textile science and fashion history may be required to make up deficiencies without graduate credit. For the fashion merchandising specialization, TMD 510 and 524; six credits to be selected from TMD 432, 442, or 452; a statistics course. Candidates lacking undergraduate courses in textile science and fashion history may be required to make up deficiencies without graduate credit.

Postbaccalaureate Certificate in Fashion Merchandising

This program is designed for students with a bachelor's degree who wish to further their education to gain a fundamental understanding of fashion merchandising. Students may apply 400-level course work from the certificate program to the master's degree program.

Admission requirements: A bachelor's degree with a 3.00 GPA or higher. Applicants who do not meet the GPA requirement may enter by earning a combined score of 900 or above on the verbal and quantitative sections of the GRE.

Program requirements: Prerequisites for the 400-level courses include TMD 232, 303, 313, and 332 (10 credits). Students will be required to successfully complete 12 credits to be selected from TMD 402, 424, 432, 433, 442, and 452.

Thanatology

Postbaccalaureate Certificate in Thanatology

URI offers an interdisciplinary postbaccalaureate certificate program in thanatology, the study of loss, death, and grief. For more information, including a list of required courses and an application to the program, please visit uri.edu/nursing and click on “thanatology.”

Women's Studies

Postbaccalaureate Certificate in Women's Studies

The Women's Studies Program at URI offers an interdisciplinary graduate certificate program informed by advanced feminist scholarship and pedagogical principles, designed to enhance the educational background and career opportunities for matriculated graduate students or nonmatriculated postbaccalaureate students.

The certificate program requires 9 credits of graduate work in any field and 5 credits of WMS courses. (These courses may count toward a graduate degree in a field such as psychology, history, or English. Check with an advisor.)

Matriculated graduate students will take 9 credits of graduate study in their program that focuses on women or gender. The 9 credits may take the form of a course such as Women's History, or a woman writer, or Psychology of Women; substantial research focused on women or gender for a course such as Social Psychology, or Special Readings in American History.

Nonmatriculated students may take 9 credits of graduate study in any relevant graduate program or combination of programs (such as communication studies, English, history, human development and family studies, nursing, or psychology), subject to approval by the WMS program director.

Both matriculated and nonmatriculated students will take two WMS graduate level courses to complete the certificate. For further information, contact the director of the Women's Studies Program, wmsdir@etal.uri.edu, 401.874.5150.

COURSE INFORMATION



To see courses listed by semester, meeting time, or instructor, please log on to e-Campus and choose “Class Search.” The alphabetical course listings on the following pages are also available online at uri.edu/catalog.

Course Numbering

Courses numbered 001–099 are pre-freshman 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 graduate students with permission.

The 500-level courses are graduate courses for which a bachelor’s degree is usually a prerequisite, but qualified seniors and honors students are admitted with permission. These courses should make up

the majority of course work for students working toward a master’s degree. Courses at the 600 level are advanced graduate courses. The 900-level courses are special types of graduate courses for which no degree credit is given. They include courses offered to remedy deficiencies as well as workshops, institutes, and courses offered one time only by visiting faculty.

Courses with two numbers—e.g., GER 113, 114—indicate a year’s sequence; generally, the first course is a prerequisite for the second and the two cannot be taken in reverse order without special permission. Parentheses after a course number enclose either the old course number or, in cases of multiple listings, the departments and numbers under which the course is also

offered. The number in parentheses after the course name indicates the number of credits, and the information in parentheses after the course description tells the format and number of hours per week (e.g. “Lec. 3” means three hours of lecture). “Pre:” refers to a prerequisite. “S/U credit” signifies a course in which only grades of satisfactory or unsatisfactory are given. Courses that meet general education requirements are designated with a letter in parentheses indicating the appropriate group, as follows:

- (A) Fine Arts and Literature
- (FC) Foreign Language/
Cross-Cultural Competence
- (L) Letters
- (EC) English Communication (General)
- (ECw) English Communication (Written)
- (MQ) Mathematical and
Quantitative Analysis
- (N) Natural Sciences
- (S) Social Sciences

Courses that meet the general education diversity requirement are designated with a [D].

Course Codes

AAF	African and African-American Studies	GEG	Geography	OCE	Ocean Engineering
AVS	Animal and Veterinary Science	GEO	Geosciences	OCG	Oceanography
APG	Anthropology	GER	German	PHC	Pharmacy
AMS	Applied Mathematical Sciences	GRK	Greek	PHP	Pharmacy Practice
AFS	Aquaculture and Fisheries Science	HSA	Health Services Administration	PHL	Philosophy
ARB	Arabic	HBW	Hebrew	PHT	Physical Therapy
ART	Art	HIS	History	PHY	Physics
ARH	Art History	HPR	Honors Program	PLS	Plant Sciences
AST	Astronomy	HDF	Human Development and Family Studies	PSC	Political Science
BGS	Bachelor of General Studies	HSS	Human Science and Services (see ISE)	POR	Portuguese
BCH	Biochemistry	IME	(see ISE)	PLA	Prior Learning Assessment
BIO	Biological Sciences	ISE	Industrial and Systems Engineering	PSY	Psychology
BPS	Biomedical and Pharmaceutical Sciences	ITR	Internships and Experiential Education	PRS	Public Relations
BME	Biomedical Engineering	ITL	Italian	RLS	Religious Studies
BUS	Business	JPN	Japanese	RDE	Resource Development Education
CHE	Chemical Engineering	JOR	Journalism	RUS	Russian
CHM	Chemistry	KIN	Kinesiology	SOC	Sociology
CHN	Chinese	LRS	Labor Relations and Human Resources	SPA	Spanish
CVE	Civil and Environmental Engineering	LAR	Landscape Architecture	STA	Statistics
CLA	Classics	LAN	Languages	SUS	Sustainability
COM	Communication Studies	LAT	Latin	TMD	Textiles, Fashion Merchandising, and Design
CMD	Communicative Disorders	LAS	Latin American Studies	THE	Theatre
CPL	Community Planning	LET	Letters	URI	University of Rhode Island Freshman Seminar
CSV	Community Service	LIB	Library	WMS	Women's Studies
CLS	Comparative Literature Studies	LSC	Library and Information Studies	WRT	Writing
CSC	Computer Science	LIN	Linguistics		
ECN	Economics	MAC	Master of Science in Accounting		
EDC	Education	MBA	Master's in Business Administration		
EDP	Ph.D. in Education	MAF	Marine Affairs		
EDS	Special Education	MTH	Mathematics		
ELE	Electrical Engineering	MCE	Mechanical Engineering and Applied Mechanics		
EGR	Engineering	MTC	Medical Technology		
ENG	English	MIC	Microbiology		
ELS	English Language Studies	MSL	Military Science and Leadership		
ENT	Entomology	MUS	Music		
EEC	Environmental Economics	NRS	Natural Resources Science		
EVS	Environmental Sciences	NES	New England Studies		
FLM	Film Media	NVP	Nonviolence and Peace Studies		
FOS	Forensic Science	NUR	Nursing		
FRN	French	NFS	Nutrition and Food Sciences		

For an explanation of course codes and other numbers and abbreviations, see pages 165–66.

African and African-American Studies (AAF)

Director: Associate Professor Quainoo

150 Introduction to Afro-American History

See History 150. (L) [D]

201 Introduction to African-American Studies (3)

Interdisciplinary exploration of some of the pivotal themes and issues in the study of peoples of African descent. (Lec. 3) (L) [D]

202 Introduction to Afro-American Culture (3)

Interdisciplinary survey of the social origins of Afro-American culture. (Lec. 3/Online)

240 Race and Ethnic Relations

See Sociology 240.

247 Introduction to Literature of the African Diaspora

See English 247. (A) [D]

248 African-American Literature from 1900 to the Present

See English 248. (A) [D]

290 African-American Women: Service, Community, and Self (3)

Introductory course on African-American women. Focuses on the idea of African-American women's service which has been a constant theme and necessity for the African-American community in North America. (Lec. 3)

300 Special Topics in African and Afro-American Studies (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 experience. (Lec. 3/Online) Topic: Conditions for Community Service is service learning. Pre: 201 or 202 or permission of instructor. Some topics may be offered online. May be repeated with different topic.

330 (or ARH 330) African-American Art in Context: A Cultural and Historical Survey I (3)

Examines African-American art and artifacts of the 17th, 18th, and 19th centuries, highlighting the dominant attitudes as well as the political and social realities of the times. (Lec. 3)

331 (or ARH 331) The African-American Artist in Context: A Cultural and Historical Survey II (3)

Examines art and artists, the trends, philosophical attitudes, political realities, social influences, and artistic styles of 20th century African-American artists. (Lec. 3)

333 Oral Interpretation of Black Literature

See Communication Studies 333.

336 Social Inequality

See Sociology 336.

352 (or ENG 352) Black Images in Film (3)

Exploration of the cultural, economic, political, and ideological motivations behind the standard representation of people of the African diaspora in cinema in the U.S. and other areas of the world, while examining film as a genre with a vocabulary and idiom of its own. (Lec. 3)

355 Black Women in the US: Colonial Times to the Present

See History 355. (L) [D]

356 Black Urban History: Late 19th and 20th Centuries

See History 356. (L) [D]

359 History of Slavery in America

See History 359.

360 (or ENG 360) Africana Folk Life (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 2009.

362 African-American Literary Genres other than the Short Story and Novel

See English 362.

363 African-American Fiction

See English 363.

364 Contemporary African Literature

See English 364.

366 Twentieth Century Black Politics and Protest

See History 366.

372 African-Americans and the Legal System (3)

Focus on constitutional changes designed to influence the political status of African-Americans in the United States. (Lec. 3)

380 (or PSC 380) Civil Rights Movement (3)

Major transformations in American life brought about by the civil rights movement in law, in social relations, in the role of government. Focus on the period between 1954 and 1968 in an effort to identify and evaluate the changes in government and civil society that occurred during this period. (Lec. 3) Service learning.

388 History of Sub-Saharan Africa

See History 388.

390 Directed Study or Research (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. (Independent Study) Pre: permission of director.

399 Introduction to Multicultural Psychology

See Psychology 399.

408 African Government and Politics

See Political Science 408.

410 (or PSC 410) Issues in African Development (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. (Seminar) Pre: APG 313 or PSC 201 or HIS 388 or permission of instructor.

415 (or PSC 415) Dynamics of Social Change in the Caribbean (3)

Exploration of the slave trade and the origins of Africans and people of African descent in the Caribbean. Emphasis on political and economic relations with the U.S. and the impact of modernization. (Lec. 3) Not for graduate credit.

428 Institutional Racism

See Sociology 428.

466 Urban Problems

See Political Science 466.

474 Literature of the African Diaspora

See English 474.

498 Senior Seminar in African and Afro-American Studies (3)

Study of a particular issue of the experience of Blacks in the diaspora from an interdisciplinary perspective. Subject or theme will change yearly. Pre: 150, 201, 202, senior standing, or permission of instructor. Not for graduate credit.

Animal and Veterinary Science (AVS)

Chairperson: Professor Bengtson (Fisheries, Animal and Veterinary Science)

101 Introduction to Animal Science (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) (N) [D]

102 Introduction to Animal Science Laboratory (1)

Laboratory and demonstrations of principles of the animal industries. (Lab. 2) Pre: credit or concurrent enrollment in 101. Restricted to AVS majors.

104 Animal Management Techniques (2)

Lecture and laboratory in the handling skills needed to maintain animal comfort and productivity. (Lec. 1, Lab. 2) Pre: 101 and 102.

110 Freshman Seminar in Animal and Veterinary Science (1)

Overview of the animal and veterinary sciences and the fields they encompass. Student projects, presentations, and field trips. (Seminar) Pre: 101. Open only to freshmen.

201 Companion Animal Management (3)

Nutrition, reproduction, behavior, and management of companion animals. (Lec. 3) Pre: 101.

212 Feeds and Feeding (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) Pre: 101 and 102.

301, 302 Seminar in Animal and Veterinary Science (1 each)

Readings, reports, lectures, and discussions on scientific topics in animal and veterinary science. Subject matter adapted to student and faculty interest. (Seminar) Pre: junior or senior standing.

323 Animal Management I (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. (Lec. 3) Pre: 101.

324 Animal Management 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. (Lec. 3) Pre: 101.

325 Animal Management III (3)

Principles of the care and management of exotic ruminant and monogastric animals. Emphasis will be on handling, care, feeding, breeding, behavior, and disease prevention. Participation in field trips. Pre: 101 or permission of instructor.

331 Anatomy and Physiology (3)

Fundamentals of anatomy and physiology of domesticated animals. (Lec. 3) Pre: BIO 101 or CHM 101 or 103.

332 Animal Diseases (3)

Specific diseases of avian and mammalian species; etiology, symptoms, and control. (Lec. 3) Pre: 331.

333 Anatomy and Physiology Laboratory (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.

343 Behavior of Domestic Animals (3)

Examination of the basis for, and exhibition and control of, behavioral patterns of domestic animals. (Lec. 3) Pre: 101.

365 Laboratory Animal Technology (3)

Management of laboratory animals with emphasis on animal biology, breeding, care, health, research use, and animal welfare. (Lec. 2, Lab. 2) Pre: BIO 101.

372 Introductory Endocrinology (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 101 or permission of instructor.

390 Wildlife and Human Disease

See Entomology 390.

399 Animal Science Internship (1–6)

Options in various professional experience programs involving the animal and veterinary sciences. (Practicum) Pre: permission of instructor. May be repeated for a maximum of 6 credits. S/U credit.

412 Animal Nutrition (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: junior standing or above.

420 Animal Breeding and Genetics (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: junior standing or above. In alternate years.

440 Seminar on Marine Mammals (3)

Leading scientists discuss the natural history, anatomy, physiology, husbandry, behavior, and conservation of marine mammals. Current research is emphasized. (Lec. 3). Pre: junior standing, and BIO 101 and 102 and permission of the instructor. Not for graduate credit. Special registration and fee required. Contact Mystic Aquarium, Mystic, CT.

462 Laboratory Animal Techniques (3)

Laboratory animal applications in clinical studies; research in nutrition, endocrinology, and other selected topics. (Lec. 1, Lab. 4) Pre: 365.

463 Animal Veterinary Technology (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.

472 Physiology of Reproduction (3)

Anatomy and physiology of reproduction, with emphasis on domestic animals. (Lec. 3) Pre: BIO 101 and AVS 331 or permission of instructor.

473 Physiology of Reproduction Laboratory (1)

Laboratory exercises in mammalian reproductive physiology encompassing whole animal applications and gamete techniques. Current assisted reproductive technologies and management schemes will be discussed. (Lab. 2) Pre: concurrent enrollment in 472.

491, 492 Special Projects (1–3 each)

Work that meets the individual needs of students in animal and veterinary science. (Independent Study)

500 Instructional Methods in Life Sciences (2)

Organization and development of instructional material and teaching methods for graduate teaching assistants in the life sciences. Emphasis on practice presentation in classroom/lab setting. (Lec. 2) Pre: graduate standing or permission of instructor for senior undergraduate.

503 Pathobiology

See Aquaculture and Fisheries Science 503.

504 Food Systems, Sustainability and Health

See Nutrition and Food Sciences 504.

505 Advances in Animal Science (3)

Critical analysis of recent literature within the field of animal science. Students will gain experience in study design, grant proposal development and oral presentations. Pre: graduate student in good standing or permission of instructors.

508 Seminar in Biological Literature

See Biological Sciences 508.

538 Epidemiology of Infectious Diseases

See Microbiology 538.

591, 592 Research Problems (3 each)

Research problems to meet individual needs of graduate and honors students in the fields of animal breeding, nutrition, or physiology and food science. (Independent Study) Pre: permission of chairperson.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Anthropology (APG)

Chairperson: Professor Loy (Sociology and Anthropology)

200 (or LIN 200) Language and Culture (3)

Cross-cultural 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) (S) [D]

201 Human Origins (3)

The biocultural evolution of humans; review of the fossil record. (Lec. 3) (N) [D]

202 Introduction to Archaeology (3)

Archaeological perspectives on the major developments in humanity's past, from the evolution of the earliest humans to the emergence of agriculture and the earliest urban civilizations. (Lec. 3) (S)

203 Cultural Anthropology (3)

Anthropological approaches to the study of peoples and cultures around the world. (Lec. 3) (S) [D]

220 Introduction to the Study of Language

See Linguistics 220.

300 Human Fossil Record (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. 2, Lab. 2) Pre: 201 or 202 or permission of instructor.

301 The Anthropology of Nutrition (3)

Exploration of the cultural and biological relationships of food, diet, and nutrition among human populations. The evolutionary history of food production, distribution, preparation, and selection will be considered. (Lec. 3) Pre: sophomore standing. (S) [D]

302 Methods of Anthropological Inquiry (3)

Logic, techniques, and problems in obtaining true information in anthropological inquiry. Problems from anthropological field work and use of cross-cultural data. (Lec. 3) Pre: 203 or permission of instructor. Restricted to juniors and seniors.

303 New World Prehistory (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)

309 Anthropology of Religion (3)

Religious systems of selected peoples around the world; examination of theories concerning the origins, functions, and natures of these religions. (Lec. 3)

310 Topics in Anthropology (3)

Analytical study of selected topics in anthropology. Subjects will vary according to the expertise and availability of instructors. (Lec. 3) Pre: one anthropology course or permission of instructor. May be repeated with different topic.

311 Native North Americans (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)

315 Cultures and Societies of Latin America (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.

319 Cultural Behavior and Environment (3)

Cultural adaptations made by traditional and industrial societies to natural and human environments using examples from prehistory and ethnography. (Lec. 3)

320 Sociolinguistics

See Linguistics 320.

322 Anthropology of Modernization (3)

Patterns and processes of contemporary social and cultural change among traditional people. (Lec. 3) Pre: 203 or permission of instructor.

327 History of Physical Anthropology (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) (L)

328 Gender and Culture (3)

Analytical study of gender in a cross-cultural context, discussion of the possible origins of gender and subsistence modes, and an examination of societies with flexible or unusual gender systems. (Lec. 3) Pre: one APG course or permission of instructor.

329 Contemporary Mexican Society

See Sociology 329.

350 Human Variation (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.

400 Evolution, Culture, and Human Disease (3)

Investigation of the dynamic interrelationships among 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.

401 History of Anthropological Theory (3)

Theory from the sixteenth century to the present; readings from Tylor, Morgan, Boas, Sapir, Kroeber, Benedict, Malinowski, and Radcliffe-Brown. (Seminar) Pre: 203 or permission of instructor.

405 (or PSY 405) Psychological Anthropology (3)

Study of human behavior in different cultures employing psychological concepts and theories. (Lec. 3) Pre: 203 or permission of instructor.

412 Primate Behavior and Organization (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.

413 (or MAF 413) Peoples of the Sea (3)

Examination of human sociocultural adaptation to the seas. (Lec. 3) Pre: 203 or MAF 100 or graduate status. Open only to juniors, seniors, and graduate students.

417 Archaeological Method and Theory (3)

Problems of collection and interpretation of data, emphasizing nature of archaeological investigation, classification, dating, reconstruction of social contexts. Laboratory demonstrations. (Lec. 3) Pre: permission of instructor.

427 Unity of Anthropology (3)

Survey of recent advances in the subfields of anthropology. Designed to help majors appreciate the unity of anthropology in an age of specialization. (Seminar) Pre: junior or senior standing.

465 Seminar in Cultural Heritage

See Art History 465.

470 Problems in Anthropology (3)

Self-guided study and research, seminar, or individual program. (Independent Study) Pre: permission of chairperson.

490 Underwater Historical Archaeology

See History 490.

565 Seminar In Cultural Heritage

See Art History 565.

Applied Mathematical Sciences (AMS)**699 Doctoral Dissertation Research**

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Aquaculture and Fisheries Science (AFS)

Chairperson: Professor Bengtson (Fisheries, Animal and Veterinary Science)

101 Freshman Inquiry into Fisheries and Aquaculture (1)

Introduction for freshmen to the opportunities, careers, research activities, applied outreach, and educational programs in fisheries and aquaculture. Interact weekly with faculty. Explore hands-on modules. (Lec. 1) S/U credit.

102 Introductory Aquaculture (3)

Aquaculture and its historical development worldwide, its contribution to food supply, non-food spe-

cies, methods of production, environmental and ecological considerations, culture practices employed for selected species, selective breeding, feeding, disease, processing, and marketing. (Lec. 3)

104 Introductory Aquaculture Laboratory (1)

Field trips to local trout hatcheries, shellfish wholesalers, commercial aquaculture operations, aquaculture gear suppliers, and government research aquaculture facilities. Introduction to water quality monitoring. (Lab. 3) For Aquaculture and Fisheries Science majors. Must be taken concurrently with 102.

120 Introduction to Fisheries (2)

Introduction to international fishery issues, practices, patterns, and public policy based on readings and discussion in a tutorial setting. Concurrent registration in 121 required. (Lec. 2)

121 Introduction to Fisheries Laboratory (1)

Introduction to local fisheries and selected nearshore fishery ecosystems; exposure to use and operation of exemplary fishing and sampling gears in local fresh waters and estuaries. Concurrent registration in 120 required. (Lab. 3)

190 (or BCH, MIC, NRS, PLS 190) Issues in Biotechnology (3)

Introduction to modern biotechnology in medical, pharmaceutical, forensic, agricultural, marine, and environmental applications. Consideration of ethical, environmental, health, and social issues. (Lec. 3) (N)

201 Shellfish Aquaculture (3)

Culture of marine and freshwater mollusks. Emphasis on life history, biological requirements, culture practices, and economic importance of major species used for human food or shell products. (Lec. 2, Lab. 3) Pre: 102 and one semester of general chemistry.

202 Finfish Aquaculture (3)

Introduction to the culture of finfish, emphasizing general principles and hands-on experience. Topics include water quality, spawning, care and maintenance, and growth of selected freshwater and marine species. (Lec. 1, Lab. 6) Pre: 102 or equivalent.

210 Introduction to the Marine Environment (3)

Introduction to estuarine, coastal, and oceanic environments; physical and biological processes affecting basins, bottoms, water properties, marine life, and the atmosphere. (Lec. 3) (N)

211 Introduction to the Marine Environment Laboratory (3)

Laboratory exercises on the marine environment. Unit conversions, measuring physical features and times, chart work and positioning problems, measuring and processing physical marine parameters, beach and submerged landscape profiling. (Lab. 2) (N)

270 Basic Scuba Diving in Science and Technology (3)

Rigorous introduction to scuba diving including equipment, diving physics, no-decompression and decompression diving, basic skills, and safety. Emphasis on development of basic knowledge and skills appropriate for a diving scientist or technician. Open Water Diver Certification by the National Association of Underwater Instructors is provided. (Lec. 2, Lab. 3) Pre: scuba diving physical examination and demonstration of strong swimming skills.

290 Small Boats: Their Equipment and Operation (3)

Principles and practices of vessel operation, from outboard skiffs to small trawlers. Basic nomenclature, navigation, and shiphandling. Rigging and working gear used in marine resource development. (Lec. 2, Lab. 3)

300 Aquaculture Health Management (4)

Causes and mechanisms of diseases in cultured marine and freshwater organisms, with emphasis on diagnosis, prevention, and treatment, as well as environmental and regulatory issues. (Lec. 3, Lab. 2)

311 Exploration of Marine Bioresources (3)

Explores marine bioresources for pharmaceuticals, nutraceuticals, and novel biomaterials. Distribution and biodiversity of marine organisms important to industrial utilization. Culture and recovery technologies and assessment of bioactivity. (Lec. 3)

312 Fish Habitat (3)

An introduction to fish habitat including conservation legislation, identification and mapping, fishing and non-fishing impacts, rehabilitation, and socioeconomic considerations. (Lec. 3) Pre: 120. Offered in spring of even-numbered years.

315 Living Aquatic Resources (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: 210 and BIO 113 or 101 or at least one semester of general animal biology.

316 Living Aquatic Resources Laboratory (1)

Study of representative organisms of major resource groups; finfish taxonomy, anatomy, and osteology; exemplary mollusks and crustacea; introduction to larval fishes and fish age estimation; character analysis. (Lab. 3) Pre: concurrent registration in 315. Offered in fall of odd-numbered years.

321 World Fishing Methods (3)

A survey of fish catching methods of the world and the electronic enhancements to fishing that have increased fishing power. Application of these methods to scientific sampling, commercial harvesting, recreational and subsistence fishing. (Lec. 3) Pre: 120

is recommended. Concurrent enrollment in 322 required. Offered in spring of odd-numbered years.

322 Laboratory for World Fishing Methods (1)

An introduction to the basic techniques used in fishing gear construction, maintenance, and operation. (Lab. 3) Pre: 120 is recommended. Concurrent enrollment in 321 required. Offered in spring of odd-numbered years.

332 Interactions between Fisheries and Protected Species (3)

An introduction to the issues associated with interactions between fisheries and protected species including legislation, and methods of assessing stock abundance and number of interactions. Case studies of specific interactions will be reviewed. (Lec. 3) Pre: 120. Offered in spring of odd-numbered years.

362 Crustacean Aquaculture (3)

Reproductive biology, breeding, culture systems, nutrition, genetics, and ecology of selected species of cultured crustaceans. Representative species of penaeid shrimp, freshwater prawns, crayfish, crabs, lobsters, and brine shrimp will be discussed. (Lec. 3) Pre: 201 and 202. Offered in spring of odd-numbered years.

391, 392 Special Problems and Independent Study (1–3 each)

Special work to meet individual needs of students in various fields of fisheries and marine technology. (Independent Study)

415 Fishery Science (3)

Biology of aquatic resource animals, fisheries mensuration and assessment, fisheries ecology, fishing methods, aquatic resource management and conservation, fish and shellfish farming. (Lec. 3) Pre: 315 and college mathematics; concurrent registration in 416.

416 Fishery Science Laboratory (1)

Practices and techniques of fisheries science. Field exercises in local model estuary and lake ecosystems; sampling methods; enumerating and documenting collections; measuring and reporting environmental attributes; estimating population parameters. (Lab. 2) Pre: concurrent registration in 415.

421 Design of Fish Capture Systems (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.

425 Aquaculture and the Environment (3)

Impacts of aquaculture practices on the environment, including habitat alteration, release of drugs and chemicals, and interaction of cultured and wild organisms. Methods to reduce or eliminate those impacts: modeling, siting, and monitoring of aqua-

culture facilities; use of polyculture and water reuse systems. (Lec. 3) Pre: 102.

426 Ecological Aquaculture (3)

Study of the natural and social ecology of aquaculture ecosystems by applying principles of the systems ecology to the management of the world's aquaculture ecosystems. (Lec. 3) Pre: 102. Not for graduate credit.

432 Marine Finfish Aquaculture (3)

Culture of non-salmonid marine fish worldwide, with emphasis on the hatchery phase. Broodstock, larval rearing, live and formulated feeds, grow-out systems, stock enhancement. Requires student project on facility design. Pre: 102.

433 Research Diving Methods (3)

Underwater methods used to assess biological, physical, chemical, and geological characteristics of estuarine and coastal environments are presented and used to investigate seasonal changes in these parameters in the Narragansett Bay environment. (Lec. 2, Lab. 3) Pre: scuba certification and permission of instructor.

434 Aquatic Food Quality and Processing (4)

See Nutrition and Food Sciences 434.

435 Aquatic Food Product Development (3)

Concept of product developments, physicochemical principles and process technology for aquatic food and marine bioproduct development, survey of aquatic and marine products and manufacturing processes, and lab exercises on key products. (Lec. 2, Lab. 2) Pre: 434 or equivalent.

481 Shellfish Aquaculture Laboratory (2)

Detailed study of hatchery, nursery, and grow-out techniques for the production of bivalve mollusks. Culture of phytoplankton, conditioning of broodstock, spawning, larviculture, settlement, metamorphosis, nursery and grow-out methods. (Lab. 6) Pre: 201 or permission of instructor. Offered in fall of odd-numbered years.

483 Salmonid Aquaculture (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: 102 or equivalent.

486 Physiology of Fish (3)

Study of how fish function in the changing aquatic environment from the molecular to the organismal level. The major organ systems, regulation of physiological and biochemical functions, and interactions. (Lec. 3) Pre: BIO 341 or equivalent.

491, 492 Special Projects (1–3 each)

Work that meets the individual needs of students in aquaculture. (Independent Study)

500 Diseases of Aquatic Organisms (3)

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. 3) Pre: 102; BIO 201 or AVS 331.

501, 502 Seminar (1 each)

Preparation and presentation of scientific papers on selected subjects in animal pathology and virology. (Seminar)

503 (or AVS 503) Pathobiology (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: BIO 201 or AVS 331.

508 Seminar in Biological Literature

See Biological Sciences 508.

510 Application of Quantitative Methods to Marine Fisheries Ecology (3)

An introduction to quantitative methods used to model population growth, density dependency, exploitation, predator-prey systems, competition, and multi-species communities in marine ecosystems. An independent research project is required for graduate credit. (Lec. 2, Lab. 3) Pre: BIO 262 and MTH 111. Offered in fall of even-numbered years.

516 Early Life History of Aquatic Resource Animals (3)

Biology and ecology of juvenile and planktonic commercially important species; dynamics of reproduction, fecundity, growth, distribution, and behavior as modulated by the physical environment; identification, enumeration, and sampling. (Lec. 2, Lab. 3) Pre: 415 and STA 308.

521 Evaluation of Fish Capture System (3)

Evaluation of fish capture system behavior and performance using empirical, theoretical, model scaling, and statistical analysis techniques. Field and laboratory measurement procedures. (Lec. 2, Lab. 3) Pre: 421 or permission of instructor.

531 Fisheries Stock Assessment (3)

A quantitative approach to describing the processes of fish growth and mortality, the estimation of stock size, the prediction of stock yield, and management practices. Spreadsheets and other microcomputer applications will be used for analysis and modeling. (Lec. 2, Lab. 3) Pre: 415, STA 409 or permission of instructor.

532 Experimental Design

See Statistics 532.

534 (or MIC 534) Animal Virology (3)

Basic properties, classification, and evolution of animal viruses. Individual agents are studied in detail. (Lec. 3) Pre: MIC 432, 533, or permission of chairperson.

536 (or MIC 536) Virology Laboratory (2)

Methods employed in diagnosis and for the investigation of the biological, physical, and chemical properties of animal viruses. (Lab. 6) Pre: credit or concurrent enrollment in 534.

538 Epidemiology of Infectious Diseases

See Microbiology 538.

576 Seminar in Genetics of Aquatic Organisms (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. (Seminar) Pre: BIO 352.

581 Current Topics in Molluscan Aquaculture (3)

Review and critical analysis of recent literature within the field of molluscan biology with emphasis on application to mariculture techniques. Student presentation of selected topics and field trips to state-of-the-art mariculture facilities. (Lec. 3) Pre: graduate standing or senior standing with permission of instructor.

584 Advanced Aquaculture Systems (3)

Development of design criteria, operational analysis, and management of selected species in water reuse systems. (Lec. 2, Lab. 2) In alternate years.

586 Fish Nutrition (3)

Digestion and metabolism of carbohydrate, protein, and lipids by fish. Role of vitamins and minerals in metabolism and associative nutritional diseases resulting from deficiencies. Inadvertent toxic factors in fish feeds. (Lec. 3) Pre: CHM 228 or equivalent. In alternate years.

591, 592 Special Projects (1–3 each)

Research projects in animal pathology, virology, and aquaculture. (Independent Study) Pre: graduate standing or permission of chairperson.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee (Independent Study) S/U credit.

930 Workshop in Aquaculture Topics for Teachers (0–3)

Designed especially for teachers of science. Basic topics in aquaculture from an advanced or pedagogical perspective. Pre: teacher certification.

Arabic (ARB)

Chairperson: Professor Morello (Languages)

101 Beginning Arabic I (3)

Fundamentals of grammar and pronunciation of Arabic; exercises in reading, writing, and conversation. (Lec. 3) Students enrolling in this course should have had no more than one year of previous Arabic study. (FC) [D]

102 Beginning Arabic II (3)

Continuation of 101. (Lec. 3) Students enrolling in this course should have taken 101 or its equivalent. (FC) [D]

103 Intermediate Arabic I (3)

Development of facility in reading; exercises in grammar, writing, and conversation. (Lec. 3). Students enrolling in this course should have taken 102 or equivalent. (FC) [D]

104 Intermediate Arabic II (3)

Continuation of 103. (Lec. 3) Students enrolling in this course should have taken 103 or its equivalent. (FC) [D]

Art (ART)

Chairperson: Professor Dilworth (Art and Art History)

002 Sophomore Review (0)

Presentation by majors of a broad selection of their previous college-level work for review by faculty. (Studio) Pre: 101, 103, 207.

101 Two-Dimensional Studio (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) (A)

103 Three-Dimensional Studio (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)

203 Color (3)

Visual perception of color and manipulation of light as they pertain to two- or three-dimensional formulations. (Studio 6)

204 Digital Art and Design I (3)

Introduction to various digital technologies used in the production of fine art and applied design. Students gain the basic technical skills and theoretical knowledge of digital still imaging, animation, and interactivity information design. (Studio 6)

207 Drawing I (3)

Visual perception and observation, using nature structures, drawing from models, still life, and landscape; exercises in basic drawing techniques and principles. (Studio 6) (A)

208 Drawing 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.

213 Photography I: B/W Photography (3)

Introduction to basic black and white photography and exploration of relate techniques using light-sensitive materials. Emphasis on photography as an artistic media. Required projects and readings. (Studio 6)

215 Video and Filmmaking I (3)

Introduction to basic filmmaking and video techniques and theories of moving images. Emphasis on film and video as artistic media. Required projects and readings. (Studio 6) May be repeated for a maximum of 6 credits with permission of instructor.

221 Painting I (3)

Techniques of painting, utilizing as reference the natural and human-made environments. Traditional and contemporary materials. (Studio 6) Pre: 101 and 207.

231 Printmaking I (3)

Introduction to the intaglio process and monotype, with an emphasis on image development and workshop procedures (Studio 6) Pre: 101 or 207 or permission of instructor.

233 Relief Printing and Typography I (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.

243 Sculpture I (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.

300 Art Gallery Internship (3)

Curatorial responsibilities taught through hands-on experience in exhibition programs including exhibition research, production of interpretive texts and lectures, art object preparation, registration, and installation. (Practicum) Pre: junior standing and permission of instructor and chairperson. S/U only.

301 Projects in Studio (3)

Studio projects under guidance of instructor selected by student. (Independent Study) Pre: permission of chairperson and instructor.

303 Topics in Studio (3)

Selected topics based on particular materials, techniques, or thematic premises. Topics and semesters to be announced. (Studio 6) Pre: art major status, or permission of instructor or chairperson. May be

repeated for credit with permission of instructor and chairperson.

304 Digital Art and Design II (3)

Continuation of 204 with an emphasis on the development of professional quality resources, content, and output. Assignments cover the fundamental elements of graphic design in the digital environment and the cross influences among fine art, mass media, and new media. (Studio 6) May be repeated once for credit with permission of instructor. Pre: 204.

305 Photographic Alternatives (3)

Topics emphasize possibilities in photographic themes and techniques, including alternative processes, collotype, and studio practice. (Studio 6) Pre: 213 and permission of instructor. May be repeated with permission of instructor and chairperson.

306 Digital Art and Design III (3)

Continuation of 304 with an emphasis on contemporary issues related to art, information technology, and social influence. Students are required to develop Web-based projects. (Studio 6) May be repeated once for credit with permission of instructor. Pre: 304.

307 Art Studio Internship (3 or 6)

Work in an institution, agency, or organization supervised by an art professional and a studio faculty member. Activities, expectations, performance assessments, hours, and credits determined through prior consultation. (Practicum) Limit of 6 credits toward graduation. Pre: junior standing in the B.A. or B.F.A. studio program and permission of chairperson. S/U only.

309 Drawing III (3)

Further problems in drawing with emphasis on independent work. (Studio 6) Pre: 208 or permission of instructor.

314 Photography II: B/W Darkroom (3)

Continuation of 213 with emphasis on expanding skills in creative photographic expression, technique and communication. (Studio 6) Pre: 213 May be repeated once for credit with permission of instructor.

315 Photography II: The Digital Darkroom (3)

Introduction to the Digital Darkroom with an emphasis on digital workflow, printing and the use of digital as a form of artistic expression. Required projects and readings. (Studio 6) May be repeated once for credit with permission of instructor. Pre: 213 and 204 or permission of instructor.

316 Video and Filmmaking II (3)

Continuation of 215 with added emphasis on sound. Required projects and reading. (Studio 6) Pre: 215. May be repeated once for credit with permission of instructor.

322 Painting II (3)

Continuation of 221. (Studio 6) Pre: 221. May be repeated for credit with permission of instructor.

324 Figure Drawing and Painting (3)

Introduction, exploration, and integration of materials, principles, and techniques related to the human figure. Emphasis on conceptual and observational approach to structure and development of form. May be repeated once for credit with permission of instructor. Pre: 207 and 208 and 221 or permission of instructor.

332 Printmaking II (3)

Introduction to lithography including stone, plate, and photographic processes. Contemporary viewpoints and their relationship to traditional printmaking, with emphasis on individual image development. (Studio 6) Pre: 231.

334 Relief Printing and Typography 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.

337 Printmaking III (3)

Continuation of 332 with semi-independent work in various printmaking media. Introduction of aluminum plate and photo-lithography. (Studio 6) Pre: 332.

344 Sculpture II (3)

Continuation of 243. (Studio 6) Pre: 243 or permission of instructor. May be repeated for a maximum of 6 credits with permission of instructor.

404 Digital Art and Design IV (3)

Independent work in digital art and design under the supervision of instructor. Students present project proposals and are guided in the development of a professional multimedia portfolio. (Studio 6) Pre: 306 and permission of instructor and department chair. May be repeated once with permission of the instructor and department chairperson.

405, 406 Studio Seminar (3 each)

Intensive self-directed work under guidance of instructor. Periodic critiques and discussion of work of all participants. (Studio 6) Pre: Limited to senior B.A. and B.F.A. studio art majors with 3.00 or above as studio course average and permission of instructor.

410 Drawing IV (3)

Independent work in drawing under the supervision of instructor. (Studio 6) Pre: 309 and permission of instructor. May be repeated for credit with permission of instructor and department chair.

415 Photography III (3)

Independent work in various photographic media under the supervision of the instructor. Students guided in the development of a portfolio. May be repeated once for credit with permission of instructor. (Studio 6) Pre: 314 and 315 or permission of instructor.

417 Video and Filmmaking III (3)

Independent work in video and filmmaking under the supervision of instructor. (Studio 6) Pre: 316 and permission of instructor. May be repeated for credit with permission of instructor and department chair.

423 Painting III (3)

Independent work in painting under the supervision of the instructor. (Studio 6) Pre: 322 and permission of instructor. May be repeated for credit with permission of instructor and department chair.

435 Relief Printing and Typography III (3)

Independent work in relief printing and typography under the supervision of instructor. (Studio 6) Pre: 334 and permission of instructor. May be repeated for credit with permission of instructor and department chair.

438 Printmaking IV (3)

Independent work in printmaking media under supervision of instructor. (Studio 6) Pre: 337 and permission of instructor. May be repeated for credit with permission of instructor and department chair.

445 Sculpture III (3)

Independent work in sculpture under the supervision of instructor. (Studio 6) Pre: 344 and permission of instructor. May be repeated for credit with permission of instructor and department chair.

501 Graduate Studio Seminar (3)

Intensive independent studio work under guidance of instructors. Periodic critiques and discussions related to work of all participants in the course. (Studio 6) Pre: 48 credits in studio.

Art History (ARH)

Chairperson: Professor Dilworth (Art and Art History)

120 Introduction to Art (3)

Fundamental principles of the visual arts, evolution of styles and conceptions through the ages in different forms of creative expression. (Lec. 3) (A) [D]

251 Introduction to Art History: Ancient-Medieval (3)

The development of architecture, sculpture, and painting from prehistory through the Middle Ages. (Lec. 3) (A) [D]

252 Introduction to Art History: Renaissance-Modern (3)

The development of architecture, sculpture, and painting from the early Renaissance to the present. (Lec. 3) (A) [D]

284 Introductory Topics in Architectural History (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.

300 Art History Internship (3-6)

Internship in an approved professional organization (such as museum, gallery, preservation society, auction house). Specific details determined in consultation with faculty supervisor and off-campus liaison, and approved by chairperson. (Practicum) May be taken in one semester or repeated for a maximum of 6 credits. S/U only.

330 African-American Art in Context: A Cultural and Historical Survey I

See African and African-American Studies 330. Next offered spring 2011.

331 The African-American Artist in Context: A Cultural and Historical Survey II

See African and African American Studies 331.

354 The Art of Greece and Rome (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.

356 Medieval Art (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.

359 Baroque Art (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.

361 Nineteenth-Century Art (3)

Investigates major movements of European and American painting, sculpture, photography, and architecture from 1780-1900. (Lec. 3) Pre: 251, or 252, or permission of instructor

362 Twentieth-Century Art (3)

Investigates major movements of European and American painting, sculpture, photography, and architecture from 1900-2000. (Lec. 3) Pre: 251, or 252, or permission of instructor

363 Modern Art: 19th and 20th Centuries (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.

364 American Art (3)

Painting, sculpture, and architecture from their origins in the 17th century to the present; emphasis on the 19th century. (Lec. 3) Pre: 251 or 252.

365 Renaissance Art (3)

Painting, sculpture, and architecture of Italy and northern Europe from 1400 to 1600. (Lec. 3) Pre: 251 or 252 or permission of instructor.

371, 372 Projects in Art History I, II (3 each)

Directed study in art history under guidance of instructor selected by student. The student may select a different instructor for 371 and 372. (Independent Study) Pre: permission of chairperson and instructor.

374 Topics in Film (3)

Explores the social, historical, and aesthetic development of the cinema from 1895 to the present. Lectures (3 hours) and required film screenings. (Lec. 3) May be repeated for a maximum of 6 credits with permission of instructor.

375 Topics in the History of Photography (3)

Explores the social, historical, and aesthetic development of photography from 1826 to the present. (Lec. 3) May be repeated for a maximum of 6 credits with permission of instructor.

376 History of Animation (3)

Traces the development of animation from the pre-history of animation to the present. (Lec. 3) Pre: 251, 252, or permission of instructor.

377 The History of Experimental Film (3)

Traces the development of experimental cinema in the context of modern art. (Lec. 3) Pre: 251, 252, or permission of instructor. Next offered fall 2010.

380 Topics in Art and Architectural History (3)

Selected topics, themes, and issues in the history of the visual arts. (Lec. 3) Pre: 251 or 252 or permission of instructor. May be repeated with a different topic for maximum of 6 credits.

385 Women in Art (3)

Examination of women artists and their work in the history of western art; analysis of representations of women and gender in works of art and art historical texts. Pre: 252 or WMS 150 or permission of instructor.

461 Topics in Methods, Theory, and Criticism (3)

Art history methods or selected topics in the theory and criticism of art. (Lec. 3) Pre: permission of chairperson. May be repeated for credit with permission of instructor.

462 Contemporary Art Seminar (3)

Analysis of contemporary work and its relation to earlier movements. (Seminar) Pre: 363. May be repeated for a maximum of 6 credits with permission of instructor. Next offered fall 2010.

465 (or APG 465) Seminar in Cultural Heritage (3)

Investigates how global development, commercialization, and conflicts affect humankind's cultural heritage. Examines some ethical issues and legal strategies for protecting cultural sites, artifacts, and traditional folkways. (Lec. 3) Pre: at least 3 credits at the 300-level in anthropology, art history, or history; or permission of the instructor.

469, 470 Art History: Senior Projects (3–6 each)

Intensive, independent work on a project determined by consultation with the student's project advisor. (469, Independent Study; 470, Tutorial) Pre: senior standing, art history major, permission of chairperson.

475 Classical Archaeology: Critical Approaches to the Greek and Roman Past (3)

Study of material remains of ancient Greek and Roman (and related) cultures. Critical analysis of art, artifacts, and architecture with attention to changing approaches to interpreting antiquity. (Seminar) Pre: at least 3 credits at the 300-level in art history, history, or anthropology; or permission of instructor.

480 Advanced Topics in European and American Art (3)

Consideration of the history of European and American art through analysis of selected periods or themes. (Seminar) Pre: permission of instructor. May be repeated for credit with a different topic.

565 (or APG 565) Seminar in Cultural Heritage (3)

Investigates how global development, commercialization, and conflicts affect humankind's cultural heritage. Examines some ethical issues and legal strategies for protecting cultural sites, artifacts, and traditional folkways. (Lec.) Pre: 300-level coursework in anthropology, art history, or history; or permission of instructor.

575 Classical Archaeology: Critical Approaches to the Greek and Roman Past (3)

Study of material remains of ancient Greek and Roman (and related) cultures. Critical analysis of art, artifacts, and architecture with attention to changing approaches to interpreting antiquity. (Seminar) Pre: coursework at the 300-level in art history, history, or anthropology, or permission of instructor.

Astronomy (AST)

Chairperson: Professor Northby (Physics)

108 Introductory Astronomy: Stars and Galaxies (3)

Celestial sphere, constellations. Constitution of sun, stars, nebulae, and galaxies. Planetarium used freely for lectures and demonstrations. (Lec. 3) (N)

118 Introductory Astronomy: The Solar System (3)

Celestial sphere, Earth, formation of and motions and characteristics of objects in solar system, the

Sun, exoplanets, and search for extraterrestrial life. Planetarium used for lectures and demonstrations. (Lec. 3) (N)

334 Optics

See Physics 334.

483, 484 Laboratory and Research Problems in Physics

See Physics 483, 484.

491, 492 Special Problems

See Physics 491, 492.

Bachelor of General Studies (BGS)

Coordinator: A. Hubbard

100 Pro-Seminar (3)

Introduction to critical approaches to learning with emphasis on reading and rhetorical skills appropriate to college students. Must be taken concurrently with URI 101. S/U credit. (ECW)

350 Directed Study or Research (1–6)

Directed research or study designed to meet the particular needs of individual students. (Independent Study) Pre: permission of the academic department chairperson and the B.G.S. coordinator. May be repeated for a maximum of 6 credits.

390 Social Science Seminar (6)

Exploration of the social sciences for B.G.S. students who have completed the Pro-Seminar, started their major, and have the consent of their advisor. (Seminar) Required of B.G.S. students. Offered every third semester. Next offered fall 2010. (S) [D]

391 Natural Science Seminar (6)

Exploration of the natural sciences for B.G.S. students who have completed the Pro-Seminar, started their major, and have the consent of their advisor. (Seminar) Required of B.G.S. students. Offered every third semester. Next offered fall 2009. (N)

392 Humanities Seminar (6)

Exploration of the humanities for B.G.S. students who have completed their Pro-Seminar, started their major, and have the consent of their advisor. (Seminar) Required of B.G.S. students. Offered every third semester. Next offered spring 2010. (L) [D]

397 Human Studies Major Seminar (3)

Capstone course of human studies major. Review and assessment of students' major education through intensive exploration of issues central to human studies. (Seminar/Online) Pre: completion of 30 credits of major. Required of B.G.S. human studies majors.

398 Applied Communication Major Seminar (3)

Capstone course of applied communications major. Review and assessment of students' major education through intensive exploration of issues central to professional communications. (Seminar) Pre:

completion of 30 credits of major courses. Required of all applied communication majors.

399 Supervised Senior Project (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. (Independent Study) Pre: senior standing in B.G.S. program and approval of advisor and B.G.S. coordinator. Required of B.G.S. students.

Biochemistry (BCH)

Chairperson: Professor Sperry (Cell and Molecular Biology)

190 Issues in Biotechnology (3)

See Aquaculture and Fisheries Science 190. (N)

242 Human Genetics and Human Affairs (3)

Basic principles of genetics including patterns of inheritance, mitosis and meiosis, sex determination and sex linkage. Genetic diseases, their cause and cures. Recombinant DNA and genetic engineering. Human diversity and evolution. (Lec. 3)

311 Introductory Biochemistry (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.

312 Introductory Biochemistry Laboratory (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. (Lab. 4) Pre: credit or concurrent enrollment in 311.

352 General Genetics

See Biological Sciences 352.

353 (or BIO 353) Genetics Laboratory (1)

Basic principles and concepts of genetics demonstrated with microorganisms, plants and animals. (Lab. 2) Pre: credit or concurrent enrollment in 352.

412 Biochemistry Laboratory (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. (Lab. 6) Pre: credit or concurrent enrollment in 311.

437 Fundamentals of Molecular Biology

See Biological Sciences 437.

451 (or MIC 451) Laboratory in Cell Biology (1)

Analysis of subcellular processes, structures, and molecules using techniques including gel electrophoresis, spectrophotometry ultracentrifugation, and

protein purification. Topics range from analysis of gene expression to subcellular localization of enzymatic activity. (Lab. 2) Pre: concurrent enrollment in 453 (or MIC 453) or permission of instructor.

452 (or BIO 452) Advanced Topics in Genetics (3)

More detailed treatment of topics introduced in the general genetics course (352) including aspects of transmission genetics, molecular genetics, cytogenetics, biotechnology, developmental genetics, and the impact of genetics on society. (Lec. 3) Pre: BIO 352.

453 Cell Biology

See Biological Sciences 453.

464 Biochemistry of Metabolic Disease (3)

A study of the primary and secondary molecular changes in human metabolic diseases. Topics include aging, alcoholism, arteriosclerosis, diabetes, depression, and genetic diseases. (Lec. 3) Pre: 311 or 481.

484 Physical Methods in Biochemistry (3)

Experimental methods including spectroscopy, spectrofluorimetry, optical rotation, chromatography, and electrophoresis are applied to biochemical compounds and reactions. Physical principles and the calculation of important properties are stressed. (Lec. 1, Lab. 4) Pre: 435, 481, and permission of chairperson.

491, 492 Research in Biochemistry (1–6 each)

Special problems. Student outlines the problem, carries on experimental work, presents the conclusions in a report. (Independent Study) Pre: permission of instructor. Not for graduate credit in biochemistry.

495, 496 Biochemistry Seminar (1 each)

Discussion and presentation of research papers on selected subjects in biochemistry. (Lec. 1) Pre: 311, 482, or 582.

500 Principles and Techniques in Molecular Cloning (II, 2)

Current techniques and strategies in gene cloning, characterization, construction, and expression in prokaryotes and eukaryotes. Comprehensive knowledge and understanding necessary for gene cloning and vector construction emphasized (Lec. 2). Pre: 437 or permission of instructor.

502 Techniques of Molecular Biology

See Microbiology 502.

508 Seminar in Biological Literature

See Biological Sciences 508.

521 Physical Biochemistry (3)

The use of calorimetry, centrifugation, electrophoresis, (SDS-PAGE, agarose gels, sequencing gels, immunoelectrophoresis, capillary electrophoresis, and isoelectric focusing), chromatography (GFC, SPX, IEX, normal and reversed-phase HPLC, and micro-HPLC), mass spectrometry (ion-labeling, MALDI, FAB, elec-

troscopy, and MS/MS), radioactive labels, and X-ray crystallography to characterize biologically important macromolecules such as proteins, DNA/RNA, carbohydrates, and lipids. (Lec. 3) Pre: 311, concurrent registration in 581, or permission of instructor. In alternate years. Next offered fall 2009.

522 Bioinformatics I

See Biomedical and Pharmaceutical Sciences 542.

523, 524 Special Topics in Biochemistry (1–3 each)

Advanced work arranged to suit the individual needs of the student. Lecture and/or laboratory according to the nature of the problem. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 12 credits. S/U credit for 524.

551 (or MTC 551) Topics in Biochemistry for the Clinical Scientist (3)

Description of the major components of biochemistry as it relates to the medical sciences. Major concepts include molecular genetics, regulatory biochemistry, and medically related applied biochemistry. (Lec. 3) Offered every third year.

552 Microbial Genetics

See Microbiology 552.

572 Plant Biochemistry

See Plant Sciences 572.

579 Advanced Genetics Seminar

See Biological Sciences 579.

581 General Biochemistry I (3)

First semester of a two-semester course on the principles of biochemistry. Topics include bioenergetics, protein structure, enzymology, glycolysis, the tricarboxylic acid cycle, and oxidative phosphorylation. (Lec. 3) Pre: CHM 228 and 229.

582 General Biochemistry II (3)

Second semester of a two-semester course on the principles of biochemistry. Topics include photosynthesis, membranes, hormones, metabolism, the biosynthesis of DNA, RNA, and proteins. (Lec. 3) Pre: 581 or permission of instructor.

585 Recent Advances in Receptor Research (1)

Discussion of current research literature about receptors for hormones, pheromones, neurotransmitters, and other biological signals. Consequences of receptor activation will also be discussed. (Lec. 1) Pre: 311 and permission of instructor. May be repeated.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

642 Biochemical Toxicology

See Biomedical and Pharmaceutical Sciences 642.

651, 652 Research in Biochemistry (3 each)

Students are required to outline a research problem, conduct necessary literature survey and experimental

work, and present the observations and conclusions in a substantial written report. (Independent Study) Pre: graduate standing.

695, 696 Graduate Seminar

See Microbiology 695, 696.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Biological Sciences (BIO)

Chairperson: Professor Goldsmith

101 Principles of Biology I (4)

Chemistry, structure, metabolism, and reproduction of cells. Principles of genetics. Structure, development, and physiology of animals. Survey of the animal kingdom. (Lec. 3, Lab. 2) (N)

102 Principles of Biology II (4)

Structure, physiology, and reproduction of plants. Diversity of plants, fungi, and algae. Principles of ecology and evolution. (Lec. 3, Lab. 2) Pre: 101. (N)

105 Biology for Daily Life with Laboratory (3)

Basic biological principles needed to understand contemporary issues in biology, for example, forensic biology, cloning, genetic engineering, reproductive technologies, "alternative" medicine, biodiversity, habitat alteration, and endangered species. Designed for nonmajors. (Lec. 2, Lab. 2) (N)

106 Biology for Daily Life with Recitation (3)

Basic biological principles needed to understand contemporary issues in biology, for example, forensic biology, cloning, genetic engineering, reproductive technologies, "alternative" medicine, biodiversity, habitat alteration, and endangered species. Designed for nonmajors. (Lec. 2, Rec. 1) (N)

121 Human Anatomy (4)

Elementary anatomy of the organ systems, studies with the aid of charts, models, and predissected specimens. (Lec. 3, Lab. 3) Open to B.A. biology, B.S. biological sciences, physical education, nursing, pharmacy, pre-physical therapy, clinical lab science, nutrition, dietetics, and biomedical engineering majors only.

130 Topics in Marine Biology (1)

Current and classical issues considered in small classes. Designed for students interested in marine biology. (Seminar) Pre: Limited to marine biology majors. Required of all freshman marine biology majors and students entering the major with fewer than 24 credits. May not be repeated.

201 General Animal Physiology (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 biological sciences and one semester of chemistry recommended.

242 Introductory Human Physiology (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: 121. Not open to students with credit in 442.

244 Introductory Human Physiology Laboratory (1)

Mechanisms of physiological processes are illustrated by experiments on vertebrate animals. (Lab. 3) Pre: credit or concurrent enrollment in 242.

262 Introductory Ecology (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: 101, 102 or equivalent.

272 (or GEO 272) Introduction to Evolution (4)

Introduction to evolution as the unifying thread in the biosphere. Processes and patterns discussed, including microevolution and macroevolution. Social impact of evolution discussed from a biological perspective. Pre: GEO 102 or one semester of biological sciences, or permission of instructors.

286 (or ENT 286) Humans, Insects, and Disease (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 for B.S. in biological sciences. (N)

301 Physiological Experiments (3)

Methods of investigating physiological problems in the laboratory. Topics and techniques will be presented briefly, then employed in an individual laboratory project. (Lab. 6) Pre: 201 and 302.

302 Animal Development (4)

Survey of the patterns and mechanisms of animal development, including the molecular genetic control of development, medical developmental biology, and evolution of development. (Lec. 3, Lab. 3) Pre: 101, 102, and two additional semesters of biological sciences; genetics recommended.

304 Comparative Vertebrate Anatomy (4)

Anatomy of chordates emphasizing functional and evolutionary diversity. Lecture focuses on morphological variation and evolution. Laboratory focuses on comparative anatomy through dissections and models. (Lec. 3, Lab. 3) Pre: 101 and 102 or equivalent.

311 Plant Structure and Development (4)

Structure of vascular plant cells, tissues, and organs; cellular and molecular mechanisms controlling de-

velopmental processes including cell division, leaf initiation, epidermal patterning, and vascular differentiation. (Lec. 3, Lab. 3) Pre: 102 or permission of instructor.

321 Plant Diversity (4)

Representative forms of prokaryotes, algae, fungi, bryophytes, and vascular plants with emphasis on evolution, ecology, and life cycle. (Lec. 3, Lab. 3) Pre: 102 or permission of instructor.

323 Field Botany and Taxonomy (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: 102.

327 Vertebrate Histology (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.

329 Vertebrate Histology Laboratory (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.

332 (or PLS 332) Plant Pathology (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. 4) Pre: 102 or permission of instructor.

334 Physiology of Exercise

See Kinesiology 334.

335 Physiology of Exercise Laboratory

See Kinesiology 335.

341 Principles of Cell Biology (3)

An introduction to the structure and organization of eukaryotic cells. Topics include membranes and organelles, gene expression, protein synthesis and secretion, energy utilization, the cytoskeleton, and signal transduction. (Lec. 3) Pre: one semester of biological sciences and one semester of organic chemistry.

345 Marine Environmental Physiology (3)

The physiological basis of adaptation to the marine environment. Physiological methods adapted to marine plants and animals. (Lec. 2, Lab. 3) Pre: two semesters of biological sciences.

346 Plant Physiology (3)

Development and function of vascular plants, including energy and nutrient assimilation, growth, reproduction, and interactions with other organisms and the physical environment. (Lec. 3) Pre: 102, one semester of chemistry, or permission of instructor.

348 Plant Physiology Laboratory (1)

Laboratory methods in plant physiology, including experimental design and reporting. Techniques include water potential measurement, chromatography, spectrophotometry, enzyme assay, tissue culture, bioassay, protein extraction, and gel electrophoresis. (Lab. 3) Pre: 346, may be taken concurrently.

352 (or BCH 352) General Genetics (4)

Introduction to basic genetic principles and concepts leading to an understanding of genes, heredity, and the nature of inherited variation. Applications and implications for animals, plants, fungi, and bacteria. (Lec. 3, Rec. 1) Pre: 101 and 102.

353 Genetics Laboratory

See Biochemistry 353.

354 Invertebrate Zoology (4)

Study of the origin and evolutionary relationship of the invertebrate animals. Emphasis on marine forms. Laboratory sessions include comparative study of selected examples and field trips to local environments. (Lec. 2, Lab. 4) Pre: 101 and 102.

355 Marine Invertebrates of Southern New England (3)

Collection and identification of marine invertebrates of southern New England. Emphasis on field and laboratory studies. Student collection will incorporate video photography. (Lab. 6) Pre: 101 and 102 or permission of instructor.

360 Marine Biology (4)

The nature of plants and animals of the sea. Diversity of species and adaptations to habitats from the sea surface to the depths of the ocean. (Lec. 3, Lab. 3) Pre: 101, 102.

365 (465) Biology of Algae (4)

Taxonomy, morphology, and evolution of all major algal divisions. Laboratory/field component focuses upon taxonomic identification of both live and preserved microscopic and macroscopic algal species. (Lec. 3, Lab. 3) Pre: 102.

366 Vertebrate Biology (3)

Life histories, adaptations, ecology, classifications, and distribution of vertebrate animals. Laboratory and extensive field work on local vertebrates. (Lec. 2, Lab. 3) Pre: 262 recommended.

385 Introductory Entomology

See Entomology 385.

386 Introductory Entomology Lab

See Entomology 386.

396 Biology and Society (2)

A seminar course dealing with the impact of biological discoveries on societal questions and with the social influences that affect biological discovery. Discussion of original papers, magazines, newspaper articles, and books about various discoveries. (Semi-

nar) Pre: three courses in biology (including current enrollment) or permission of instructor.

397, 398 Colloquium in Biological Sciences (0 each)

Introduction to modern scholarly work in biology. Lectures by visiting and resident scholars, with questions from the audience. Expected of students enrolled in the biology honors program. (Lec.) Pre: open to biological sciences majors only. S/U only.

412 Evolution and Diversity of Fishes (4)

Origin, evolution and diversification of fishes, their phylogenetic relationships, and morphological, physiological, ecological and behavioral adaptations in marine and freshwater habitats. (Lec. 3, Lab. 3) Pre 101 or 102 and 366 or permission of instructor. Not for graduate credit.

418 Ecology of Marine Plants (4)

Ecology, development, and physiology of marine algae and higher plants. Topics include competition, herbivory, nutrient uptake, photosynthesis, and growth. (Lec. 3, Lab. 3). Pre: 102, 262 or permission of instructor. In alternate years.

437 (or BCH 437) Fundamentals of Molecular Biology (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. (Lec. 3) Pre: MIC 211, BIO 352, and BCH 311, or permission of instructor.

441 Environmental Physiology of Animals (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 equivalent.

445 Endocrinology I (3)

Comparative approach to the endocrine regulation of the organism and to the molecular basis for hormone action. (Lec. 3) Pre: BCH 311 or equivalent and BIO 201 or 242 or equivalent. In alternate years.

452 Advanced Topics in Genetics

See Biochemistry 452.

453 (or BCH 453 or MIC 453) Cell Biology (3)

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. 3) Pre: two semesters of biological sciences, BCH 311, junior standing, or permission of instructor.

455 Marine Ecology (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 instructor.

457 Marine Ecology Laboratory (1)

Field and laboratory work on community relationships of dominant organisms in Rhode Island marine environments. (Lab. 3) Pre: concurrent enrollment in 455. Limited to 15 students.

458 Freshwater Ecology (4)

Interactions among physical, chemical, and biological processes that affect distribution and abundance of freshwater organisms (Lec. 3, Lab. 3) Pre: 206 or 262 and one semester of chemistry.

467 Animal Behavior (3)

Ethology and sociobiology of animals. Topics in the control and development of behavior patterns, orientation in time and space, social behavior, and behavioral ecology. (Lec. 3) Pre: two semesters of biology; 262 recommended.

469 Tropical Marine Invertebrates (5)

Systematic survey of tropical invertebrates. Emphasis on examples from Bermuda's marine environment. Laboratory includes field collections, identification and preparatory techniques for taxonomic studies. (Practicum, Lab. 8) Taught in Bermuda. Pre: 101 and 102, junior standing, snorkeling experience.

472 (or GEO 472) Advanced Evolutionary Biology (4)

A survey of modern evolutionary biology, including macroevolution, evolution and development, mass extinction, and genomic evolution. (Lec. 3, Rec. 1) Pre 272 or permission of instructor.

475 Coral Reef Ecology (5)

Structure and function of coral reef ecosystems with emphasis on the biology of corals. Laboratory sessions focus on field surveys and research techniques. (Practicum, Lab. 8) Taught in Bermuda. Pre: 262 and junior standing; SCUBA certification required.

480 Community Ecology (3)

Exploration of community ecology, with an emphasis on interspecific interactions (competition, predation, mutualism), species diversity, succession, niche theory, and island biogeography. Format includes lecture, case studies, and discussion. (Lec. 3) Pre: 262 or permission of instructor. Not for graduate credit.

491, 492, Independent Biological Research (1-3 each)

Individualized laboratory, field, or literature research projects. May be repeated for a total of 6 credits. Pre: open only to undergraduates on arrangement with staff. S/U only.

495 Tropical Marine Biology Research (6)

Independent marine research in Bermuda. Topics may include marine ecology, physiology, systematics, etc. Proposal, oral report, and project paper required. (Practicum, Lab. 12). Taught in Bermuda. Pre: junior standing, 475, 469.

508 (or BCH/MIC/AFS/AVS/NRS/PLS 508) Seminar in Biological Literature (1)

Survey of biological literature including traditional methods of bibliographic control, contemporary information retrieval services, and the development of a personalized information system. (Lec. 1) Pre: graduate standing or permission of the instructor.

511 Special Readings in Developmental Plant Anatomy (3)

Intensive tutorial work, research, and reading on ontogeny of plant structures and morphogenetic mechanisms. (Independent Study) Pre: graduate standing and permission of instructor. Concurrent audit of 311 required. Offered on demand.

512 Evolution and Diversity of Fishes (4)

Origin, evolution and diversification of fishes, their phylogenetic relationships, and morphological, physiological, ecological and behavioral adaptations in marine and freshwater habitats. (Lec. 3, Lab. 3) Pre: BIO 101, 102, and 366, or permission of instructor.

513 Functional Morphology (3)

Advanced study of the evolution and biological role of organismal structure including critical evaluation of recent research in functional morphology with an emphasis on vertebrates. (Lec. 3) Pre: graduate standing; 304 or 366 recommended.

515 Light Microscopy Research Methods (4)

Introduction to optical techniques and biological specimen preparation for light microscopy with emphasis on application of these methods in biological research. Topics include optics, embedding and sectioning, fluorescence and immunocytochemistry, and computer image analysis. (Lec. 1, Lab. 6) Pre: graduate standing or permission of instructor.

521 Recent Advances in Cell and Molecular Biology

See Microbiology 521.

524 Methods in Plant Ecology (3)

Methods in analysis of vegetation and microenvironments. Emphasis on quantitative techniques in analysis of vegetation, soil, and microclimate; techniques in physiological ecology. (Lec. 2, Lab. 3) Pre: 102 and 262 or equivalent; STA 412 recommended. In alternate years.

536 Seminar in Plant Stress Physiology (1-2)

Readings, discussion, and analysis of current literature with emphasis on biochemical and genetic aspects of responses. Students electing 2 credits will write review papers. (Seminar) Pre: one course in plant physiology and one course in biochemistry. In alternate years.

541 Comparative Physiology of Marine Animals (3)

Comparison of physiological mechanisms by which animals maintain life with emphasis on marine invertebrates. Responses to external environment

mediated by receptors, nervous systems, effectors. Living control systems for muscular activity and circulation. (Lec. 3) Pre: one physiology course. In alternate years.

545 Endocrinology II (3)

Integration of cell and molecular processes with whole animal function. Hormones and their regulation, of early development, growth, metabolism, salt and water balance, adaptation to stress, reproduction, and behavior. (Lec. 3) Pre: graduate standing or permission of the instructor.

546 Introduction to Neurobiology (3)

Fundamental processes in neurobiology with emphasis on cellular and membrane mechanisms of nerve functioning. (Lec. 3) Pre: 201 and MTH 141 or permission of instructor. In alternate years.

549, 550 Advanced Topics in Neurobiology (3each)

Published papers in selected aspects of neurobiology will be discussed. Representative topics include role of Ca⁺⁺, c-AMP in the nervous system, gating currents learning at the cellular level, cellular rhythmicity. (Seminar) In alternate years.

551 (or NRS 551) Seminar in Marine Ecology (1)

Readings and discussion on current research involving ecological interactions of marine species. (Seminar) Pre: permission of instructor. May be repeated.

560 Seminar in Plant Ecology (2)

Recent topics and investigations pertinent to plant ecology. Library research, oral presentation of reports, and group discussions. (Seminar) Pre: 262 or equivalent or permission of instructor. May be repeated.

563 (or NRS 563) Biology and Ecology of Fishes (4)

Exploration of the functional biology and ecology of marine and freshwater fishes through lecture and discussion of primary literature. Laboratory involves specimen study, field trips, and a research project. (Lec. 3, Lab. 3) Pre: BIO 366 or equivalent, or permission of instructor.

564 Elasmobranch Biology (3)

Sharks, skates, rays, and chimeras of the world. Their structure, evolution, classification, ecology, and physiology. (Lec. 3) Pre: 366; graduate standing or permission of instructor.

568 Ornithology (2)

Biology of birds with emphasis on the role of birds in biological research. Areas covered include systematics, evolution, physiology, ecology, and behavior. Discussion of current topics in ornithology. (Lec. 2) Pre: 366 or permission of instructor.

571 Natural Selection (3)

Ideas and controversies concerning the action of natural selection. Maintenance of genetic variability, neutral mutation, levels of selection, recombination

and sexual reproduction, and rates of evolution. (Lec. 2, Lab. 3) Pre: 262 and 352 or 472 or graduate standing.

572 (or ENT 586) Medical and Veterinary Entomology (3)

Life history, classification, habits, and control of insects and other arthropods affecting human and animal health. Topics will include public health significance, vector-parasite interactions, and survey and research methodologies. (Lec. 1, Lab. 4) Pre: 385 or equivalent. In alternate years.

579 (or BCH 579) Advanced Genetics Seminar (1)

Current topics in genetics, including cytological, ecological, molecular, physiological, population, quantitative, and radiation genetics. (Seminar) Pre: 352 and permission of instructor.

580 Community Ecology (3)

Explores community ecology, with an emphasis on interspecific interactions (competition, predation, mutualism), species diversity, succession, niche theory, and island biogeography. Format includes lecture, case studies, and discussion. Pre: 262 or permission of instructor.

581, 582 Biological Sciences Colloquium (1 each)

Invited talks on selected research topics in selected areas related to biology. Required of graduate students majoring in biological sciences. (Seminar). Pre: graduate standing in the department of Biological Sciences. S/U credit.

587 Seminar in Neurobiology (1)

Current literature in the neurosciences will be surveyed. Topics include molecular and behavioral electrophysiology, ultrastructure of excitable cells, receptor and pharmacological neurobiology of invertebrates and vertebrates. (Seminar) Pre: graduate standing or one advanced neuroscience course.

591, 592 Independent Biological Research (1-6)

Individualized laboratory, field, or literature research projects. May be repeated for a total of 6 credits. Pre: graduate standing, permission of instructor. S/U credit.

593, 594 Special Topics in Biological Sciences (1-6)

Selected areas pertinent to needs of individuals or small groups. Class, seminar or tutorial. Topics may include the following: biomechanics, cell biology, ecological morphology, functional morphology, ichthyology, molecular biology, morphology and mechanics, physiology, plant cell development, and zoology. May be repeated for a total of 6 credits.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

641, 642 Seminar in Physiology (1–3 each)

Reports and discussions on topics of current research in physiology. Subject matter adapted to meet interests of students. (Seminar) Pre: permission of instructor.

654 Seminar in Ichthyology (2)

Reading, library research, reports, and class discussion on problems of current research interest in the biology of fishes. (Seminar) Pre: 563 or permission of instructor. In alternate years.

675 Advanced Ecology Seminars (2 each)

Specialized and advanced areas of ecological research and theory, including biogeography, Pleistocene ecology, population dynamics, energy flow in ecosystems, and radiation ecology. (Seminar) Pre: permission of instructor.

691 Biological Problems (1–6)

Special work to meet the needs of individual students who are prepared to undertake special problems. (Independent Study) Pre: permission of chairperson. Open only to doctoral students.

695 Graduate Seminar (1)

Students to give seminar reports on their thesis research. Topics may also include professional development subjects, such as grant writing, presentation techniques, résumé writing, etc. (Seminar) Pre: graduate standing. S/U credit. May be repeated for credit, but only 2 credits may be applied to the program of study.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

930 Workshop in Biology Topics for Teachers (0–3)

Especially designed for secondary school science teachers. Basic topics in biology from an advanced or pedagogical perspective. (Workshop) Pre: teacher certification.

Biomedical and Pharmaceutical Sciences (BPS)

Chairperson: Professor Chichester

201 How Drugs Work (3)

Drug actions, uses, and adverse effects of prescription and non-prescription medications, recreational drugs, and nutritional supplements. General audience: (Lec. 3) Open to all students except pharmacy majors. (N)

202 Maintaining Health in the Age of Chemicals (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.

301 Dosage Forms I: Regulation of Drug Products and Biopharmaceutics (2)

Introduction to the regulation of drug products. Application of kinetics to stability, dissolution, absorption, and other biopharmaceutical process. Bioavailability and generic equivalence. (Lec. 2)

303 Dosage Forms II: Solid and Solution Dosage Forms and Pharmaceutical Calculations (2)

Physicochemical properties of drug molecules and their effect on formulation, manufacturing, and administration of solid and solution products. Introduction to pharmaceutical calculations. (Lec. 2)

305 Dosage Forms III: Disperse System, Sterile and Specialty Dosage Forms (2)

Physicochemical properties of drug molecules and their effect on formulation, manufacturing, and administration of Disperse System, Sterile and Specialty Dosage Forms. (Lec. 2)

310 Foundations

See Pharmacy Practice 310

311 (or PHP 311) Foundations of Human Disease I: Immunoinflammatory Disease (2)

The pathogenesis, etiology, epidemiology, symptomatology, and diagnosis of immunoinflammatory and musculo-skeletal diseases. The pharmacology and medicinal chemistry of anti-inflammatory medications, immunosuppressives, and anti-rheumatic drugs. (Lec. 2) Pre: third-year standing or permission of instructor. Offered every fall.

312 (or PHP 312) Foundations of Human Disease II: Central Nervous System Disease (2)

The etiology, pathogenesis, epidemiology, symptomatology, and diagnosis of diseases of the central nervous system. (Lec. 2) Offered every spring.

313 Principles of Medicinal Chemistry (2)

Physico-chemical properties of drug molecules; and principles needed to understand chemical basis of pharmacology and therapeutics, pharmacophores for drugs used to treat disease, and structure-activity relationships of drug-target interactions.

318 Pharmacy Technology Laboratory (1)

Prescription processing and compounding techniques for pharmaceutical dosage forms. (Lab. 3) Pre: third-year standing or permission of instructor.

321 Principles of Pharmacology and Autonomic Pharmacology (2)

Fundamental principles of drug action with emphasis on drug/receptor interactions. Mechanisms of action and medicinal chemistry of drugs that affect the autonomic nervous system. (Lec. 2) Pre: third-year standing or permission of instructor. Offered every fall.

322 Pharmacology and Medicinal Chemistry of Drugs Acting on the Central Nervous System (2)

Neurologic agents in the brain; antidepressants, antipsychotics, sedative hypnotics, analgesics, anti-seizure medications, anti-dementia therapy, and anti-anxiety medications. (Lec. 2) Pre: third-year standing or permission of instructor. Next offered spring 2011.

325 Drug Metabolism and Bioanalysis (2)

Chemical, biochemical, genetic and clinical aspects of drug metabolism. Examples of modern bioanalysis and clinical chemistry and its importance to screening, diagnosis and evaluation of patients (Lec. 2) Pre: third-year standing or permission of instructor. Offered every spring.

326 Pharmacology and Medicinal Chemistry Laboratory I (1)

Effects of drugs on physiological functions. Identification and quantification of drugs and their actions. (Lab. 3) Pre: third-year standing or permission of instructor. Offered every spring.

333 Nursing Pharmacology (3)

Comprehensive course in nursing pharmacology that forms the basis for therapeutics. (Lec. 3) Pre: NUR 213 and 234, or RN student status or permission of instructor.

334 Pharmacology and Medicinal Chemistry of Cardiovascular and Renal Drugs (2)

Mechanism of action, adverse effects, and therapeutic applications of drugs affecting cardiovascular and renal function. (Lec. 2) Pre: doctor of pharmacy professional student in good standing; or permission of instructor.

352 Personal Cosmetics (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: third year standing.

403 Pharmacokinetics I (3)

Pharmacokinetics of drug distribution, metabolism, and elimination. Compartmental models, pharmacokinetic modeling, development of dosage regimens. (Lec. 3) Pre: fourth-year standing or permission of instructor.

405 Physical Pharmacy (3)

Provides an understanding of the basic principles behind the formulation, manufacturing, storage stability and bio-availability of drug products (Lec. 3) Pre: PHY 111, 185. Not for graduate credit.

409 (or PHP 409) Foundations of Human Disease III: Infectious and Pulmonary Processes (2)

The etiology, pathogenesis, epidemiology, symptomatology, and diagnosis of infectious and pulmonary diseases. (Lec. 2) Pre: fourth-year standing or permission of instructor. Offered every fall.

410 Foundations for Human Disease V: GI, Endocrine (2)

See Pharmacy Practice 410.

411 Biostatistics II

See Statistics 411.

416 Pharmacology and Medicinal Chemistry Laboratory II (1)

Pharmacologic principles relating to the modification of drug activity and toxicity. Clinical assays relevant to assessing drug effects. (Lab. 3) Pre: fourth-year standing or permission of instructor. Offered every fall.

420 (or PHP 420) Biotechnology Products in Pharmacy (2)

Clinical, pharmaceutical, and economic impact of biotechnology products in pharmacy, including monoclonal antibodies, interleukins, human growth factors, antigens oligonucleotides, DNase, and interferons. (Lec. 2)

421 Pharmacology and Medicinal Chemistry of Anti-infective and Respiratory Agents (2)

Chemistry, mechanism of action, sensitivity, resistance, and toxicity of anti-infections drugs, and an overview of antibacterial, antifungal, antiviral, anti-protozoal, respiratory drugs, and vaccines in current use. (Lec. 2) Pre: fourth-year standing or permission of instructor. Offered every fall.

422 Endocrine, Gastrointestinal, and Biotechnologic Drugs (2)

Mechanisms of action of drugs used to treat endocrine and gastrointestinal disorders. Biological and biotechnologic sources, isolation, design, and medicinal chemistry of biopolymer drugs. (Lec. 2) Pre: fourth-year standing or permission of instructor. Offered every spring.

425 GMPs in the Manufacture of Pharmaceutical Products (3)

Application of current Good Manufacturing Practices to the manufacture and quality control of various pharmaceutical products. (Lec. 3) Pre: fourth year standing or permission of instructor. Not for graduate credit.

436 (or PSY 436) Psychotropic Drugs and Therapy (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 101, 104B, 113, 121, PSY 381, or permission of instructor. Not for graduate credit.

442 Pharmacogenetics and Pharmacogenomics (3)

Principles of how genetic and genomic factors contribute to individual variation in drug response and how these principles can be used to produce

effective and safe drugs. (Lec. 3) Pre: BCH 311, and BPS 321.

443 Formulation and Manufacturing Laboratory (2)

Provides general principles and hands-on experience in the preformulation, formulation, manufacturing, and quality control fields that are necessary in design, formulation, compounding and manufacturing of drug dosage forms. (Lab. 4) Pre: 301 or 303 or 305.

445 Natural Products and Biotechnological Drugs (3)

Natural drug products of biological or biotechnological origin. Sources, process of isolation or production, and general fundamental properties. (Lec. 3) Pre: CHM 228; MIC 201 or equivalent.

451 Techniques in Medicinal Chemistry and Molecular Biology (4)

Provides students with an understanding of medicinal chemistry, molecular biology, and drug analysis techniques commonly used in pharmaceutical industry. The course combines laboratory exercises with easy-to-understand lectures. (Lec. 3, Lab. 4) Pre: BCH 311 and BPS 313 and 321.

497, 498 Special Problems (1–5 each)

Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Independent Study) Pre: permission of chairperson. Not for graduate credit.

503 Pharmacokinetics & Pharmacodynamics for Scientists (3)

Presents the principles of pharmacokinetics and pharmacodynamics with specific emphasis on their application in pharmaceutical science. Pre: MTH 131.

504 Pharmacokinetics II (3)

Applied pharmacokinetics, principles of clinical pharmacology, therapeutic drug monitoring, and dose individualization. (Lec. 3) Pre: 403, fifth year standing or permission of instructor. Offered every fall semester.

515 (or PHP 515) Pharmacy Practice Laboratory I (1)

Simulated practice sessions designed to develop the delivery of pharmaceutical care, including prescription processing, use of patient profiles, communication with patients and health care professionals, pharmaco-epidemiology, and physical assessment. (Lab. 3) Pre: fifth-year standing or permission of instructor.

516 (or PHP 516) Pharmacy Practice Laboratory II (1)

Simulated practice sessions designed to develop the delivery of pharmaceutical care, including prescription processing, use of patient profiles, communica-

tion with patients and health care professionals, pharmaco-epidemiology, and physical assessment. (Lab. 3) Pre: fifth-year standing or permission of instructor.

519 Self-Care II

See Pharmacy Practice 519.

520 Biomedical Sciences Journal Club (2)

Critical reviews of current research reports in the field of biomedical sciences. The students will be evaluated on the basis of their effectiveness in organization, interpretation, and oral presentation, according to criteria already established in the department. (Lec. 3) Pre: graduate standing or in good standing in the P1–P4 years of the Pharm.D. curriculum.

521 Cancer Chemotherapy and Toxicology (3)

Pharmacology and medicinal chemistry of oncology drugs. Principles of toxicology. (Lec. 3) Pre: fifth-year standing or permission of instructor. Offered every fall.

523, 524 Seminar (1 each)

Seminar presentation of scientific literature on a selected topic in the biomedical sciences or on the status of students' research work. (Seminar) Required of all graduate students in the department, with a maximum of 1 credit allowed per year. May be repeated for a maximum of 1 credit per degree. S/U only.

525 Experimental Techniques in Biomedical Sciences (4)

Provides experience with a variety of techniques used in biomedical science research, including HPLC, NMR, polarimetry, biotransformations, solid-phase synthesis, cell fractionation, and isolation and purification of proteins. (Lab. 4)

530 Drug Metabolism (3)

Mechanisms of Phase 1 (oxidation, reduction, hydrolysis) and Phase 2 (conjugations and synthesis) of drug metabolism. (Lec. 3) Pre: BCH 581 or permission of instructor. Offered every spring.

533 Medicinal Plants (3)

Problems in drug plant chemotaxonomy with field work in the drug plant gardens. Emphasis is placed on certain alkaloid, glycoside and oil-yielding plants, weedicides and insecticides as related to measures for control. (Lec. 2, Lab. 3) Pre: 446 or equivalent.

535 Pharmaceutical Biotechnology (3)

Introduction to pharmaceutical biotechnology, including drug design, DNA sequencing, cloning, recombinant proteins, monoclonal antibodies, and drug-screening techniques. (Lec. 3) Pre: BCH 581 or permission of instructor.

536 Biotechnology Product Evaluation and Development

See Medical Technology 571.

542 (or CSC 522 or MIC 522 or STA 522) Bioinformatics I

Integrates computing, statistical, and biological sciences, algorithms, and data analysis/management. Multidisciplinary student research teams. Modeling dynamic biological processes. Extra project work for 4 credits. (Lec. 3, Project 3) Pre: major in a computing, statistical, or biological science or permission of instructor.

544 Forensic Toxicology (3)

Theoretical and practical aspects of poisoning including the isolation and identification of toxic materials from pharmaceuticals, body fluids, and tissues. Isolation and identification of physiological fluids from stains, hairs, and tissue with application to forensic medicine. (Lec. 2, Lab. 3) Pre: permission of instructor.

545 Applied Toxicology (2)

A two-credit lecture course dealing with cases of common toxic syndromes caused by drug overdose or exposure to environmental agents. Antidotes/patient decontamination measures will be surveyed. Patient case studies will be discussed. (Lec. 2) Pre: 322, 455, 521 or permission of instructor.

546 Advanced Toxicology (3)

Toxic effects of selected drugs and other xenobiotics on physiological and biochemical processes. (Lec. 3) Pre: permission of instructor. Offered every third year. Next offered spring 2012.

551 Chemistry of Natural Products (3)

Introduction to chemistry of certain groups of natural products especially in relation to their chemotaxonomic position in plant classification. Topics limited to secondary metabolites; e.g., terpenoids, phenolic compounds, aromatic compounds, phytosterols, alkaloids. (Lec. 3) Pre: CHM 228 and 230. In alternate years. Next offered fall 2010.

560 Fundamentals of Cosmetic Science (3)

Study of the fundamentals of the function and behavior of skin, hair, and nails and their reactivity to cosmetic raw materials. Properties of cosmetic ingredients will also be addressed. (Lec. 3) Pre: permission of instructor.

561 Basic Research in Cosmetic Science (2)

Laboratory exercises in the form of individual projects designed to provide an understanding of the basic properties and behavior of skin, hair, and nails. Assessment of cosmetic product performance and the basic properties of cosmetic ingredients. (Lab.) Pre: permission of instructor.

562 Cosmetic Product Formulation (2)

Provides a basic understanding of cosmetic products, technology, and quality control; improves formulation skills with a particular emphasis on the application of new technological developments in cosmetic preparation. (Lab.) Pre: permission of instructor.

565 Pharmacokinetics (3)

The principles and application of clinical pharmacokinetics for advanced pharmacy students. Developing, modifying, and evaluating dosage regimens. (Lec. 3)

572 Neural Bases of Drug Action (3)

Review of neuroanatomy, neurochemistry, and neurophysiology as they relate to drug action. (Lec. 3) Pre: 446 or equivalent or permission of instructor. Offered every third year. Next offered spring 2011.

587 General Pharmacology (3)

An introduction to principles of pharmacology and major drug categories, for graduate students and advanced undergraduate students in biological sciences. (Lec. 3) Pre: permission of instructor.

597, 598 Special Problems (1–3 each)

Special graduate student project assignments in research under the supervision of faculty. (Independent Study) Pre: graduate standing. May be repeated for a maximum of 6 credits.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

621 Manufacturing Pharmacy I (2)

Theory and practice in the manufacture of pharmaceuticals and the principles of operation of the equipment used for their production. (Lec. 2) In alternate years.

622 Manufacturing Pharmacy II (3)

Theories applied to the manufacture of pharmaceuticals with an emphasis on formulation considerations and principles of operation of equipment used for their production. (Lec. 3) Pre: 621. In alternate years.

623 Manufacturing Pharmacy Laboratory (2)

Practical application of the principles of all aspects of dose-form manufacture, including an emphasis on good manufacturing practices. (Lab.) Pre: credit or concurrent enrollment in 622.

625 Advanced Physical Pharmacy (4)

Theory and application of physical chemical principles to problems in pharmaceutical research, with emphasis on methods by which properties of new medicinal agents are determined. (Lec. 4) Pre: permission of instructor.

626 Advanced Physical Pharmacy Laboratory (1)

Laboratory exercises dealing with the physical-chemical principles used in the evaluation of pharmaceutical substances. (Lab. 4) Pre: permission of instructor.

633 Biosynthesis (3)

Biogenesis of medicinally active principles of biological origin. Emphasis given to organic acids, polysaccharides, glycosides, steroids, and certain nitrogenous compounds. (Lec. 3) In alternate years. Next offered spring 2011.

635, 636 Pharmacognosy Techniques (3–4 each)

Physical and chemical factors influencing growth and development of active principles of drug plants. Certain biological analyses of results are performed. (Lec. 1, Lab. 6–9)

641 Biochemical Pharmacology (3)

Theory and application of pharmacological studies at the cellular and subcellular levels and their significance to drug action in the intact organism. (Lec. 2, Lab. 3) Pre: permission of instructor. Offered every third year. Next offered fall 2011.

642 (or BCH 642) Biochemical Toxicology (3)

Biochemical and molecular aspects of chemically induced cell injury and chemical carcinogenesis. (Lec. 3) Pre: permission of instructor. Offered every third year. Next offered fall 2009.

644 Cardiovascular Pharmacology (3)

Cellular mechanisms of drug action as a basis for understanding therapeutic effects. Emphasis on current developments in antihypertensive, antiarrhythmic, antianginal, and cardiotonic drug research. (Lec. 3) Pre: permission of instructor. Offered every third year. Next offered spring 2010.

660 Industrial Project (Pharmaceutics) (3)

A research project directed by the major professor on a topic in industrial pharmacy. A report must be submitted to the department faculty. The project will normally be conducted off campus. (Lab.) Pre: graduate standing in pharmaceutics.

670 Advanced Pharmacokinetics (3)

Application of classical compartmental and noncompartmental analyses to pharmacokinetics and pharmacodynamics emphasizing the use of PKPD analysis employed in the pharmaceutical industry. Pre: 403 or permission of instructor. Graduate standing or in good standing in the P2-P4 years of the Pharm. D. curriculum.

691 Selected Topics in Medicinal Science (3)

Covers the following special research topics of interest: (a) heterocyclic chemistry, (b) nucleoside antibiotics, (c) prodrugs and isosteres, (d) nucleosides and nucleotides—synthesis and biological function, and (e) nucleic acid targeted drug design. (Lec. 3) Pre: permission of instructor. May be repeated for a maximum of 9 credits.

693, 694 Seminar (1 each)

Seminar discussions including presentation of papers on selected topics in pharmacy. (Seminar) Required of all graduate students, with a maximum of 1 credit allowed per year. May be repeated for a maximum of 2 credits for M.S. candidates. May be repeated for a maximum of 5 credits for Ph.D. candidates.

697, 698 Research in Biomedical and Pharmaceutical Sciences (1–3 each)

Literature survey, laboratory work, and a detailed research report on one or more assigned topics. (Independent Study)

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Biomedical Engineering (BME)

Chairperson: Professor Boudreaux-Bartels (Electrical, Computer, and Biomedical Engineering)

181 (281) Biomedical Engineering Seminar I (1)

Seminar series given by instructor, invited experts, and students with focus on biomedical electronics, medical devices, rehabilitation engineering, medical instrumentation, and biomedical ethics. Pre: (credit or concurrent enrollment in MTH 141) or permission of instructor.

207 Introduction to Biomedical Engineering (3)

Introduction to topics in biomedical engineering. Overview of human physiology, biomechanics, bioinstrumentation, rehabilitation engineering, assistive technologies, medical imaging, and bioelectricity. Ethical issues related to the impact of bioengineering on society. (Lec. 3) Pre: PHY 204 and MTH 142 and (credit or concurrent enrollment in BIO 121).

281 (382) Biomedical Engineering Seminar II (1)

Seminar series given by instructor, invited experts, and students with focus on physiological system modeling, biomechanics, biomaterials, tissue engineering, artificial organs, biosensors, and technologies for health care. Pre: 181 or permission of instructor

307 Bioelectricity (3)

Quantitative analysis of electrical phenomena in biological cells, tissues, and organs. Action potentials and propagation in neurons, cardiac and skeletal muscle. (Lec. 3) Pre: (ELE 212 or 220) and (MTH 243 or 362).

360 Biomeasurement (3)

Principles of biomeasurement, patient safety, embedded system design with microcontrollers, programming with assembly and C++ languages, interrupts, timer, real-time digital filters, electrocardiogram (ECG) instrumentation, QRS detection, heart rate meter. (Lec. 3) Pre: ELE 212. Concurrent enrollment in 361 required.

361 Biomeasurement Laboratory (1)

Constructing and experimenting with embedded systems using microcontrollers, implementing real-time digital filters with assembly and C++ languages, constructing an electrocardiogram (ECG) amplifier, implementing QRS detection and heart rate meter. Concurrent enrollment in 360 required.

461 (or ELE 461) Physiological Modeling and Control (3)

Principles of physiological modeling and control of linear and nonlinear systems, stability analysis, root locus, Bode plots, linearization. (Lec. 3) Pre: ELE 314. Not for graduate credit.

462 Biomedical Instrumentation Design (3)

Fundamentals of biomedical instrumentation, bio-compatibility, medical device materials; safety, noise rejection, biomedical signal processing; measuring, recording, monitoring, and therapeutic devices. Pre: (207 and 360) or permission of instructor. Not for graduate credit. Not open to students who have credit in ELE 562.

463 Biomedical Instrumentation Laboratory (1)

Development of a portable heart function monitor that measures the electrocardiogram and photoplethysmogram; embedded system design using instrumentation amplifier, op-amp, graphic LCD module, and PIC microprocessor with C programming. Pre: (ELE 205 or 208) and 313 and 341) or permission of instructor. Not for graduate credit. Not open to students who have credit in ELE 562.

464 Medical Imaging (3)

Engineering and clinical applications of medical imaging systems including X-ray, computed tomography, radioisotope imaging, ultrasound, magnetic resonance imaging; picture archiving and communication system and medical image processing. (Lec. 3) Pre: senior standing in biomedical engineering or permission of instructor. Not for graduate credit. Not open to students who have credit in ELE 564.

465 Medical Image Processing Laboratory (1)

Development of medical imaging processing algorithms with graphical user interface in C++ under the Windows operating system; smoothing and sharpening filters, morphological filters, area measurement and edge tracer. (Lab. 1) Pre: senior standing in biomedical engineering or permission of instructor. Not for graduate credit. Not open to students who have credit in ELE 564.

468 Neural Engineering (3)

Principles and technologies of neuroengineering and clinical applications; brain stimulator, spinal cord stimulation, functional electrical stimulation (FES), neural-machine interface for motor prosthesis control, artificial visual/auditory devices for augmented sensory perception. (Lec. 3) Pre: 360. Not for graduate credit.

482 Biomedical Engineering Seminar III (1)

Seminar series given by instructor, invited experts, and students with focus on biomedical signals and systems, computers in medicine, technologies for health care, and biomedical ethics. (Seminar) Pre: (ELE 205 or 208) and 313 and ELE 342) or permission of instructor.

484 Biomedical Engineering Capstone Design I (2)

Applications of engineering skills; team projects in biomedical areas such as neuroengineering, assistive technology, cardiopulmonary measurements, medical imaging, and modeling of physiological systems. First of a two-course sequence. (Lec. 1, Lab. 3) Pre: (207 and 360) or permission of instructor. Not for graduate credit.

485 Biomedical Engineering Capstone Design II (2)

Applications of engineering skills; team projects in biomedical areas such as neuroengineering, assistive technology, cardiopulmonary measurements, medical imaging, and modeling of physiological systems. (Lec. 1, Lab. 3) Second of a two-course sequence. Pre: 484 or permission of instructor. Not for graduate credit.

Business (BUS)

Dean: Professor Higgins

110 Business Computing Applications (3)

Applications, concepts, and skills relevant to information technology in the context of the modern business environment. Topics include word processing, spreadsheet, presentation, and internet software. Pre: open to students with a BU code or permission of the CBA dean's office.

111 Introduction to Business Analysis and Applications (3)

Selected mathematical tools and techniques for analysis of business and economic problems and as aids in decision-making. Topics from finite and modern mathematics and applied calculus. (Lec. 3) Pre: open to students with BU code or permission of instructor. Algebra proficiency test required. (MQ)

140 Introduction to Business (3)

Nature, philosophy, objectives, and scope of the 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.

201 Financial Accounting (3)

Basic concepts and systems used in financial accounting for business organizations. (Lec. 3) Open to students with more than 24 credits or permission of dean's office.

202 Managerial Accounting (3)

Basic techniques and systems used by management accountants in budgeting, cost accounting, cost analysis, and control. (Lec. 3) Pre: 201 or 201H or permission of instructor.

210 Managerial Statistics I (3)

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: 111 or MTH 131 OR MTH 141.

211 Managerial Decision Support Systems (3)
Methodologies and information technologies that support decision-making. Emphasis on the use of PC-based analytical software for solving managerial problems; case studies and group problem solving. (Lec. 3) Pre: 110 and 210.

212 Managerial Statistics II (3)
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: 210 or STA 308.

301 Intermediate Accounting I (3)
Theoretical aspects of accounting principles and their application to preparation and analysis of corporate financial statements. Valuation, recognition and disclosure relative to current and long-term assets and liabilities (Lec. 3) Pre: 201 or 201H or permission of instructor.

302 Intermediate Accounting II (3)
Continuation of corporate financial reporting. Topics include stockholders' equity, earnings per share, revenue recognition, income taxes, pensions, leases, accounting changes, and statement of cash flows. (Lec. 3) Pre: 301 and junior standing in a degree-granting college or permission of instructor.

303 Cost Accounting (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) Pre: 202 and junior standing in a degree-granting college or permission of instructor.

310 Applications of Microcomputer Software in Business (3)
In-depth study of microcomputer software used in business applications. Emphasis on spreadsheets, data management, presentation graphics, and communication software. Student projects and microcomputer lab assignments required. (Lec. 3) Pre: 110.

315 Legal and Ethical Environment of Business I (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 in a degree-granting college.

316 Legal and Ethical Environment of Business 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: 315 and junior standing in a degree-granting college.

317 (or COM 354) International Business Communications Exchange (3)
Examination of effective international business communication. Use of worldwide email network to exchange views on business topics with counterparts abroad. (Lec. 3/Online) Pre: junior or senior standing or permission of instructor.

318 Business Law (3)
An Introduction to the origins, framework, and concepts of the legal environment of business. A. Emphasis on accounting topics; B. Finance and international business issues. (Lec. 3) Pre: junior standing in a degree-granting college.

320 Financial Management (3)
Study of the basic principles of finance and the applications of these principles. Topics include time value of money, risk and return, valuation, capital budgeting and other corporate financial decisions. (Lec. 3) Pre: ECN 201, BUS 202 and 211 and junior standing in a degree-granting college.

321 Security Analysis (3)
Exploration of investments in equity securities. Emphasis on the structure and functioning of securities markets, current investment theories, fundamental analysis, portfolio risk/return, and performance measurement. (Lec. 3) Pre: 320 or 320H.

322 Financial Institutions and Markets (3)
Comprehensive analysis of financial products and financial institutions as well as the markets in which they operate. Emphasis on the operational details of the institutions. (Lec 3) Pre: ECN 201, BUS 202 and 211 or 212, or permission of instructor.

323 Fundamentals of Real Estate (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 201 and junior standing in a degree-granting college.

335 Fundamentals of Risk Management and Insurance (3)
Basic course on risk management for corporations and individuals. Emphasis on risk identification, measurement, and management; homeowner insurance, basic life policies, commercial insurance and employee benefits. (Lec. 3) Pre: 202.

336 Commercial Property and Liability Insurance (3)
Analysis of commercial property and liability risk exposures and their related coverages. Coverage includes general property and liability insurance and specialized topics for marine, fidelity, surety, and professional liability exposure. (Lec. 3) Pre: 320 and junior standing in a degree-granting college.

337 Life Insurance (3)
Analysis of the many types of life insurance and health insurance contracts, computation of pre-

miums 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. Pre: 320 and junior standing in a degree-granting college.

338 Social Insurance (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 201, 202, 320, and junior standing in a degree-granting college, or permission of instructor.

340 Organization and Management Theory I (3)
Management processes, organizational theory and behavior, organizational structure, international business, ethics, and environmental analysis. Emphasis on developing conceptual and analytical skills. (Lec. 3) Pre: junior standing in a degree-granting college.

341 Organizational Behavior (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: junior standing in a degree-granting college.

342 Human Resources Management (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 sectors. Cases and lectures. (Lec. 3) Pre: junior standing in a degree-granting college.

343 Skills Development in Organizational Behavior (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: junior standing in a degree-granting college.

344 Labor Problems (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 201 or permission of instructor.

345 Business in Society (3)

Examination of the contemporary social, political, cultural, legal and ethical forces that shape the business environment. Consideration of stakeholder relations and corporate social responsibility. Pre: ECN 201 and 202 and junior standing in a degree-granting college.

346 Women in Business and Management (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: 340 recommended. Not for graduate credit.

355 Operations and Supply Chain Management (3)

Operations management problems in global and domestic environments. Operations strategy, service, and manufacturing; forecasting; inventory management; production and material requirements planning; scheduling; just-in-time; and quality management. (Lec. 3) Pre: 110 or CSC 101, BUS 210 or STA 308, BUS 211 or 212 and junior standing in a degree-granting college or permission of instructor.

356 Business Applications Programming (3)

Techniques for the development of business software applications using appropriate hardware platforms and software environments. Emphasis on creation and manipulation of data structures used in business systems. (Lec. 3) Pre: 110; junior standing in a degree-granting college.

357 Information Technology in Business Organizations (3)

An overview of existing and developing information technologies used in business organizations. Topics include computer hardware and software, business information systems, operating systems, data communications, and local- and wide-area networks. (Lec. 3) Pre: junior standing in a degree-granting college.

358 Business Data Communications and Networking (3)

Introduction to data communications and computer networks within the context of modern business organizations. Emphasis on current technologies and their impact on management information systems. (Lec. 3) Pre: junior standing in a degree-granting college.

359 Management Systems Analysis (3)

Analysis, concepts, methods, and techniques used in the evaluation of business processes leading to the design strategies for developing management information systems. (Lec. 3) Pre: junior standing in a degree-granting college.

360 Introduction to Logistics (3)

Provides the background to understanding the strategic possibilities and goals of logistics. Specifically addressing the design, operation, and control of lo-

gistics systems for firms. (Lec. 3) Pre: junior standing in a degree-granting college.

361 International Transportation (3)

Background for understanding all critical issues in domestic and international transportation. Addresses regulations, key financial indicators, modes, carrier selection, transportation system management and design. (Lec. 3) Pre: junior standing in a degree-granting college and BUS 355.

362 Principles of Transportation (3)

Principles of transportation covering the role of transportation systems; modal components; managerial and economic aspects of the various modes, and analytical techniques to manage the transportation value chain. (Lec. 3) Pre: 355.

365 Marketing Principles (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) Pre: junior standing in a degree-granting college. Proficiency test available if course was taken at a non-AACSB program prior to transfer to the University.

366 Consumer Behavior (3)

A review of the consumer decision-making process and factors that influence consumers, including ethical issues. Implications for cross-cultural marketing are examined. (Lec. 3) Pre: 365 or concurrent enrollment.

367 Marketing Research (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: 210 or STA 308 and BUS 365 and 366 (or concurrent enrollment).

401 Accounting Computer Systems (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: 301 or concurrent enrollment in 301 and junior standing in a degree-granting college or permission of instructor.

402 Advanced Accounting (3)

Accounting principles and policies for governmental and nonprofit organizations, multinational and multidivisional organizations, partnerships, and other complex organizational structures. (Lec. 3) Pre: 302 or permission of instructor.

403 Federal Tax Accounting (3)

Federal laws, regulations, and other authorities affecting taxation of individuals. (Lec. 3) Pre: 202 and junior standing in a degree-granting college or permission of instructor.

404 Auditing (3)

Auditing standards, procedures, programs, working papers, and internal control. (Lec. 3) Pre: 302 or concurrent enrollment in 302 and senior standing in a degree-granting college, or permission of instructor.

420 Advanced Financial Management (3)

Intensive research on selected current topics relating to the financial management of the firm. Extensive use of the case method. (Lec. 3) Pre: 320 or permission of instructor. Not for M.B.A. credit.

421 Derivative Securities and Risk Management (3)

Advanced treatment of options, futures and other derivatives securities. Includes theoretical and normative valuation methods with applications to investment portfolios and corporate risk management. (Lec. 3) Pre: 320 or 320H or permission of instructor.

422, 423 Student Investment Fund I and II (3 each)

Students analyze industries and companies and manage stocks owned by the Alumni Association. (Seminar) Night class held in Trading Room. Enrollment is by competitive application. 423 is a continuation of 422 and may not be taken for credit in Finance. Pre: 321. Not for graduate credit.

424 Fixed Income Security Analysis (3)

Pricing and institutional arrangements of fixed income securities such as corporate bonds, mortgage loans, and mortgage-backed securities; portfolio management of fixed income securities. (Lec. 3) Pre: 320 or 320H, 321 and 322. Not for graduate credit.

425 Mutual Funds Management (3)

Overview of mutual funds business. Portfolio management, risk management techniques, shareholder servicing, federal and state regulatory oversight, marketing and distribution, custody, technology, and societal issues. (Lec. 3) Pre: 320 or 320H, 321 or permission of instructor.

426 Bank Financial Management (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: 320 or 320H, 322 or permission of instructor. Not for graduate credit for students in the College of Business Administration.

427 Financial Theory and Policy Implications (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: 320 or 320H. Not for M.B.A. credit.

428 Multinational Finance (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: 320 or 320H or permission of instructor. Not for M.B.A. credit.

429 Global Investment Management (3)

Detailed analysis of the problems encountered in the process of investing funds in international capital markets. Particular attention is devoted to multi-currency dimensions, foreign information sources, and foreign regulations. (Lec. 3) Pre: 320, or 320H, 321.

430 Basic Managerial Economics (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: 320 or 320H. Not for graduate credit.

435 Topics in Insurance (3)

Analysis of selected topics and current issues in the insurance marketplace. Topics will vary from semester to semester. (Seminar) Pre: 320 or 320H, 335, and 337, or permission of instructor.

441 Leadership Skills Development (3)

Application of organizational behavior concepts to develop leadership competencies and effective employee management programs. Pre: 341 or 341H or permission of instructor.

442 Organization and Management Theory II (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: 340 or permission of instructor.

443 Organizational Design and Change (3)

Behavioral science applications to planning systematic organizational design, change and development using theory, concepts, technique, and cases for change agents and managers of change. Pre: 341 or 341H, or permission of instructor.

444 Labor Relations (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/Online) Pre: 342. Not for graduate credit.

445 Strategic Management (3)

Case studies, simulation or company analysis used to study strategic theory and practice and problems of functional integration in domestic and global firms. (Lec. 3) Pre: 202 and 320 or 320H and 341 or 341H and 355 and 365 or 365H and credit for or concurrent enrollment in 315, and senior standing in the College of Business Administration or permission of instructor. Not for graduate credit.

446 Advanced Management Seminar (3)

Integrated approach to problems in major areas of business management with emphasis on administrative and executive viewpoint. (Seminar) Pre: 340.

447 Compensation Administration (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: 341 or 341H or permission of instructor. Not for graduate credit.

448 International Dimensions of Business (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 dean. Not for M.B.A. credit.

449 Entrepreneurship (3)

Procedures for starting one's own business including business plans, financial data analysis, legal issues, and assessing feasibility of business ideas. Also addresses evaluating career interests and skills in entrepreneurship. Pre: 201 or 201H or permission of instructor; not open to students with credit in EEC 325.

450 Small Business Management (3)

Investigation and evaluation of the small business enterprise. Current literature studied and projects completed to enable students to understand and appreciate the operations of small businesses. (Lec. 3) Pre: senior standing in the College of Business Administration or permission of instructor.

455 Business Applications Programming II (3)

Intermediate concepts for developing software solutions to business applications using appropriate hardware platforms and software environments. (Lec. 3) Pre: junior standing in a degree-granting college. Not for graduate credit.

456 Management of Databases (3)

Concepts and methods in management of data: creation, design, and implementation; data models; integrity; and security. Use of database management systems software. (Lec. 3) Pre: junior standing in a degree-granting college.

457 Design for Management Information Systems (3)

Concepts, methods, and techniques used in the design of management information systems. Field work required. (Lec. 3) Pre: 359, 456. Not for graduate credit.

458 Seminar in Management Information Systems (3)

Preparation and presentation of papers on selected topics. (Seminar) Pre: junior standing in a degree-granting college. Not for M.B.A. credit.

459 Management of Quality Control and Improvement (3)

Principles of quality management including control charts, process management, and other techniques, with emphasis on the effect of these principles on decision making in various organizations. (Lec. 3) Pre: 110 and 211 or 212 or permission of instructor. Not for graduate credit.

460 Global Supply Chain Management (3)

Examines factors that impact on the design and management of global supply chains. Through simulations and cases explores impact of supply chain activities on a firm's strategies. (Lec. 3) Pre: 355 or permission of instructor. Not for graduate credit.

461 Forecasting (3)

Forecasting for advanced students in all areas of business administration. Introduction to time series analysis including decomposition of the multiplicative model, exponential smoothing, and ARIMA processes. A variety of software systems are employed, with special emphasis on microcomputer systems. (Lec. 3) Pre: 110 and 211 or 212 or permission of instructor. Not for graduate credit.

462 Supply Chain Network Modeling and Optimization (3)

Factors and practices necessary for modeling/designing existing networks, and developing optimal networks using contemporary technologies. Modeling and optimization of global sourcing and distribution networks. (Lec. 3) Pre: 335 or 460 or permission of instructor.

463 Advanced Concepts in Supply Chain Management (3)

Advanced concepts in supply chain management and operations management such as demand management; multi-location inventories, capacity planning and control; theory of constraints. (Lec. 3) Pre: 355 or permission of instructor.

464 Supplier Relationship Management (3)

Comprehensive examination of the management practices a firm deploys to develop effective relationships with suppliers of goods and services. (Lec. 3) Pre: 355, 460 or permission of instructor.

465 Marketing Communications (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: 365 or 365H or permission of instructor. Not for M.B.A. graduate credit.

466 Product Innovation and Strategy (3)

Development and management of new and existing products and services from a decision-making perspective. Emphasis on value creation through the development of innovative products and services. (Lec. 3) Pre: 365 or 365H. Not for M.B.A. graduate credit.

467 Customer Relationship Management (3)

Planning, organization, and control relationship activities, including sales techniques and strategies, development and management of sales organizations and distribution channels, and emerging technologies. (Lec. 3) Pre: 365 or 365H. Not for M.B.A. graduate credit.

468 Global Marketing (3)

Focus on understanding how cultural, political, economic, legal, and other macro factors affect market strategies. Application of these factors in dealing with planning and organizing for global marketing operations. (Lec. 3) Pre: 365 or 365H or equivalent. Not for M.B.A. graduate credit.

469 Special Topics in Marketing (3)

Selected topics of current interest in marketing. (Lec. 3) Pre: 365 or 365H. Not for M.B.A. graduate credit.

470 Strategic Marketing Management (3)

Summary course focusing on the variety decisions involved in marketing including developing and managing branded goods and services. (Seminar) Pre: 365, 366, 367, and either 465 or 466 or 467 or 468 or 469. Not for graduate credit.

491, 492 Directed Study (1–3 each)

Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Must be student in College of Business Administration with more than 75 credits and permission of instructor. Not for graduate credit.

493 Internship in Business Administration (3 or 6)

Approved, supervised work experience with participation in management and problem solving related to the student's major field. College of Business internships for 3 credits require approximately 120 hours of field experience and 20 hours of class work. Internships for 6 credits require approximately double this amount of work. May be offered online. Pre: junior standing with 75 credits, admission into internship program, and permission of instructor. Not for graduate credit. S/U only.

601 Practicum in Business Teaching (1)

Course involves training and experience in teaching undergraduate business courses under the supervision of a full-time faculty member. Participation in the instructional development program is an essential component of the class. (Practicum) Pre: enrollment in Ph.D. program in business administration and permission of Ph.D. program director. S/U only. May be repeated.

602 Doctoral Colloquium in Business Research (1)

Course involves presenting the results of at least one piece of original research to faculty and other Ph.D. candidates. When not presenting, students are expected to play an active role in critiquing the

presented research. (Lec. 1) Pre: permission of Ph.D. program director. S/U credit only. May be repeated.

603 Special Problems in Business Research (1–6)

Advanced research and writing of theoretical and empirical papers in business administration in the student's area of specialization under the supervision of a faculty advisor. All doctoral students in Phase II of the doctoral program in business administration who have completed their course work must register for this course. Pre: permission of Ph.D. Program Director. S/U only. May be repeated.

604 Doctoral Research Seminar (3)

Provides a rigorous analysis of current research questions and research techniques used to address those questions in the finance discipline. Recent developments and current issues addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

605 Organizational Behavior (3)

Incorporates the insights gleaned from the disciplines of psychology, sociology, anthropology, and the social sciences of politics, economics, and history in the study of the behavior of organizations and of their principal actors. (Lec. 3) Pre: MBA 502 or permission of instructor.

606 Advanced Organizational Theory and Behavior (3)

Previous knowledge of classical and traditional management thought used to provide concepts, analytical approaches, and skills for understanding how behavioral sciences influence complex organizational systems. (Lec. 3) Pre: 605.

608 Doctoral Research Seminar (3)

Provides a rigorous analysis of current research questions and the research techniques used to address those questions pertinent to Management Information Systems. Recent developments and current issues are addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

609 Doctoral Research Seminar (3)

Provides a rigorous analysis of current research questions and the research techniques used to address those questions in the management science discipline. Recent developments and current issues addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

610 Seminar in Marketing (3)

Preparation and presentation of papers on selected topics in marketing. (Seminar) Pre: MBA 505 or permission of instructor. May be repeated.

611 Doctoral Research Seminar (3)

Provides a rigorous analysis of current research questions and research techniques used to address those questions in the marketing discipline. Recent devel-

opments and current issues addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

612 Knowledge Systems in Managerial Disciplines (3)

Examination of knowledge production and dissemination systems in management disciplines. Discussion of various paradigms and philosophy of science perspectives. Metascientific and research program issues are examined. (Seminar) Pre: Ph.D. candidate.

691, 692 Directed Study in Business (3)

Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: enrollment in Phase III of the Ph.D. program in business administration. S/U credit. May be repeated.

Chemical Engineering (CHE)

Chairperson: Professor Bose

212 Chemical Process Calculations (3)

Orientation to chemical and biological engineering, material and energy balance computations on chemical processes, use of gas laws, vapor pressure, humidity, solubility, and crystallization. (Lec. 3) Pre: CHM 112 or 192.

272 Introduction to Chemical Engineering Calculations (3)

Introduction to the use of computers and numerical methods, including numerical solution of differential equations as applied to chemical and biological engineering. (Lec. 3) Pre: 212 and credit or concurrent enrollment in MTH 243.

313 Chemical Engineering Thermodynamics I (3)

Applications of the first, second, and third laws of thermodynamics involving thermophysics, thermochemistry, energy balances, combustion, power cycles, refrigeration, and properties of pure fluids. (Lec. 2, Lab. 3) Pre: 212 or CHM 431 and MTH 243 or concurrent enrollment in MTH 243.

314 Chemical Engineering Thermodynamics II (3)

Continuation of 313 with applications to thermodynamics of mixtures, phase and chemical equilibria. (Lec. 2, Lab. 3) Pre: 313.

322 Chemical Engineering Microlaboratory (2)

Use of microprocessors, A/D and D/A converters, sensors, and control hardware to analyze and control laboratory-scale processes. (Lab. 6) Pre: credit or concurrent enrollment in 348.

328 Industrial Plants (1)

Field trips to nearby plants demonstrating various phases of chemical engineering. Written reports are required. (Lab. 3) Pre: 348.

332 Physical Metallurgy (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.

333 Engineering Materials (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.

345, 346 Chemical Engineering Laboratory (2 each)

Quantitative studies illustrating chemical engineering principles. Emphasis on report writing and the interpretation of experimental data. (Lab. 6) Pre: 348.

347 Transfer Operations 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: MTH 243 or permission of instructor.

348 Transfer Operations II (3)

Heat and mass transfer: conduction, convection, radiation, diffusion, transport analogies and equipment design. Biological applications and some separations are covered. (Lec. 2, Lab. 3) Pre: 347 or permission of instructor.

349 Transfer Operations III (2)

Theory, design and application of separation processes with a focus on stage operations; distillation, extraction, and adsorption. Integrated processes and new technologies will be examined. (Lec. 2) Pre: 348 or permission of instructor.

351, 352 Plant Design and Economics I and II (3 each)

Elements of plant and process design integrating the principles learned in previous courses. Emphasis is on optimum economic design and the writing of reports. (Lec. 1, Lab. 6) Pre: (for 351) 314 and 348 or permission of instructor. Pre: (for 352) 349 and 351 and credit for or concurrent enrollment in 464 or permission of instructor.

392 Honors Work (1–3)

Independent study under close faculty supervision. Discussion of advanced topics in chemical engineer-

ing in preparation for graduate work. (Independent Study) Pre: junior standing and permission of chairperson.

403, 404 Introduction to Design of Ocean Engineering Processes I, II (3 each)

Theory and basic principles directly applicable to ocean-related processes. Desalinization, mining, combating oil spills, seawater as a coolant, seawater as a waste dilutant, food processing, sulfur and petroleum production, recovery minerals. (Lec. 2, Lab. 4) Pre: permission of instructor.

425 Process Dynamics and Control (3)

Principles involved in automatic control of processing plants. Modeling and responses of dynamic systems, feedback control. (Lec. 3) Pre: MTH 243, CHE 464, and credit or concurrent enrollment in 347 or MCE 354 or permission of instructor. Not for graduate credit.

438 Failure Analysis and Prevention (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.

447 Food Engineering (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 124, PHY 112, MTH 132 or 142, and permission of instructor. Not for major credit in chemical engineering.

464 Industrial Reaction Kinetics (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 or permission of instructor. Not for graduate credit.

471 Nuclear Reactor Engineering

See Mechanical Engineering 471.

491, 492 Special Problems (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits of which a total of 6 credits can be applied to professional electives. Not for graduate credit in chemical engineering.

501, 502 Graduate Seminar (1 each)

Seminars presented by speakers from academia and industry. (Seminar) Required of all graduate students, with a maximum of 1 credit per year allowed. May be repeated for a maximum of 2 credits. S/U credit.

503 Dynamics of Chemical Engineering Applications (3)

Emphasizes analytical and/or numerical techniques commonly used in analysis arising from classical chemical engineering applications; necessary for understanding more complex problems.

513 Advanced Chemical Engineering Thermodynamics I (3)

Applications of the first, second, and third laws of thermodynamics and their relation to chemical engineering processes. Emphasis on properties of fluids, chemical and physical equilibria, phase stability, and polymers. (Lec. 3) Pre: 313, 314 or equivalent, graduate standing, or permission of instructor. In alternate years.

529 Polymer Experimental Methods (3)

Theory and practice of experimental methods used to characterize and process polymer systems. Characterizations include chemical, thermal, and mechanical analysis. Lectures discuss methods beyond those applied in lab. (Lec. 2, Lab. 2) Pre: permission of instructor.

530 Polymer Chemistry (3)

Molecular weight distribution, polymer synthesis, chain conformation, solution properties and phase behavior, and characterization techniques. (Lec. 3) Pre: CHM 228 and CHE 332 or permission of instructor. In alternate years.

531 Polymer Engineering (3)

Glass and crystalline transitions, viscoelasticity, time-temperature superposition, polymer processing, and mechanical properties of plastics, fibers, and elastomers. (Lec. 3) Pre: 348 or MCE 448 or permission of instructor. In alternate years.

532 Ceramic Engineering (3)

Properties of ceramic materials as related to starting materials and forming, densification, and finishing processes. Emphasis on resulting phases and microstructure. Application of physical and chemical principles to tailor properties to engineering needs. (Lec. 3) Pre: 437 or equivalent. In alternate years.

534 (or OCE 534) Corrosion and Corrosion Control (3)

Chemical nature of metals, electrochemical nature of corrosion. Types of corrosion, influence of environment, methods of corrosion control. Behavior of engineering materials in corrosion with emphasis on industrial and ocean environments. (Lec. 3) Pre: permission of instructor.

537 (or OCE 537) Advanced Materials Engineering (3)

Engineering properties, molecular design, and applications of materials. Synthesis, fabrication, and processing of materials. Effects of environment on materials, materials products, devices, and systems. (Lec. 3) Pre: 437 and PHY 341.

539 Electron and Light Microscopy of Solids (3)

Theory and physical principles governing the design and use of light and electron optical systems in identification, analysis, and structural characterization of metals, ceramics, polymers, glasses, and composites. Emphasis on polarized light and scanning electron microscopy. (Lec. 3)

541 Transport Phenomena I (3)

Analysis of transport processes including momentum, heat and mass transfer. Development of mathematical models and their solutions. (Lec. 3) Pre: 347, 348 or equivalent, graduate standing, or permission of instructor. In alternate years.

542 Advances in Interfacial Phenomena (3)

Topics will include capillarity, surface tension; surface thermodynamics, electrical aspects of surface chemistry; contact angles and wettability; emulsions and foams; adsorption from solutions; hydrodynamic stability of interfaces. (Lec. 3) Pre: CHM 431, 432 or equivalent, or permission of instructor. In alternate years.

548 Separations for Biotechnology (3)

A study of methods of concentration used in biotechnology and pharmaceutical industries for production and isolation of products. (Lec. 3) Pre: 348 or 447. In alternate years.

550 Bionanotechnology (3)

Principles and applications of bionanotechnology. Intermolecular forces, self-assembly, biomolecular structure, biological processes, molecular manufacturing, and surface functionalization for designing biodevices and nanomaterials. Overview of current and emerging technologies, safety and ethics. (Lec. 3) Pre: graduate standing or permission of instructor.

560 Chemical and Physical Processes of Integrated Circuit Fabrication (3)

Chemical and physical processes used in the fabrication of integrated circuits and devices. Emphasis on crystal growth, oxidation, CVD, plasma processes, photochemical processes, solid-state diffusion, lithography, and their relation to device performance. (Lec. 3) Pre: CHM 431, CHE 349, or equivalent. In alternate years.

564 Reaction Engineering (3)

Homogeneous and heterogeneous reactions in reactor models. Kinetics of multiple reactions industrial reactor analysis. Mechanistic models of catalytic reactors. Mathematical methods for calculation of reactor performance. (Lec. 3) Pre: CHE graduate standing or permission of instructor.

574 Biotechnological Engineering I (3)

Introduction to biotechnology. Includes properties of biological materials, dynamics, control, and opera-

tion of biological systems and processing of biological materials. (Lec. 3) Pre: permission of instructor. In alternate years.

576 Process Engineering for Pollution Prevention (3)

Management of processes and development of techniques for waste minimization in the chemical process, machine tool coating, plating, plastics, and other industries. (Lec./Workshop) Pre: permission of instructor.

578 Seminar in Sensors and Surface Technology (1)

Students, faculty, and invited outside speakers present and discuss selected topics related to research interests of the Sensors and Surface Technology Partnership. (Seminar) Pre: permission of instructor. May be repeated. S/U only.

591, 592 Special Problems (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

599 Master's Thesis Research (1–9)

Number of credits is determined each semester in consultation with the major professor. (Independent Study) S/U credit.

614 Advanced Chemical Engineering Thermodynamics II (3)

Advanced topics in phase stability, phase and chemical equilibrium, and statistical thermodynamics. (Lec. 3) Pre: 513. In alternate years.

641 Transport Phenomena II (3)

Steady, unsteady, and multidimensional heat transfer. Mass transport at low and high fluxes; approximate methods for heat and mass transfer problems. (Lec. 3) Pre: 541 or permission of instructor. In alternate years.

643 Fluid Dynamics (3)

Advanced problem course dealing with isothermal and non-isothermal flow of compressible and incompressible fluids. (Lec. 3) In alternate years.

691, 692 Special Problems (1–6 each)

Advanced work under the supervision of a member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Chemistry (CHM)

Chairperson: Professor Euler

100 Chemistry of Our Environment (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) (N)

101 General Chemistry Lecture I (3)

Fundamental chemical concepts and principles. Topics include states of matter, stoichiometry, reactivity, atomic structure, thermochemistry, bonding, molecular structure, and solutions. Not open to students with credit in 103 or 191. (N)

102 Laboratory for Chemistry 101 (1)

Experimental applications of chemical concepts and reactivity emphasizing safety and technique. Experiments follow the content of 101. Pre: credit or concurrent registration in 101.

103 Introductory Chemistry Lecture (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. (N)

105 Laboratory for Chemistry 103 (1)

Fits course content of 103. (Lab. 3) Pre: credit or concurrent enrollment in 103.

112 General Chemistry Lecture II (3)

Chemical kinetics, equilibrium, elementary thermodynamics, and electrochemistry integrated with descriptive chemistry and practical applications. Pre: 101. (N)

114 Laboratory for Chemistry 112 (1)

Experiments follow the content of 112. Pre: 102, credit or concurrent enrollment in 112.

124 Introduction to Organic Chemistry (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 or 103. Not open to chemistry or chemical engineering majors.

126 Laboratory for Chemistry 124 (1)

Introduction to chemistry procedures, with emphasis on properties of substances of physiological significance. (Lab. 3) Pre: 102 or 105, credit or concurrent enrollment in 124. Not open to chemistry or chemical engineering majors.

191 General Chemistry (5)

Atomic theory and structure, stoichiometry, chemical reactions, thermochemistry, bonding, and states of matter. Laboratory experiments illustrate basic procedures, concepts, and principles. (Lec. 4, Lab. 3) Pre: chemistry major. Not open to students with credit in 101.

192 General Chemistry (5)

Continuation of 191. Principles of kinetics, equilibrium, and thermodynamic integrated with descriptive chemistry and qualitative analysis. Laboratory experiments parallel lecture topics. (Lec. 4, Lab. 3) Pre: 101, 102, or 191, chemistry major. Not open to students with credit in 112.

212 Quantitative Analysis (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, 114 or 192.

226 Organic Chemistry Laboratory (2)

Common techniques and typical preparative methods in both aliphatic and aromatic series. (Lab. 6) Pre: 114, credit or concurrent enrollment in 228. Not open to students with credit in 229 or 230.

227 Organic Chemistry Lecture I (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 or 192.

228 Organic Chemistry Lecture II (3)

Continuation of 227 with emphasis on the aromatic series. (Lec. 3) Pre: 227.

229 Organic Chemistry Laboratory I (1)

Common techniques and typical preparative methods in aliphatic series. (Lab. 3) Pre: credit or concurrent enrollment in 227.

230 Organic Chemistry Laboratory II (1)

Continuation of 229 with emphasis on the aromatic series. (Lab. 3) Pre: 229 or equivalent and credit or concurrent enrollment in 228. Only for students requiring a second credit of organic laboratory.

291 Organic Chemistry (3)

Development of principles and theory through an examination of structure, nomenclature, and reactions of organic compounds. (Lec. 3) Pre: 192 or permission of instructor. Not open to students with credit in 227.

292 Organic Chemistry (5)

Continuation of 291 with extension to several additional families of compounds. (Lec. 3, Lab. 6) Pre: 291. Not open to students with credit in 228.

335 Physical Chemistry Laboratory (2)

Physical chemical properties of gases, liquids, and solutions; electrochemical cells; phase diagrams of binary and ternary systems; and chemical kinetics. Designed for chemistry majors. (Lab. 4) Pre: 431. May be taken concurrently with 431.

353 Undergraduate Research (1–12)

Methods of approach to a research problem. Literature, laboratory work, and a report of an original

problem or problems. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

354 Undergraduate Research in Forensic Chemistry (1–12)

Methods of approach to a research problem in forensic chemistry. Literature, laboratory work, and a report of an original problem or problems. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

391 Forensic Science Overview (1)

A seminar/discussion group designed to introduce students to the areas and issues in forensic science. Students seeking a forensic science minor should attend this weekly seminar two semesters. (Lec. 1) May be repeated for a total of 3 credits.

392 (or FOS 392) Introduction to Criminalistics (3)

A class designed to introduce students to the basic areas and issues in forensic science in criminalistics. It is required for students seeking a forensic science minor. (Lec. 3) May not be repeated for credit. May not be taken in the same semester as 391.

401 Intermediate Inorganic Chemistry (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.

402 Physical Inorganic Laboratory (2)

Synthesis of inorganic compounds emphasizing inert atmosphere and vacuum line techniques; characterization by spectroscopic and electrochemical techniques. (Lab. 6) Pre: 401.

412 Instrumental Methods of Analysis (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.

414 Instrumental Methods of Analysis Laboratory (2)

Applications of instrumental methods to the solution of problems in analytical chemistry. (Lab. 6) Pre: credit or concurrent enrollment in 412.

425 Advanced Organic Laboratory (2)

Techniques in organic chemical research, including handling air sensitive chemicals, flash chromatography, and instrumental methods of structure determination. Separation of mixtures and identification of components by infrared and nuclear magnetic resonance spectroscopies. (Lab. 6) Pre: 292 or 226 and 228 and credit or concurrent enrollment in 427.

427 Intermediate Organic Chemistry (3)

Intermediate organic chemistry with emphasis on organic reaction mechanism, stereochemistry, spectroscopic characterization, and newer synthetic methods. (Lec. 3) Pre: 226, 228, or 292.

431 Physical Chemistry I (3)

Gas laws, laws of thermodynamics, chemical equilibrium, phase equilibria, and electrochemistry. (Lec. 3) Pre: 114 or 192 and MTH 142 and PHY 112 or 204, or 214. May be taken for graduate credit by graduate students whose undergraduate programs do not require physical chemistry.

432 Physical Chemistry II (3)

Atomic theory, quantum chemistry, bonding, molecular interactions, chemical kinetics, kinetic theory, and spectroscopy. (Lec. 3) Pre: 431. May be taken for graduate credit by graduate students whose undergraduate programs do not require physical chemistry.

441 The Chemistry of Biological Systems (3)

Chemical biology, molecular aspects of biological structures, equilibria, energetics, reactions, and metabolism. (Lec. 3) Pre: 228, 432.

492 Seminar in Chemistry (1)

Preparation and presentation of papers on selected topics in chemistry. Required of seniors in chemistry. (Seminar) Pre: credit or concurrent enrollment in 432. Not for graduate credit.

501 Advanced Inorganic Chemistry I (3)

Systematic analysis of bonding schemes and structural aspects of molecular systems encountered in inorganic chemistry. Special emphasis on electron density distributions, physical methods of analysis, and practical applications of quantum mechanics. (Lec. 3) Pre: 401.

502 Advanced Inorganic Chemistry II (3)

Modern inorganic chemistry approached from experimental, theoretical, and descriptive points of view. Includes electronic structure and bonding in coordination chemistry, topology, thermodynamics of complex formation, mechanisms, lanthanides, and actinides. (Lec. 3) Pre: 401 or equivalent.

511 Advanced Analytical Chemistry I (3)

Complex Equilibria and Electrochemistry: Topics include solution theory; acid-base, precipitation and complexation reactions; redox chemistry, amperometry, voltammetry, specialized electrodes and electrochemical sensors. Statistical treatment of data. (Lec. 3) Pre: 412 or permission of instructor.

512 Advanced Analytical Chemistry II (3)

Fundamentals of chromatographic and electrophoretic separations and major spectroscopic techniques. Basic theory, instrumentation, advantages, limitations, and applications of these techniques as well as new instrumental developments are discussed. (Lec. 3) Pre: 412 and MTH 243.

519 Theoretical Concepts in NMR (3)

The physical concepts of NMR phenomena are presented, beginning with signals generated in the probe, carried through the spectrometer console, into the computer, and finally represented as a spectrum. (Lec. 3) Pre: 292, PHY 112, and MTH 141, or equivalents, or permission of instructor.

520 Interpretation of One-Dimensional and Two-Dimensional NMR Spectra (3)

Uses of chemical shifts and coupling constants are presented for interpreting one-dimensional (1D) and two-dimensional (2D) proton and carbon spectra. Includes relaxation time measurements, decoupling, and simple 2D interpretation. (Lec. 3) Pre: 292, PHY 112, and MTH 141, or equivalents, or CHM 519 or permission of instructor.

521 Advanced Organic Chemistry I (3)

Emphasis on fundamental organic structure theory and reaction mechanisms. (Lec. 3) Pre: 226 and 228 or equivalent.

522 Advanced Organic Chemistry II (3)

Modern synthetic reactions and their application to such areas as natural products. (Lec. 3) Pre: 521 or permission of instructor.

531 Advanced Physical Chemistry I (3)

Principles and applications of chemical thermodynamics and chemical statistical thermodynamics. Includes the three laws of thermodynamics, statistical distributions, statistical thermodynamic ensembles and fluctuations. Applications to ideal gases and crystals, real fluid, and chemical equilibrium. (Lec. 3) Pre: 432 or permission of instructor.

532 Advanced Physical Chemistry II (3)

Principles and applications of quantum chemistry. Includes the formal development of quantum theory and applications to electronic structure as well as other problems of chemical interest. (Lec. 3) Pre: 432 or permission of instructor.

551 Nonthesis Master's Research (3)

Research on original problem for fulfillment of research requirement of nonthesis master's degree. Literature survey, laboratory work, and detailed report required. (Independent Study) Pre: permission of chairperson.

552 Nonthesis Master's Research (2-3)

Research on original problem for fulfillment of research requirement of nonthesis master's degree. Literature survey, laboratory work, and detailed report required. (Independent Study) Pre: permission of chairperson.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. A minimum of 6 credits is required of students who have chosen the thesis option for the master's degree. (Independent Study) S/U credit.

608 Inorganic Reaction Mechanisms (3)

Kinetics and mechanisms of reactions in aqueous solution: techniques, results, and theoretical interpretation. Instrumentation for studying rapid reactions in solution, relaxation methods, electron transfer rates, hydrolytic and solvolytic reactions, metal ion complexation, reactions of biochemical significance. (Lec. 3) Pre: 502 or permission of instructor.

618 Theory of Separations (3)

In-depth presentation of theory of separation processes. Emphasis on methods development, advanced topics, and current advances using gas and liquid chromatography. (Lec. 3) Pre: 511 or permission of instructor.

621 Advanced Topics in Physical Organic Chemistry (3)

Mechanistic aspects of organic chemistry: molecular orbital theory, thermal and photochemical cycloadditions and rearrangements. Consideration of carbenes, nitrenes, and free radicals. Evaluation of steric, stereoelectronic, and secondary orbital effects. (Lec. 3) Pre: 521 and 522 or permission of instructor.

623 Advanced Topics in Synthetic Organic Chemistry (3)

Advanced topics in the synthetic aspects of organic chemistry. Synthetic reactions and techniques, strategies, and design. Conformational and stereochemical analyses, asymmetric synthesis, and natural product syntheses. (Lec. 3) Pre: 521 and 522 or permission of instructor.

642, 643, 644 Graduate Seminar (1 each)

Results of detailed literature surveys are presented orally and in writing. Required for candidates for advanced degrees in chemistry. (Seminar) S/U credit.

691 Special Topics (1-3)

Covers special research topics of interest. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 6 credits.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

930 Workshop in Chemistry Topics for Teachers (0-3)

Especially designed for teachers of physical sciences. Basic topics of chemistry from an advanced or pedagogical perspective. (Workshop) Pre: teacher certification.

Chinese (CHN)

Chairperson: Professor Morello (Languages)

101 Beginning Chinese I (3)

Fundamentals of grammar and pronunciation, exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior Chinese is required. (FC) [D]

102 Beginning Chinese II (3)

Continuation of 101. (Lec. 3) Students enrolling in this course should have taken 101 or equivalent. (FC) [D]

103 Intermediate Chinese I (3)

Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. (Lec. 3) Students enrolling in this course should have taken 102 or equivalent. (FC) [D]

104 Intermediate Chinese II (3)

Continuation of 103. (Lec. 3) Students enrolling in this course should have taken 103 or equivalent. (FC) [D]

111 Intensive Beginning Chinese I (4)

The fundamentals of Chinese with special emphasis on listening and speaking structures. (Lec. 4) (FC) [D]

112 Intensive Beginning Chinese II (4)

The fundamentals of Chinese with special emphasis on listening and speaking structures. (Lec. 4) Pre: 111 or equivalent. (FC) [D]

113 Intensive Intermediate Chinese I (4)

Intensive Chinese language intermediate courses. Focus on practice in listening and speaking. Development of reading and writing skills. Intermediate-level grammatical structures. (Lec. 4) Pre: 102 or 112 or equivalent. (FC) [D]

114 Intensive Intermediate Chinese II (4)

Intensive Chinese language intermediate courses. Focus on practice in listening and speaking. Development of reading and writing skills. Intermediate-level grammatical structures. (Lec. 4) Pre: 103 or 113 or equivalent (Lec. 4). (FC) [D]

205, 206 Composition and Conversation (3 each)

Development of facility in spoken and written Chinese using contemporary topics; emphasis on general classroom discussion. (Lec. 3) Pre: (for 205) 104 or permission of instructor. Pre: (for 206) 205 or permission of instructor. (FC) [D]

305 Advanced Composition and Conversation I (3)

Intensive practice in spoken and written Chinese using contemporary writings and topics in Chinese-speaking countries. Emphasis on classroom discussion. (Lec. 3) Pre: 206 or permission of instructor.

306 Advanced Composition and Conversation II (3)

Intensive practice in spoken and written Chinese using contemporary writings and topics in Chinese-speaking countries. Emphasis on classroom discussion. (Lec. 3) Pre: 305 or permission of instructor.

Civil and Environmental Engineering (CVE)

Chairperson: Professor G. Tsiatsis

205 Introduction to Civil Engineering Tools (1)

Introduction to the nature and history of the profession of civil and environmental engineering and tools including engineering drawings, computer-aided design, and basic computer programming. (Lab. 3) Pre: EGR 106.

220 Mechanics of Materials (3)

Theory of stresses and strains, thin-walled cylinders, beam deflections, columns, combined bending and direct stresses, joints, and indeterminate beams. (Lec. 3) Pre: MCE 262 or concurrent enrollment.

230 (221) Mechanics of Materials Laboratory (1)

Introduction to the physical and mechanical properties of civil engineering construction materials including steel, wood and Portland cement concrete. Cement properties, mix design, testing of fresh and hardened concrete. Experimental evaluation of fundamental material properties and behavior under a variety of controlled laboratory conditions. (Lab. 3) Pre: credit or concurrent enrollment in 220. Required for civil engineering students only.

240 Geomatics (2)

Science and technology of obtaining and utilizing earth measurement data, including the description and purpose of field surveying equipment, including the automatic level, transit, EDM instrument, electronic total station, and GPS instrument. Includes the collection, sorting, storage, analysis, and presentation of data for engineering purposes. (Lec. 2) Pre: MTH 141.

241 Geomatics Lab. (1)

Field and laboratory experience in the operation and care of surveying equipment (including the automatic level, transit, EDM instrument, electronic total station, and GPS instrument), and the application of electronically collected field data for engineering planning and design, using a CADD program. (Lab. 3). Pre: credit or concurrent enrollment in 240.

250 CADD for Civil Engineers (3)

Operating system issues, basic elements of Computer-Aided Design and Drafting (CADD): creation of 2-D and 3-D models, solid modeling, rendering and animation, applications of CADD in civil engineering design. (Lec. 3) Pre: EGR 106. Preference given to students enrolled in the CVE undergraduate degree program.

334 Construction Management (3)

Introduction to construction planning; procedures involved in construction activities with major emphasis on heavy construction. (Lec. 3) Pre: 220.

346 Transportation Engineering (3)

Concepts of transportation planning and design as well as traffic analysis techniques are covered with respect to Multi-Mode travel within transportation systems. (Lec. 3) Pre: MTH 141.

347 Highway Engineering (3)

Design of modern highways and streets including planning, location, geometric layout, drainage structures, bituminous materials, pavement structure, construction, operation, maintenance, and rehabilitation. (Lec. 3) Pre: 346.

348 Highway Engineering Laboratory (1)

Highway capacity analysis, computer applications of geometric design, soil resilient modulus test, L. A. abrasion test, asphalt viscosity test, Marshall and SuperPave mix-design, pavement management lab, and field trip. (Lab. 3) Pre: credit or concurrent enrollment in 347.

354 Structural Analysis (3)

Introduction to structural analysis, statically determinate systems, trusses, beams, frames, influence lines, deflections, conjugate beam, energy methods, statically indeterminate systems, force method, slope deflection, moment distribution, introduction to stiffness method. (Lec. 3) Pre: 220.

355 Structural Engineering Lab. (1)

The use of computer programs in structural analysis. A "teaching" type software program and "professional" type software program will be used. (Lab. 3) Pre: credit or concurrent enrollment in 354.

370 Hydraulic Engineering (3)

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) Pre: MCE 354.

374 Environmental Engineering (3)

Water supply and treatment systems, sewerage treatment of municipal and industrial waste waters, stream pollution, groundwater analysis, air pollution, and disposal of solid waste materials. (Lec. 3) Pre: MTH 243 or permission of chairperson.

375 Environmental Engineering Laboratory (1)

Laboratory studies in environmental engineering and water resources. Measurement of environmental contaminants, closed conduit flow, open channel flow. Treatment processes, pipe networks, centrifugal pump characteristics. Computer implementation for design. (Lab. 3) Pre: credit in MCE 354, CVE 374 and credit or concurrent enrollment in CVE 370

381 Geotechnical Engineering (3)

Engineering properties of soils, seepage, consolidation theory, calculation of stresses, failure theories, shear strength of sand, shear strength of clay. Introduction to foundation engineering and geosynthetics. (Lec. 3) Pre: 220.

382 Geotechnical Engineering Laboratory (1)

Laboratory studies of physical properties and behavior of soils: index properties, compaction, consolidation, and shear strength. Interpretation, evaluation, and engineering applications of test data. Introduction to foundation engineering and geosynthetics. (Lab. 3) Pre: credit or concurrent enrollment in 381.

391 Honors Work (3)

Independent study under close faculty supervision. Discussion of advanced topics in civil engineering in preparation for graduate work. (Independent Study) Pre: junior standing or permission of chairperson.

422 Offshore Structure Design

See Ocean Engineering 422.

442 Traffic Engineering (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.

443 Intelligent Transportation Systems (3)

Traffic systems operations/planning strategies; advanced transportation management systems; detection devices; benefits and evaluation; in-vehicle navigation theory; real-time dynamic routing issues. (Lec. 3) Pre: 346 or permission of instructor.

450 Simulation Based Design for Civil Engineers (4)

Advanced concepts of Computer-Aided Design and Drafting (CADD) as they pertain to a) digital prototyping, b) concurrent engineering, and c) continuous acquisition and lifecycle support, global standards, and file exchange formats. (Lec. 3, Lab. 3) Pre: 220 and 250.

453 Computer Analysis of Structures (3)

Introduction to matrix methods of structural analysis. Solutions of planar structures using a digital computer. (Lec. 3) Pre: 354 or equivalent.

460 Steel Structures (3)

Theory of steel structures including beams, columns, beam-columns, composite construction, and connections. Material properties, environmental loads, state of construction practice, fabrication, and economic aspects. (Lec. 3) Pre: 354 or permission.

465 Analysis and Design of Concrete Structures (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) Pre: 354 or concurrent enrollment. Not for graduate credit in civil engineering.

470 Water and Wastewater Transport Systems (3)

Computer analysis of water storage and transmission. Design of water distribution and wastewater

collection systems. (Lec. 2, Lab. 3) Pre: 370 or 374 or permission of instructor.

471 Water and Wastewater Treatment Systems (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.

472 Industrial Air Pollution (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 instructor.

474 Water Quality Sampling and Analysis (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 contaminants. (Lec. 1, Lab. 6) Pre: 374 or permission of instructor.

475 Water in the Environment (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: 370 or permission of instructor.

478 Hazardous Waste Disposal and Solid Waste Management (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: permission of instructor.

483 (or OCE 483) Foundation Engineering (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 or equivalent.

485 Engineering Geophysics

See Geosciences 485.

491, 492 Special Problems (1–6 each)

Advanced work under supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 12 credits. Not for graduate credit in civil engineering.

493 Civil Engineering Design Studies (1–6)

Off campus civil and environmental engineering design studies. Must include significant hands-on (laboratory or field) experience, use of engineering design

tools, and the design, development, test and evaluation of hardware/software systems. (Independent Study) Pre: junior standing in civil and environmental engineering and permission of the department chair. Not for graduate credit in civil engineering.

495 Civil and Environmental Engineering Systems (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 engineering.

497 Civil Engineering Design I (2)

Detailed project planning, conceptual design and layout, and environmental impact for the civil engineering integrated capstone design project. Speakers on ethics, professionalism, and professional practice. (Lab. 4) Pre: credit or concurrent enrollment in 346, 354, 374, and 381. Must be taken immediately prior to 498. Required of all seniors in civil and environmental engineering. Not for graduate credit in civil engineering.

498 Civil Engineering Design II (3)

Elements of planning, analysis, and design of a civil engineering project integrating the principles learned in previous courses; a group integrated capstone design project involving all major aspects of civil engineering design. (Lec. 1, Lab. 6) Pre: credit or concurrent enrollment in 370 and 497. Required for all seniors in civil and environmental engineering. Not for graduate credit in civil engineering.

542 Traffic Systems Operations (3)

Signalized and unsignalized intersection treatments; coordination concepts; arterial and freeway management, operating strategies, and design issues; simulation and optimization; performance evaluation. (Lec. 3) Pre: 442 or permission of instructor.

545 Pavement Design (3)

Pavement types; pavement system components; stresses in the pavement structure. Design factors and criteria, pavement stabilization, structural design of flexible and rigid pavements for highways and airports, pavement maintenance and overlay design. (Lec. 3) Pre: 347 or equivalent.

546 Urban and Rural Transportation

See Community Planning 546.

547 Geometric Design of Highways (3)

Evaluation of alternative designs. Criteria and practices of geometric design; at grade intersections, interchanges, channelization, weaving parking facilities, and road appurtenances; safety considerations, lane balancing, ramps, and terminals. (Lec. 3) Pre: 347 or equivalent.

548 Bituminous Transportation Materials and Mix-Design (3)

Asphalt binder, bituminous mixtures, conventional and SuperPave mix-design methods, material characterization and testing, fracture, fatigue, and permanent deformation, novel pavement materials and additives, and pavement recycling. (Lec. 2, Lab. 3) Pre: 347 or equivalent.

549 Transportation Soils and Materials

Surficial and subgrade soils, mineral aggregates, Portland Cement Concretes, mix-design methods, material characterization and testing, fracture, fatigue, and modern transportation materials. (Lec. 2, Lab. 3) Pre: 347 or equivalent.

551 Finite Element Analysis in Civil Engineering I (3)

Direct stiffness method. Rayleigh-Ritz and Galerkin methods. Isoparametric elements. Frames, trusses, plane stress and strain. Bending of thin plates. (Lec. 3) Pre: 453 or permission of instructor.

552 Structural Timber Design (3)

Study of wood properties and design considerations. Design and behavior of beams, columns, beam-columns, and wood fasteners. Analysis and design of structural diaphragms, shear walls, and box beams. (Lec. 3) Pre: 354 or equivalent.

561 Advanced Steel Design (3)

Selected topics in structural steel design following the LRFD specification, including plate buckling and postbuckling, torsion, plate girders, plastic design, frame stability, tall buildings, composite design, and earthquake-resistant design. (Lec. 3) Pre: 460 or permission of instructor.

562 Management of Highway Bridges (3)

Comprehensive systems approach to management of highway bridges. Needs assessment, in-service monitoring and evaluation of bridges. Condition forecasting models and failure analysis. Life-cycle cost and benefit analysis, prioritization and optimization. (Lec. 3) Pre: permission of instructor.

563 Prestressed Concrete (3)

Theory of prestressed concrete including partial losses of prestress and long-term effects due to creep, shrinkage, and steel relaxation. Service and ultimate load evaluation of pre-tensioned and post-tensioned beam elements in flexure, shear, and torsion. Deflection, camber, and crack control evaluation. (Lec. 3) Pre: 465 or equivalent.

564 Advanced Reinforced Concrete (3)

Elastic and ultimate strength theory in flexure, shear, torsion, compression, and serviceability. Behavior and analysis of deep beams, corbels, slender and non-slender columns, biaxial bending, two-way slabs and plates. (Lec. 3) Pre: 465 or equivalent.

565 Structural Dynamics (3)

Simplified models and their equations of motion; analytical solution methods; Fourier analysis; Duhamel integral; nonlinearities; computer-oriented solution algorithms and their implementation. Applications. (Lec. 3) Pre: 453.

568 (or MCE 568) Theory of Plates (3)

Development of basic plate equations. Classical solution examples of rectangular and circular plates. Additional topics selected from orthotropic plates, large deflections, finite element, and numerical solutions. (Lec. 3) Pre: 220 and MTH 244.

570 Water Chemistry for Engineers (3)

Chemical principles applied to problems in environmental engineering, including water and wastewater treatment, contaminant hydrology, and hazardous waste management. Pre: permission of instructor.

571 Sanitary Chemistry Laboratory (3)

Applications of chemical laboratory procedures to control of water and wastewater treatment processes. (Lab. 9) Pre: 570.

572 Biosystems in Sanitary Engineering (3)

Microorganisms that constitute the biological systems in water pollution, water purification, and wastewater treatment. Application of principles of microbiology and biochemistry to analysis and design in fields of sanitary engineering and water resources. (Lec. 3) Pre: permission of instructor.

573 Theory of Water Purification and Treatment (3)

Principles of modern water purification and engineering practices. Aeration, deodorization, sterilization, coagulation, filtration, water softening, iron removal, disinfection, and corrosion control. (Lec. 3) Pre: permission of instructor.

575 Open-Channel Hydraulics (3)

Analysis of uniform, critical, varied, and unsteady flow in open channels. Principles will be applied to open-channel design. (Lec. 3) Pre: 370.

579 Soil Behavior (3)

Shear strength of soils, including stress-strain and volume change behavior, stress paths, and drained and undrained behavior. Stability of slopes, including limit equilibrium approaches, analytical and numerical solutions. (Lec. 3) Pre: 381 or equivalent.

580 Consolidation, Seepage, and Clay Mineralogy (3)

Consolidation of soils, permeability; steady state and transient seepage; stress distributions; clay mineralogy. (Lec. 3) Pre: 381 or equivalent.

581 (or OCE 581) Experimental Geomechanics (3)

Advanced methods and techniques of geotechnical testing. Behavior of granular and cohesive soils with determination of engineering properties. Interpretation, evaluation, and engineering applications of test

data. Emphasis on shearing strength, consolidation, bearing capacity, earth pressures, seepage, and slope stability. (Lec. 3) Pre: 381 or equivalent.

582 Seabed Geotechnics

See Ocean Engineering 582.

583 (or OCE 583) Advanced Foundation Engineering (3)

Applications of soil mechanics principles to analysis and design of pile foundations, drilled piers, flexible retaining structures, braced excavations, cofferdams, miscellaneous advanced foundation problems. (Lec. 3) Pre: 381 or equivalent.

584 Designing with Geosynthetics (3)

Overview of geosynthetic materials, properties, test methods, and current standards. Design methods involving geotextiles, geogrids, geonets, geomembranes, and geocomposites. Applications to problems in geomechanics, geo-environmental engineering, and transportation-related fields. (Lec. 3) Pre: 381 or equivalent.

585 Soil Dynamics (3)

Vibration characteristics, wave propagation in soils, foundation vibration theory, foundation design for vibrating loads, vibration isolation, blast vibrations, dynamic soil properties, liquefaction potential, vibratory and dynamic compaction, computer applications. (Lec. 3) Pre: credit or concurrent enrollment in 483 or equivalent.

586 Geotechnical Design of Waste Containment Systems (3)

Engineering properties of soil waste. Design of waste containment cover systems, use of geosynthetics, liner and drainage materials, slurry walls, landfills, and leachate collection systems. Landfill design for earthquakes and stability. (Lec. 3) Pre: 381 or equivalent.

587 Groundwater Flow and Seepage Pressures (3)

Hydrodynamics of fluid flow through porous media. Analytical methods for steady and unsteady seepage in aquifers; theoretical analysis with practical modification of seepage problems involving foundations, drainage structures, earth dams, and dewatering. (Lec. 3) Pre: 381 or equivalent.

588 Groundwater Hydrology (3)

Quantitative methods of groundwater hydrology including determination of aquifer properties and yield. Modeling of groundwater systems for management quantity of water, movement of contaminants, and well design. Field and laboratory measurements. (Lec. 3) Pre: 370 and 381 or equivalent.

591, 592 Special Problems (1–6 each)

Advanced work under supervision of a faculty member arranged to suit individual requirements of the student. (Independent Study) Pre: permission of chairperson.

594 Special Topics in Civil and Environmental Engineering (1–3)

Intensive inquiry into a certain important field of current interest in civil and environmental engineering. (Lec. 1–3) Pre: permission of instructor.

596 Numerical Methods in Structural Engineering (3)

Methods of successive approximations and numerical procedures in the solution of stress, vibration, and stability problems in structural members. Non-uniform members, elastic supports, plates, torsion. (Lec. 3) Pre: permission of instructor.

599 Master's Thesis Research (1–9)

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

601, 602 Graduate Seminar (1 each)

Presentations by researchers and practicing professionals covering topics in various areas of civil engineering and related fields. Presentations and discussions of research by graduate students. (Seminar) Required of all full-time graduate students. May be repeated for a maximum of 2 credits. Fall semester: 601; spring semester: 602. Pre: graduate standing. S/U credit.

641 Pavement Evaluation and Rehabilitation (3)

Pavement performance concepts. Criteria for pavement evaluation. Measurement of pavement distress and structural capacity. Analysis and interpretation of pavement evaluation data. Correlation of data with performance ratings. Formulation and evaluation of maintenance and rehabilitation alternatives. (Lec. 3) Pre: 545 or equivalent.

651 Design of Highway Bridges (3)

Design specifications and analysis methods for highway bridges. Loads. Design of steel I-beam bridges, reinforced concrete bridges, and plate girders. Orthotropic analysis. Bridge details and substructure. (Lec. 3) Pre: 561, 465, and 453.

652 Advanced Topics in Bridge Engineering (3)

Load and resistance factor design of prestressed concrete bridges. Analysis and design of segmental concrete bridges using the span-by-span and the cantilever methods of construction. Time dependent effects. Long span bridges. Bridge condition assessment and rating. (Lec. 3) Pre: 651 or permission of instructor.

657 Structural Stability (3)

Introduction; principal forms of equilibrium paths and their stability; conservative elastic systems; buckling of prismatic members; imperfections; plastic deformations; postbuckling of frames and reticulated structures; numerical methods; catastrophe theory. (Lec. 3) Pre: permission of instructor.

667 Structural Reliability (3)

Probabilistic applications in structural analysis and design. Statistical models for forces and material strengths. Component and system structural reliability. Random vibration applications in structural engineering. (Lec. 3) Pre: permission of instructor.

672 Water Pollution Control and Treatment of Wastewater (3)

Wastewater characteristics, effects, and purification in natural water, government control strategies and impacts, cost of control, theory and mathematical concepts of secondary and tertiary treatment process, their limitations, and late developments. (Lec. 3) Pre: one year of chemistry and biology, MTH 243 and CVE 572 or their equivalents, and permission of instructor.

677 Stream and Estuarine Analysis (3)

Fundamentals and mathematical concepts of physical and biological factors applied to the evaluation of the pollution capacity of streams and estuaries. (Lec. 3) Pre: MTH 244.

687 Geotechnical Earthquake Engineering (3)

Seismology and seismicity; surface faulting and ground motion characteristics; response spectra; dynamic soil properties; dynamic response of soil layers, embankments, and slopes; influence of local soil conditions on site response; evaluation of design earthquakes; response analysis. (Lec. 3) Pre: credit or concurrent enrollment in 483 and graduate standing.

688 Marine Geomechanics

See Ocean Engineering 688.

691, 692 Special Problems (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 12 credits.

694 Advanced Special Topics in Civil and Environmental Engineering (1–3)

Intensive inquiry into a certain important field of current interest in civil and environmental engineering, requiring advanced sophistication of a 600-level course. (Lec. 1–3) Pre: permission of instructor.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Classics (CLA)

Chairperson: Professor Morello (Languages)

391 Ancient Laughter: The Comic Tradition in Greece and Rome (3)

Introduction to the comic tradition in Western literature through its origins in Greece and Rome. Read-

ings in English translation include examples of comic drama, novel, and satire. (Lec. 3) (A) [D]

395 Greek Mythology: Gods, Heroes, and Humans (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 myth analysis. Readings in English translation. (Lec. 3) (A) [D]

396 Myths of Rome (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, gods and goddesses. Readings in English translation. (Lec. 3) (A) [D]

397 Greek Myth and Tragedy (3)

Relationship between Greek myth and classical tragedy, birth and evolution of tragedy (ancient, medieval, French, English, American), employment of the same myth for different dramatic and political purposes. Readings in English translation. (Lec. 3) (A) [D]

497 Directed Study (1–6)

Individual research. (Independent Study) Pre: faculty acceptance of project. Prior or concurrent registration in a LAT or GRK or CLA course recommended. May be repeated for credit with different topic. Not for graduate credit.

See also course listings under Greek and Latin.

Communication Studies (COM)

Chairperson: Associate Professor Derbyshire

100 Communication Fundamentals (3)

Integrates basic theory and experience in a variety of communication contexts including public speaking, small groups, and interpersonal communication. Examines human differences in order to develop more effective communication skills. (Lec. 3) Not open to students with credit in 110. (EC) [D]

110 Communication Fundamentals (4)

Integrates basic theory and experience in communication contexts including public speaking, small groups, and interpersonal communication. Examines human difference in order to develop more effective communication skills, and uses online environments to extend classroom instruction (Lec. 3, Lab. 2) Pre: junior standing. Not open to students with credit in 100. (EC) [D]

202 Public Speaking (3)

Theory, attitudes, and skills essential to effective and ethical public communication. Focus on research, selection and use of evidence, construction of arguments, organization, audience analysis, and presentational skills. (Lec. 3) Pre: 100 or 100H or 110.

207 Forensic Workshop (1)

Open to students participating in speech or debate activities. (Practicum) Pre: permission of the director of debate. May be repeated for a maximum of 4 credits. Pre: 100 or 100H or 110.

208 Argumentation and Debate (3)

Introduces argumentation theory through the model of academic debate. Stresses critical-thinking skills including analysis, research, organization, and written and oral presentations. Debates are conducted on important social and political issues. (Lec. 3) Pre: 100 or 100H or 110.

209 Great American Speeches (3)

The study of historically significant ideas, issues, and causes through the critical analysis of selected American speeches. (Lec. 3) Pre: 100 or 100H or 110.

210 Persuasion: The Rhetoric of Influence (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/Online) Pre: 100 or 100H or 110.

221 Interpersonal Communication (3)

Examines basic theory and skills, including impact of perception, self-concept, listening, nonverbal messages, and language on interpersonal communication, including conflict, relationship development, friendship, family, and romantic relationships. (Lec. 3/Online) Pre: 100 or 100H or 110.

231 Oral Interpretation of Literature (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)

251 Small Group Communication (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/Online) Pre: 100 or 100H or 110.

271 Web Design and Programming (4)

For students who want to learn to communicate effectively using Web development technology. Explores principles and techniques of client-side programming using XHTML, CSS, and JavaScript following leading-edge standards. Includes designing for Web standards, accessibility, usability, and workflow for Web design. (Lec. 2, Lab. 4)

291 Communication Teaching Practicum (1)

Supervised participation in instructional practice for students in communication. Provides exposure to pragmatic classroom issues and experience in various aspects of teaching at a college level. (Practicum) Pre: permission of instructor. May be repeated for a maximum of 2 credits. S/U only

302 Advanced Public Speaking (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. (Lec. 3) Pre: 202 and junior standing in a degree-granting college or permission of instructor.

307 Audio Communication in the Media (3)

Examination of techniques and production of audio communication. Explores elements of audio communication including radio drama, commercials, news reporting, sports commentary, monologues, narration, and voice-over work. (Lec. 3) Pre: junior standing in a degree-granting college or permission of instructor.

308 Advanced Argumentation and Debate (3)

Analysis of the theories of argumentation through specialized forms of debate. Use of legislative, legal, and other situationally specific forms of debate to apply the theories of argumentation. (Lec. 3) Pre: 208 and junior standing in a degree-granting college or permission of instructor.

310 Contemporary Oral Communication (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/Online) Some topics may be offered online. Pre: junior standing in a degree-granting college or permission of instructor. May be repeated for credit.

315 (or SUS 315) Environmental Dimensions of Communication (3)

Investigation of individual and mediated environmental messages, analysis and experimentation with the ways communication can affect environmental knowledge, attitudes and behavior, design of communication campaigns to affect resource use and ecological responsibility (Lec 3/Online) Pre: junior standing in a degree-granting college.

316 Communication Criticism (3)

Study of select methods in the evaluation of communication. Critical methods include but are not limited to rhetorical, media, cultural, and various critical theories of race and gender. 316A Rhetorical Criticism. May be offered online. 316B Television Criticism. (Lec. 3/Online) Pre: 202 and 208 or 209 or 210 and junior standing in a degree-granting college or permission of instructor. May not be repeated.

322 Gender and Communication (3)

Survey of theories and research on gender and communication. Examines interface of gender and human interaction in interpersonal, group (Including family), educational, organizational, mass media, and social movement contexts. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor.

324 Nonverbal Communication (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: 202 or 221 and junior standing in a degree-granting college or permission of instructor.

325 Communication in Interviewing (3)

Theory and practice of interviewing as planned communication in different settings for various purposes, including research, professions, and employment. Human diversity, ethics, interpersonal dynamics, and writing are emphasized. (Lec. 3) Pre: 202 and junior standing in a degree-granting college or permission of instructor.

326 Family Communication (3)

Examines family communication from a symbolic interaction and systems theory perspective. Focuses on primary family functions, including cohesion, and on case studies. (Lec. 3/Online) Pre: 202 and 221 and junior standing in a degree-granting college or permission of instructor.

333 (or AAF 333) Oral Interpretation of Black Literature (3)

Study and oral presentation of literature by black American authors. Class performances, discussion, reports, and analysis of the literature. (Lec. 3) Pre: junior standing in a degree-granting college or permission of instructor. 231 recommended.

334 Orality and Ancient Greece (3)

Integration of the significant role of rhetoric, orality, presentation skills/styles, literature and history with the culture of the time. (Lec. 3) Pre: 100 and junior standing in a degree-granting college or permission of instructor.

335 Orality and Ancient Rome (3)

Integration of the significant role of rhetoric, orality, presentation skills/styles, literature and history with the culture of the time. (Lec. 3) Pre: 100 and junior standing in a degree-granting college or permission of instructor.

340 Electronic Media Programming (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 in a degree-granting college or permission of instructor.

341 Documentary Pre-production (3)

Understanding the documentary form in both its historic and modern context. Basic camera, shooting, and interviewing techniques are studied. Research and writing a documentary proposal required. (Lec. 3) Pre: junior standing in a degree-granting college or permission of instructor.

342 Documentary Production (3)

Builds on work completed in 341. Field camera operation, lighting, archival materials, writing, directing, producing, and editing a documentary short on a topic researched and pre-produced in 341. (Lec. 3) Pre: 341 and junior standing in a degree-granting college or permission of instructor.

346 Social and Cultural Aspects of Media (3)

Explores social and cultural dimensions of media. Includes case studies of print, television, film, video, and computer-mediated communication. (Lec. 3) Pre: junior standing in a degree-granting college or permission of instructor.

351 Organizational Communication Skills (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) Pre: junior standing in a degree-granting college or permission of instructor.

354 International Business Communications Exchange

See Business 317. May be offered online.

361 Intercultural Communication (3)

Study of cultural similarities and differences as they affect communication within and across cultural boundaries. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor.

372 Dynamic Web Design and Programming (4)

Leading edge Web-based information technology for communication in all disciplines. Technology will vary by semester, covering Microsoft or Open Source server-side programming technologies and databases, and relevant design and security issues. (Lec. 2, Lab. 4) Pre: 271 and junior standing in a degree-granting college or permission of instructor.

381 Research Methods in Communication (3)

Basic concepts and techniques of communication research. Emphasis on analysis of existing communication research and on application of research processes to communication problems or phenomena. (Lec. 3/Online) Pre: 202 and junior standing in a degree-granting college or permission of instructor.

382 Communication Theory (3)

A critical survey of social science-based communication theories; an examination of the nature, processes, and functions of communication theory in a variety of contexts. (Lec. 3) Pre: 100, 202 or 221 and junior standing in a degree-granting college or permission of instructor.

383 Rhetorical Theory (3)

Surveys and analyzes rhetorical communication theories and theorists from classical to contemporary times and focuses on rhetoric's relationship with philosophy, knowledge, reason, science, technology, and culture. (Lec. 3) Pre: junior standing in a degree-

granting college or permission of instructor, 202 and 221 or 210 recommended.

385 Communication and Social Influence (3)

Focuses on theories of social influence in interpersonal, group, and public settings. Topics include audience analysis, ethics, motivation, messages, psychological and rhetorical, principles, source credibility, and attitude change. (Lec. 3) Pre: 202 or 210 or 221, and junior standing in a degree-granting college or permission of instructor.

391, 392 Communication Honors Work (1–3 each)

Thesis work or an equivalent independent project under faculty supervision for honor students. (Independent Study) Pre: junior standing in a degree-granting college or permission of instructor.

402 Leadership and Motivation (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: BUS 340, 341 or COM 251 and junior standing in a degree-granting college or permission of instructor.

405 Humor in Communication (3)

Examination of genres, history, content, structure, and performance styles of presentational comedy. Exploration of role of humor in society. Development of original materials for public performance. (Lec. 3) Pre: junior standing in a degree-granting college or permission of instructor. Not for graduate credit.

407 Political Communication (3)

Analysis of political communication in campaign and non-election 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) Pre: junior standing in a degree-granting college or permission of instructor.

409 Seminar in American Public Address and Criticism (3)

Study of selected American speakers, speeches, and/or movements. Rhetorical analysis used to measure the impact of speakers, speeches, and social and political movements. (Seminar) Pre: 316A or 316B or 383 and junior standing in a degree-granting college or permission of instructor.

410 Advanced Topics in Communication Studies (3)

Advanced study of selected topics. Subject will vary according to the expertise and availability of instructors. (Lec. 3) Pre: 100 and any 300-level COM course and junior standing in a degree-granting college or permission of instructor. May be repeated for a total of 9 credits with different topics. Not for graduate credit.

411 Advanced Rhetorical Theory (3)

Advanced study of select contemporary rhetorical theories and their relevance to current topics in language, knowledge, philosophy, culture, modernity, and postmodernity. (Lec. 3) Pre: 383 and junior standing in a degree-granting college or permission of instructor.

414 The Rhetoric of Sports in Film (3)

Studies the rhetoric of sports in film. Students identify and analyze rhetorical messages embedded in films that deal with sports as reflections of the filmmaker's vision by applying film and rhetorical theory. (Lec. 3/Online) Pre: 381 and 383 and junior standing in a degree-granting college or permission of instructor. Not for graduate credit.

415 The Ethics of Persuasion (3)

Relation of persuasion to ethics is examined. Purposes, means, results, and contexts are considered in making rhetorical judgments of interpersonal, political, and institutional communication. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor.

416 Propaganda (3)

Examines the history, theory and practice of propaganda (Lec. 3) Pre: 383 and junior standing in a degree-granting college or permission of instructor.

421 Advanced Interpersonal Communication (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: 221 and junior standing in a degree-granting college or permission of instructor.

422 Communication and Conflict Intervention (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: 221 or 251 and junior standing in a degree-granting college or permission of instructor.

435 Directing Group Performance of Nondramatic Literature (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. (Lec. 3) Pre: 231 and junior standing in a degree-granting college or permission of instructor. In alternate years.

440 Telecommunications Processes and Audience Behavior (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/

Online) Pre: 340 and junior standing in a degree-granting college or permission of instructor.

441 Race, Class and Gender in the Media.(3)

Exploration of the complex dynamics of race relations and political discourse as contextualized in the media. Rhetorical methods of analysis are used to study contemporary media coverage of race issues. (Lec. 3/Online) Pre: 316A or 383 and junior standing in a degree-granting college or permission of instructor.

445 Media Advertising (3)

Examination of theory and practice in media advertising. Students will acquire and analyze commercials made by professionals and create and produce media advertisements. (Lec. 3) Pre: 210 and junior standing in a degree-granting college or permission of instructor. Not for graduate credit.

446 Media Theory (3)

Examines major theoretical approaches to the study of media. Includes perspectives on media institutions, media texts, and media audiences. (Lec. 3) Pre: 210 and junior standing in a degree-granting college or permission of instructor. Not for graduate credit.

450 Organizational Communication Theory (3)

Surveys theory and practice of communication in organizations. Examines interface of organizational, management, and communication theories. Explores human interaction, flows, and formats in organizations; stresses student analysis of organizational communication. (Lec. 3) Pre: 251 and junior standing in a degree-granting college or permission of instructor.

461 Managing Cultural Differences in Organizations (3)

Exploring how to manage cultural differences in organizations and to adapt to culturally diverse organizations by applying the skills of intercultural sensitivity and intercultural competence. (Lec. 3) Pre: 361 and junior standing in a degree-granting college or permission of instructor. Not open to students who have credit for BUS 448, MBA 579.

462 Communication and Global Society (3)

Exploring various aspects of the relationship between communication and globalization, including a new sense of community, cultural diversity, cultural identity, global media, and global citizenship. (Lec. 3/Online) Pre: six credits in communication and junior standing in a degree-granting college or permission of instructor.

471, 472 Internship in Communication Studies (1–3 each)

Provides the student with direct supervised participation in a variety of communication situations and occupations. (Practicum) Pre: 18 credits in communication studies and junior standing in a degree-granting college and permission of instructor. S/U only.

491, 492 Special Problems (1–3 each)

Selected areas of study pertinent to communication. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Independent Study) Pre: junior standing in a degree-granting college and permission of instructor.

501 Communication Theory (3)

Discusses the significance of theory to the understanding of communication. Gives an overview of select major theories applicable to the study of communication. Explores the relationship between theory and research and investigates emerging theories and applications of theory to emerging forms of communication. (Seminar)

502 Communication Methods (3)

Explores research methods to understand communication phenomena, critique and analyze the value of communication studies, and independently conduct research to answer communication questions and problems. (Seminar)

503 Graduate Practicum Teaching Communication Seminar (1)

Practicum for students teaching postsecondary courses in communication. Provides pedagogical training through discussion, observation, and critique. Development and practice of skills, strategies, and pragmatic aspects of teaching in a university community. S/U credit. Offered fall and spring semesters. Must be taken for a total of 3 credits. (Seminar) Pre: communication studies graduate teaching status.

510 Seminar in Interpersonal Communication (3)

In-depth examination of a topic in interpersonal communication. Students review and discuss appropriate literature and author a major research paper. (Seminar) May be repeated under a different topic. Pre: graduate standing or permission of instructor. Every second or third semester.

520 Seminar in Media Studies (3)

In-depth examination of a topic in mass or electronic media, or new information technologies. Students review and discuss appropriate literature and author a major research paper. May be repeated under a different topic. (Seminar) Pre: graduate standing or permission of instructor.

530 Seminar in Organizational Communication (3)

In-depth examination of a topic in organizational communication. Students will review and discuss appropriate literature and author a major research paper. May be repeated once under a different topic. (Seminar)

540 Seminar in Public Discourse (3)

In-depth examination of a topic in public discourse. Students will review and discuss appropriate literature and author a major research paper. May be repeated once under a different topic. (Seminar)

591, 592 Independent Study (1–3 each)

Students will work with faculty on independent research projects designed to enhance their research skills and further emphasize the content area most germane to the student.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Communicative Disorders (CMD)

Chairperson: Professor Singer

160 Introduction to Communicative Disorders (3)

Survey of speech, language, and hearing disorders. Discussion includes etiology, symptomatology, and the profession of SLP and audiology. (Lec. 3)

175 Gestural Communication (3)

Visual language systems with emphasis on the chirology and syntax of Ameslan, and levels of language among deaf communicators; finger spelling and sign language for educational, rehabilitative, and artistic goals studied. (Lec. 3)

272 Auditory and Speech Mechanisms (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.

273 Phonetics (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.

274 Communication Processes (3)

Psychological and cognitive processes basic to language and communication; models of language processing; explorations into biological and social bases. (Lec. 3) Pre: junior standing.

276 Introduction to Speech Science (3)

Physical properties of the speech signal, analysis of the physical bases of speech production, instrumentation used to assess speech output, theories of speech perception. (Lec. 3) Pre: 272 and 273.

278 Introduction to Hearing Science (3)

Overview of the measurement of sound, acoustic properties of the sound wave, and perception of sound by human beings. Psychophysical methods of sound perception, psychoacoustics, use of instrumentation to measure sounds. Anatomy and physiology of the normal auditory mechanism. (Lec. 3) Pre: 276.

361 Introduction to Audiology (3)

Pathologies of the hearing mechanism, methods of audiological assessment, interpretation of the audiogram, recommendations based on diagnostic audiology results. Methods of middle ear and retrocochlear assessment. Training in the administration of basic audiological evaluations. (Lec. 3) Pre: 278 and junior standing.

375 Language Development (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.

376 Hearing and Speech Science (3)

Physical properties and speech signal, analysis of the physical bases of speech production and speech perception. (Lec. 3) Pre: 373. Final offering 2009-10.

377 Functional Neuroanatomy (3)

Examination of the brain and spinal cord, emphasizing connection and functions of the neural system. This course is designed for communicative disorders majors. (Lec. 3) Pre: 372 and junior standing.

440 Advanced Head and Neck Anatomy

See Physical Therapy 440.

454 Rehabilitative Audiology (3)

Theoretical and methodological approaches to aural rehabilitation of the adult with impaired hearing. Topics include use of amplification, speechreading, assistive listening devices, auditory training, and case management. (Lec. 3) Pre: 260, 261, and three of the following—372, 373, 374, 375, 376—and senior or graduate standing with 551 as prerequisite for graduate standing.

460 Speech and Language Disorders (3)

Survey of developmental and acquired speech and language disorders. Discussion includes etiology, symptomatology, and assessment. (Lec. 3) Pre: 160 and 272 and 273 and 274 and 276 and 375 and 377; or permission of instructor.

465 Clinical Methods in Communicative Disorders (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. 4) Senior or graduate standing only. Pre: 260, 261, and three of the following—372, 373, 374, 375, 376. Not for graduate credit in communicative disorders.

491, 492 Special Problems (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. (Independent Study) 491: S/U credit.

493 Cultural and Linguistic Diversity in Communicative Disorders (3)

Application of concepts and information from the study of cultural and linguistic diversity to issues involving communicative incompetence and disorder. (Lec. 3)

494 Autism and Pervasive Developmental Disorders (3)

Current perspectives on diagnosis, etiology, and core challenges in social communication and emotional regulation for children with autism and PDD. Role of speech-language pathologists within a comprehensive intervention framework. (Lec. 3) Pre: senior standing or 375 or permission of instructor.

504 Research in Communicative Disorders (3)

Types of research in speech pathology, audiology, and communication science; critiques of representative models with special emphasis on experimental research; individual pilot projects or master's thesis. (Lec. 3) Pre: 372, 373, 374, 375, graduate standing, or permission of instructor.

505 Issues in Audiology Private Practice (3)

Issues fundamental to the development of private practice in audiology, including ethical, demographic, and financial issues. (Lec. 3) Pre: permission of instructor. Offered spring.

550 Audiology for Speech-Language Pathologists A,B,C (1-3)

Introduction to audiology for the speech-language pathology graduate student. Hearing disorders, hearing assessment, child and adult aural rehabilitation. Modular format with variable credits. (Lec.1-3) Offered once per year.

551 Measurement of Hearing I (4)

Diagnostic protocols for routine audiologic assessment including pure tone, speech, and immittance procedures. Discussion of etiology and symptomatology of hearing disorders. (Lec. 4) Pre: 372, 373, 374, 375, and 376; graduate standing or permission of instructor.

552 Measurement of Hearing II (4)

Behavioral assessment of peripheral and central auditory function, including speech recognition, immittance, site-of-lesion, otoscopy, speechreading, and pseudohypacusis testing. (Lec. 4) Pre: 551 or permission of instructor. In alternate years.

553 Pediatric Audiology (3)

Theoretical and methodological approaches to the identification and management of children with auditory disorders. Topics discussed include auditory development, audiometric evaluation, and hearing aids. (Lec. 3) Pre: 551 or permission of instructor. In alternate years.

554 Advanced Rehabilitative Processes for Hearing Impaired (3)

Advanced techniques and technology in aural rehabilitation including family-based management, multidiscipline approaches, and complex assistive devices. (Lec. 3) Pre: 454 and 551. Offered spring.

555 Hearing Aids I (3)

Introduction to wearable hearing aids. Topics include basic electronics, speech acoustics, types of hearing aids and their appropriateness, electroacoustics and psychoacoustics, and an overview of electroacoustic selection. (Lec. 3) Pre: 372, 373, 374, 375, and 376; graduate standing or permission of instructor. In alternate years.

556 Hearing Aids II (3)

Application of technological and behavioral strategies in fitting hearing aids, including aid selection and delivery, counseling, assessment of wearer performance, marketing, and legal issues. (Lec. 3) Pre: 555. In alternate years.

557 Electrophysiological Measures in Audiology (4)

Basic electrophysiological assessment procedures and instrumentation. Otoacoustic emissions, electrocochleography, auditory brainstem response, and middle, late, and steady-state auditory evoked potentials. (Lec. 4) Pre: 551 or permission of instructor. In alternate years.

560 Voice Disorders (3)

Etiology and symptomatology of vocal pathology; intervention strategies for organic and functional voice disorders; emphasis on rehabilitation team approach to voice-resonance problems associated with cleft palate. (Lec. 3) Pre: 372, 373, 374, 375, graduate standing, or permission of instructor.

561 Phonological Disorders (3)

Assessment, design, and implementation of therapeutic management programs for various speech production disorders at the articulatory and phonological levels. (Lec. 3) Pre: 372, 373, 374, 375, or equivalent, or permission of instructor.

562 Speech-Language Pathology for Audiologists A,B,C (1-3)

Speech-language pathology for audiology students. Language disorders in children, speech sound disorders, speech/language change and disorders in adults. Modular format with variable credits (Lec. 1-3) Offered alternate years in the spring semester.

563 Language Disorders in Infants and Toddlers (3)

The speech-language pathologist's role and responsibilities in the diagnosis and treatment of infants and toddlers (0-3) either at risk for or exhibiting bona fide communication delays or disorders; family-centered approaches to intervention. (Lec. 3) Pre: graduate standing, completion of 375 (language de-

velopment) or equivalent or permission of instructor. Offered alternate years in the spring semester.

564 Language Disorders in School-Aged Children (3)

Study of communication deficits in learning-disabled school-aged children; differential diagnoses; assessment of cognitive functioning; language processing and discourse; and therapeutic strategies for training abstract and functional language. (Lec. 3) Pre: graduate standing or permission of instructor.

565 Pre-Practicum in Speech-Language Pathology (1)

Case study methodology to facilitate students' transition from coursework to clinic. Solve open-ended real world problems. Apply course knowledge to analyze issues and formulate workable solutions. (Seminar) Pre: graduate standing. S/U

569 Test and Measurement in Speech-Language Pathology (3)

Procedures for evaluation and diagnosis in speech-language pathology. Psychometric considerations in testing. Implications of evaluation information for differential diagnosis, prognosis, referrals, and therapeutic programs. Multicultural considerations in the diagnostic process. (Lec. 3) Pre: 372, 373, 374, 375, 465 or equivalent; graduate standing or permission of instructor.

570 Clinical Practicum in Communicative Disorders (1-5)

Supervised assessment and rehabilitation procedures with persons experiencing communicative disorders in speech-language pathology and/or audiology. Practicum sites scheduled on campus and within hospital, school, institutional, and private settings. (Practicum) Pre: graduate standing, 25 observation hours, and appropriate course work.

571 Medical Speech-Language Pathology (1)

Prepares students to work as speech-language pathologists in medical settings. Focus on scope of practice, ethics, and the coordination, prioritizing, and delivery of clinical services in an interdisciplinary environment. (Seminar) Pre: graduate standing. S/U only.

572 Pathologies of the Auditory System (3)

Diagnostic implications of audiometry for various organic disorders; supportive audiological information relevant to medical and surgical interventions; differential data associated with otosclerosis, Meniere's disease, VIIIth cranial nerve tumors, and malingerers. (Lec. 3) Pre: 372, 373, 374, 375, graduate standing, or permission of instructor. In alternate years.

574 Hearing Conservation (2)

The auditory and nonauditory effects of noise on human beings. Hearing conservation plan development and monitoring as well as legal issues will be reviewed. (Lec. 2) Pre: permission of instructor. Offered spring.

575 Management of Deaf and Special Populations (3)

Identification of needs related to health, communication, and quality of life in deaf and special populations. Management strategies and the audiologist's role will be described. (Lec. 3) Pre: 454 and 551. Offered spring.

576 Cochlear Implants (2)

Concepts and issues related to cochlear implantation as a remediation for deafness in adults and children. Hardware, programming, rehabilitative, and surgical issues will be addressed. (Lec. 2) Pre: graduate standing in audiology or permission of instructor. Offered fall every third year.

577 Vestibular Rehabilitation and Tinnitus Management (2)

Management of the vertiginous patient to reduce symptoms and restore function. Tinnitus assessment and therapeutic strategies are reviewed. (Lec. 2) Pre: 454, 551, and 572. Offered spring.

580 Augmentative and Alternative Communication (2)

Review of unaided (manual) approaches to communication. Discussion of aided methods using communication boards or other mechanical electronic devices. (Lec. 2) Pre: graduate standing or permission of instructor.

581 Dysphagia (3)

Basic introduction to the knowledge and skills needed by speech-language pathologists providing clinical services to dysphagic patients in medical settings. (Lec. 3) Pre: graduate standing or permission of instructor.

582 Motor Speech Disorders (3)

Neurosystem pathologies and mechanisms affecting speech. Prepares students to diagnose, assess, and treat adults with acquired motor speech disorders. (Lec. 3) Pre: graduate standing or permission of instructor.

583 Acquired Cognitive Communication Disorders (3)

Study of acquired cognitive problems resulting from neurological disorders and diseases; differential diagnoses; assessment of the domains of cognition; and therapeutic strategies for cognitive rehabilitation. (Lec. 3) Pre: graduate standing.

584 Language Disorders in Developmentally Young Children (3)

Study of communication deficits in developmentally young and multi-handicapped children; types of language problems; differential diagnoses; assessment of conceptual requisites and concrete language skills; and interactive therapeutic strategies. (Lec. 3) Pre: graduate standing or permission of instructor.

585 Language Disorders in Adults (3)

Provides basic information on the characteristics, assessment, and treatment of adults with acquired language disorders secondary to stroke, head injury, and progressive neurological diseases. (Lec. 3) Pre: graduate standing or permission of instructor.

592 Disorders of Fluency (3)

Study of nature and causes of stuttering; analyses of current theories and research concerning stuttering and cluttering; development of a rationale for diagnosis, case selection, and intervention. (Lec. 3) Pre: graduate standing and/or permission of instructor.

593 Multicultural Issues in Communicative Disorders (1)

Exposure to state-of-the-art clinical practices with individuals from diverse backgrounds. Attention paid to developing "cultural sensitivity" and an awareness of the cultural and bilingual influences on assessment and intervention decisions. (Lec. 1)

594 Counseling in Communicative Disorders (1)

Considerations in counseling in speech-language pathology and audiology. Multiple factors influencing communication between client/family and professionals. Study of clinical skills in counseling. Ethical and professional issues. (Lec. 1) Pre: graduate standing or permission of instructor. In alternate years.

595 Instrumentation and Computer Use in Communicative Disorders (1)

Topics in applied instrumentation and computer use for students in speech-language pathology and audiology. Practical experience in calibration of instruments and the use of current professional software. (Lab. 2) Pre: graduate standing or permission of instructor. In alternate years.

598 Special Problems (1-6)

Selected areas of study pertinent to communicative disorders. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Independent Study) Pre: graduate standing.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

658 Advanced Electrophysiological Assessment of Hearing (4)

Study of the most current research regarding electrophysiological assessment of hearing. Detailed consideration of such issues as stimulus variables, age, sex, sleep state, etc. Consideration of the neurophysiology underlying the measured electrical potentials. Must be taken concurrently with 659. (Lec. 4) Pre: graduate standing in audiology or permission of instructor. Offered fall every third year.

670 Audiology Residency (6)

Full-time equivalent off-campus clinical residency in audiology. Direct clinical experience with on-site supervision plus oversight by URI faculty. Placements may vary and combine more than one site. (Externship) May be repeated for a total of 12 credits. Pre: graduate standing in audiology and completion of 570.

691 Independent Study in Audiology (1-3)

Selected areas of study pertinent to audiology. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Independent Study) Pre: graduate standing in audiology.

698 Capstone Project in Audiology (3)

This registration purposes to tie together classroom and clinical experiences. Discussions will be based on externship experiences. A major paper on one clinical problem chosen by the student will be presented to students and faculty in audiology. (Seminar) Pre: graduate standing in audiology.

Community Planning (CPL)

Chairperson: Professor Green (Landscape Architecture)

202 (or GEG 202) Introductory Urban Geography: Understanding Cities (3)

Introduction to urbanization processes, primarily in North America; national settlement systems; intra urban form; migration, racial, ethnic, gender, and class segregation; urban economics; environmental issues; planning and governance; urban applications of GIS. (Lec. 3) (S) [D]

300 (or NRS 300) Introduction to Global Issues in Sustainable Development (3)

Role of the United States in development assistance to foreign nations. Topics include foreign aid, sustainable development, transfer of technology, and international career opportunities. (Lec. 3) (FC) [D]

391, 392 Directed Study in Community Planning (1-3)

Independent work in planning for individual students or groups. (Independent Study) Pre: 410 and permission of instructor.

397 Field Work in Community Planning (1-3)

Student works as a part time intern in a planning agency under the supervision of a faculty advisor. Fieldwork must be pre-arranged with agency and instructor. (Practicum) Pre: 410 and permission of instructor.

410 Fundamentals of Community Planning Practice (3)

Survey of the planning profession and its different functional areas: land use, environment, urban design, transportation, housing, economic development, and growth management. (Lec. 3) Pre:

junior, senior, or graduate standing, or permission of instructor.

434 (or MAF 434) Introduction to Environmental Law (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.

450 Urban Design (3)

Concepts of contemporary urban landscapes, ranging from entire cities to specific building sites. Includes private development, public spaces, transportation systems, aesthetics and sprawl. Emphasis on urban design processes and standards. (Lec. 3) Pre: junior, senior, or graduate standing, or permission of instructor.

475 (or GEG 475) The Revolutionary City: Cuba (3)

Taught in Cuba, summer session. Theory and practice of Cuban urbanization. Cities in the revolutionary relationship between city and country, morphology of Cuban cities, residential differentiation, housing, community activism, and Cuban urban policy. Field trips to Cuban cities (Lec. 3) Pre: permission of instructor. Application required. Not for graduate credit.

483 Land Development (3)

Study of land development including land acquisition, development and project effectiveness. Techniques focus on land suitability and project viability, as well as environmental considerations. Focus on coastal development. (Lec. 3) Pre: junior, senior, or graduate standing, or permission of instructor.

485 Environmental Planning (3)

Theories, methodologies, and substantive concerns of environmental resource analysis with attention given to coastal environmental issues. Focus on land, soils, watersheds, water quality, vegetation, air quality, wildlife, noise pollution. (Lec. 3) Pre: junior, senior, or graduate standing, or permission of instructor.

487 (or NRS 487) International Development Internship (1-6)

Supervised participation in programs related to sustainable international development. Minimum 35 hours of internship per credit. (Practicum) Pre: 300 and/or permission of instructor. Not for graduate credit. S/U only.

495 (or NRS 496) International Development Seminar (3)

Seminar in sustainable international development for advanced-level students interested in international development. (Seminar) Pre: 300 and/or permission of instructor. Not for graduate credit.

498 Community Planning Seminar (3)

Seminar in community planning from an interdisciplinary perspective. (Seminar) Pre: 210 or 410 or permission of instructor. Not for graduate credit.

501 Introduction to Community Planning Practice (3)

The development of community planning in the United States, history of governmental planning and evaluation of the planning profession, and the elements of planning practice. (Lec. 3)

510 Community Planning and Political and Social Change (3)

Introduction to systems and central theories of determinants for social and planned change in urban and urbanizing communities. Focus on methodologies for political and social assessments. (Seminar) Service learning. Pre: 523 or permission of instructor.

516 Seminar on the Urban Waterfront

See Marine Affairs 516.

522 Planning Law (3)

General review and discussion of legal principles and thought concerned with property rights, political power, and the legal aspects pertinent to the planning and development of public and private activities. (Lec. 3) Pre: second-year graduate standing or permission of instructor.

523 Planning Theory (3)

Critical survey of planning theories and contemporary planning concepts. Values, assumptions, and processes of various planning paradigms as related to decisions in community planning. Specific emphasis on values and ethics in planning theory. (Seminar) Service learning.

525 Introduction to Planning Methods (4)

Application of basic quantitative methods in planning: collection, analysis, and presentation of demographic, housing, and economic data. Introductory survey techniques. Introduction to computer applications in planning. (Lec. 3, Lab. 2) Pre: one course in statistics or permission of instructor.

526 Techniques and Methodologies of Planning Research (4)

Elementary social science research methods. Introduction to methodological approaches, research design, quantitative and qualitative data collection, and computerized data analysis in community planning and related urban social science. (Lec. 3, Lab. 2) Pre: 525.

536 International Comparisons in Urban and Regional Planning (3)

Urban and regional development issues and policies in advanced and developing countries. Emphasis on population growth, urbanization, and spatial development. (Seminar) In alternate years.

537 (or EEC 532) Land Resources Economics (3)

The study of economic relationships of human and scarce natural and human-made resources. Supply and demand, rent theory, resources conservation, and the impact of public policy and law. (Lec. 3)

538 Site Planning (3)

Site analysis, planning and design processes. Principles and techniques addressing residential, commercial and mixed-use developments. Presents techniques to review site plans and evaluate post-development impacts. Pre: graduate standing or permission of instructor.

539 Environmental Law (3)

Analysis of specific environmental issues and policies including facility siting, land use and constitutional issues, comprehensive planning, public trust doctrine, concurrence, and state impact assessments. Independent research and presentation required. (Lec. 3)

546 (or CVE 546) Urban and Rural Transportation (3)

Issues confronting planning for urban and rural transportation systems; the variety of policies that governments pursue in addressing issues and problems; technical and political constraints, transportation studies, and demand analysis techniques. (Lec. 3) Pre: 410 or 501 or permission of instructor. In alternate years.

549 Seminar in Ecological Planning (3)

Advanced seminar in ecological planning. Topics include hazardous waste, power plant siting, major transportation facilities, solid waste, aquifer protection, among others. Particular emphasis on wetlands and marine and coastal settings. (Seminar) Pre: 511 or permission of instructor.

591, 592 Special Problems in Planning (1-6 each)

Individual investigation of special problems in planning. (Independent Study)

Community Service (CSV)

Coordinator: Dean Richmond

Note: The total number of credits in community service that may be earned toward graduation may not exceed 12.

301 Course-Based Community Service (1-3)

Learning through a community service experience related to course content. Experience defined by a job description and learning contract; includes orientation and reflection. (Practicum) Service learning. Pre: junior standing or above, or permission of instructor. Concurrent enrollment in a course that offers community service experience. May be repeated for a maximum of 6 credits. S/U only.

302 Community Service at URI (1–4)

Learning through a community service project that addresses a specific community need at the University. Project proposed and supervised by an instructor, and varies each semester. Includes mandatory seminar. (Practicum) Service learning. Pre: junior standing or above, or permission of instructor. May be repeated for a maximum of 9 credits.

303 Service in the Community (1–4)

Learning through a community service project that addresses a specific need in the off-campus community. Project proposed and supervised by an instructor, and varies each semester. (Practicum) Service learning. Pre: junior standing or above, or permission of instructor. May be repeated for a maximum of 8 credits. S/U only.

Comparative Literature Studies (CLS)

Coordinator: Associate Professor Mandel

160 Literatures of the World

See English 160. (A) or (L) [D]

235 (or PHL 235) Modern Thought: Philosophy and Literature (3)

Introduction to recent thought in philosophy and literature. Emphasis on Kierkegaard, Marx, Nietzsche, Freud, Sartre, and complementary literary texts. (Lec. 3) (L)

250 Themes and Myths (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.

335 (or ENG 335) Interdisciplinary Studies in Comparative Literature (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.

350 (or ENG 350) Literary Theory and Criticism (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.

450 Studies in Comparative Literature (3)

Detailed study of a 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.

451 Advanced Topics in International Film Media (4)

See Film Media 451.

520 Literary Theory and Criticism (3)

Metacriticism: literary criticism as theory and practice and the relationship between literary and critical discourse. (Seminar) Pre: graduate standing or permission of chairperson. May be repeated once with change of topic.

530 Approaches in Comparative Literature (3)

Study of theme/myth, movement/era, genre/forms in two or more literatures, or interrelations with other disciplines. (Seminar) Pre: graduate standing or permission of chairperson. May be repeated once with change of topic.

597 Special Problems (1–6)

Group and/or individual investigation of special problems in comparative literature studies. (Independent Study)

599 Master's Thesis Research (1–6)

Number of credits is determined each semester in consultation with the major professor and the Comparative Literature Studies Advisory Committee. (Independent Study)

See other listings under English.

Computer Science (CSC)

Chairperson: Professor Kowalski (Computer Science and Statistics)

101 Computing Concepts (4)

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, Lab. 2/Online) Not open to students who have credit in any college-level computer science course. Not for major credit in computer science. (MQ)

110 Survey of Computer Science (4)

How computers work. Design of a simple computer. Computer software, programming, and languages. Capabilities and limitations of computers. Artificial intelligence. (Lec. 3, Lab. 2) Open only to computer science majors with 4 or fewer credits in CSC courses.

200 Computer Problem Solving for Science and Engineering (4)

An integrated symbolic, numerical, and graphical approach to computer problem solving. Structured design; fundamental programming techniques. Computer algebra systems. Scientific, engineering, and mathematical applications. (Lec. 3, Lab. 2) Pre: credit or concurrent enrollment in MTH 131 or 141. Not for major credit in computer science. May not be taken for credit by students with credit in 201 or 211.

201 Introduction to Computer Programming (4)

Computer characteristics, algorithms, data representation, program development. Students will write

several programs to solve numerical and non-numerical problems. (Lec. 3, Lab. 2) Pre: MTH 111 or equivalent. May not be taken for credit by students with credit in 200 or 211. Not for major credit in computer science. (MQ)

211 Introductory Programming and Design (4)

Problem specification, solution design, and algorithm development. Object-oriented programming and program structure. Functions, selection, iteration, recursion, classes, arrays, and files. Required programs will solve numerical and non-numerical problems. (Lec. 3, Lab. 2) Pre: prior experience with computers and programming and MTH 111 or equivalent. Intended for computer science and computer engineering majors.

212 Data Structures and Abstractions (4)

Abstract data types and data structures. Pointers, linked lists, stacks, queues, binary trees, and tables. Fundamentals of software engineering. Development of object-oriented programming techniques. (Lec. 3, Lab. 2) Pre: 211 and MTH 141. Intended for computer science and computer engineering majors.

301 Fundamentals of Programming Languages (4)

Organization of programming languages, data and control structures, syntax and semantics, compilers and interpreters. Block structured languages, recursion, parameter passing, run-time storage management. Procedural, functional, object-oriented, and logical languages. (Lec. 3, Lab. 2) Pre: 212.

305 Software Engineering (4)

Programming environments and methodologies for the design, development, testing, and maintenance of large software systems. Student teams will develop a substantial software product from requirements to delivery using disciplined techniques. (Lec. 3, Project 3) Pre: 301.

320 Social Issues in Computing (4)

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. 4) Pre: 212, junior standing, or permission of instructor.

340 Mathematical Foundations of Computer Science (4)

Combinatorial techniques used in non-numerical computation and analysis of algorithms. Logic, proofs, enumerations, recurrence relations, graphs and networks, finite automata. Complexity analysis of several representative problems and algorithms for their solutions. (Lec. 4) Pre: 212 and credit or concurrent enrollment in MTH 215.

350 Fundamentals of Mathematical Computation (4)

Symbolic, numerical, and graphical approaches to mathematical computation. Pitfalls in numerical computation. Root finding. Numerical integration

and differentiation. Approximation of functions. Interpolation and curve fitting. Linear systems. Ordinary differential equations. (Lec. 3, Lab. 2) Pre: 212 and MTH 215 and 243.

402 Compiler Design (4)

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, Project 3) Pre: 301.

406 Computer Graphics (4)

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. 3, Project 3) Pre: 305, MTH 215 and 243.

411 Computer Organization (4)

Logical structure of computer systems viewed as a hierarchy of levels. Assembly language programming, assemblers, linkers, loaders. Computer architecture including digital logic, processor organization, instruction sets, addressing techniques, virtual memory, microprogramming. (Lec. 3, Project 3) Pre: 212 and 301 and either junior standing or permission of instructor.

412 Operating Systems and Networks (4)

General concepts underlying operating systems and computer networks. Topics include process management, concurrency, scheduling, memory management, information management, protection and security, modeling and performance, networking and communication. (Lec. 3, Project 3/Online) Pre: 212 and 301 and either junior standing or permission of instructor.

414 Computer Systems Fundamentals (4)

The operating principles and analysis of current computer hardware systems, operating systems, and networks (Lec. 3, Lab. 2) Pre: 101 or permission of instructor

415 Introduction to Parallel Computing (4)

Programming techniques to engage a collection of autonomous processors to solve large-scale numerical and non-numerical problems. Processor interconnections. Parallel programming languages and models. Performance measures. (Lec. 3, Project 3) Pre: 301. In alternate years.

417 Computer Communications

See Electrical Engineering 437.

418 Information and Network Security

See Electrical Engineering 438.

436 Database Management Systems (4)

Construction and management of large data systems. Data modeling, relational and object-oriented

systems, main memory databases, query languages, query optimization, concurrency control, transaction management, distributed systems, disk organization, indexes, emerging technologies. (Lec. 3, Project 3) Pre: 301 or 412 or permission of instructor.

440 Algorithms and Data Structures (4)

Algorithm design and analysis, advanced data structures, computational complexity. Sorting, searching including hashing and balanced trees, string pattern matching, polynomial and matrix calculations, graph and network algorithms, NP-completeness and intractability. (Lec. 3, Project 3) Pre: 340.

445 Models of Computation (4)

Abstract models of computational systems. Classical models for uniprocessor, sequential, and stored program computers. New models based on recent advances in hardware, software, and communications and their implications in practice. (Lec. 3, Project 3) Pre: 340. In alternate years.

447 Discrete Mathematical Structures

See Mathematics 447.

481 Artificial Intelligence (4)

Theories, formalisms, techniques to emulate intelligent behavior using information processing models. Symbolic programming, search, problem solving, knowledge-based techniques, logic, theorem proving. Optional topics: natural language processing, machine learning, computer vision. (Lec. 3, Project 3) Pre: 301 or permission of instructor. In alternate years.

485 Computer Forensics (4)

The science, technology, procedures, and law of acquiring and analyzing digital evidence from computers and devices (Lec. 3, Lab. 3/Online). Pre: 412, or permission of instructor.

486 Network Forensics (4)

The science, technology, procedures, and law of acquiring and analyzing digital evidence from computer network activity (Lec. 3, Lab. 3). Pre: 485.

491 Directed Study in Computer Science (1-4)

Advanced work in computer science. Conducted as supervised individual projects. (Independent Study) Pre: permission of chairperson. S/U credit.

492 Special Topics in Computer Science (1-4)

Advanced topics of current interest in computer science. (Lec. 1-4, Project 1-3) Pre: permission of instructor.

499 Project in Computer Science (4)

Supervised work on a capstone project in computer science that prepares students for careers in industry and graduate study. (Practicum) Pre: advanced standing in computer science and departmental approval. Normally taken twice in two consecutive semesters. May be repeated for a maximum of 8 credits. Not for graduate credit. S/U credit.

501 Programming Language Semantics (4)

Design, analysis, implementation, and comparative study of major programming language families. Topics include procedural and block-structured languages, interpretive languages, concurrency, functional languages, object-oriented programming, logic programming, dataflow languages and machines. (Lec. 3, Project 3) Pre: 301.

502 Theory of Compilers (4)

An advanced course in compiler construction covering advanced parsing techniques, compiler-writing tools, type checking and type inference, code optimization, and compiling nonstandard language features. (Lec. 3, Project 3) Pre: 402. In alternate years.

505 Advanced Topics in Software Engineering (4)

Lifecycle models; software development environments; project management. Metrics, performance, and testing. Paradigms for software design and architecture. Legal and ethical issues. (Lec. 3, Project 3) Pre: 305. In alternate years.

509 Object-Oriented System Design (4)

Object-oriented design and programming, the software engineering process. Traditional and current object-oriented design methods. Software reuse. Design tools. Impact of the technology on traditional software engineering. (Lec. 3, Project 3) Pre: 305 and working knowledge of an object-oriented language. In alternate years.

511 Advanced Computer Organization (4)

Evaluation of high-performance computer systems with respect to architectures, operating systems, and algorithms. High-speed conventional machines; array processors; multiprocessors; data flow machines; RISC architectures; VLSI-based machines. (Lec. 3, Project 3) Pre: 411. In alternate years.

512 Topics in Distributed Systems (4)

Advanced topics in distributed systems. Networking; standard distributed computing environments. Distributed computing algorithms. Concurrency and threading. Real-time computing, scheduling, concurrency control, load allocation. (Lec. 3, Project 3) Pre: 412. In alternate years.

517 Design and Analysis of VLSI Systems (4)

Illustration and analysis of VLSI algorithms and architecture. Emphasis on design of very large-scale integrated circuits, related methodologies, and theoretical foundations. VLSI technologies, fabrication, automated design tools for various problems. (Lec. 3, Project 3) Pre: 411 and either 340 or 447. In alternate years.

519 Computer Networks

See Electrical Engineering 543.

522 Bioinformatics

See Biomedical and Pharmaceutical Sciences 542.

525 Systems Simulation

See Industrial and Systems Engineering 525.

536 Topics in Data Management Systems (4)

Current research and developments in database management systems. Relational, semantic, object-oriented, real-time, distributed, heterogeneous, and logic databases. Concurrency control, security, active rules, recovery, and integrity subsystems. (Lec. 3, Project 3) Pre: 436 or permission of instructor. In alternate years.

541 Advanced Topics in Algorithms (4)

Algorithm design techniques such as dynamic programming, greedy method, branch and bound. Linear programming; NP-completeness; graph algorithms; number theoretic algorithms; approximation algorithms for NP-complete problems; probabilistic and parallel algorithms. (Lec. 3, Project 3) Pre: 440 or 445. In alternate years.

542 Mathematical Analysis of Algorithms (4)

Mathematical techniques for the analysis of algorithms. Sums and products; finite difference calculus; properties of binomial coefficients; Stirling, harmonic, and Fibonacci numbers; recurrence relations; generating functions; asymptotic approximation. Case studies. (Lec. 3, Project 3) Pre: 440. In alternate years.

544 Theory of Computation (4)

Finite automata, pushdown automata, formal grammars and Chomsky hierarchy, Turing machines, computability, basics of complexity theory. Advanced topics including some of the following: cryptography, interactive proofs, circuit complexity, completeness for various complexity classes, relations among complexity classes, new models of computation. (Lec. 3, Project 3) Pre: 440 or 445. In alternate years.

547 Combinatorics and Graph Theory

See Mathematics 547.

548 Graph Theory

See Mathematics 548.

550 Computer Algebra (4)

Symbolic mathematical computation; history, use, representation of information, algorithms and heuristics. Big number arithmetic, manipulation of polynomials and rational expressions; algebraic simplification; factoring; symbolic integration. Organization and implementation of computer algebra systems. (Lec. 3, Project 3) Pre: 350, 440. In alternate years.

581 (or ELE 581) Special Topics in Artificial Intelligence (3)

Topics of specialized or current interest, which may change. Topics may include expert systems, natural language processing, neural network models, machine learning. AI applications in remote sensing. (Lec. 3) Pre: 481 or permission of instructor. May be repeated with permission. In alternate years.

583 Computer Vision

See Electrical Engineering 583.

585 Topics in Computer Forensics (4)

Advanced topics in computer forensics. Emerging research, law, and techniques in acquiring and analyzing digital evidence from computers and devices. (Lec. 3, Lab. 3) Pre: 485, or permission of instructor.

586 Topics in Network Forensics (4)

Advanced topics in network forensics. Emerging research, law, and techniques in acquiring and analyzing digital evidence from computer networks. (Lec. 3, Lab. 3) Pre: 585.

590 Digital Forensics Practicum (3)

The application of digital forensics acquisition, analysis and law to real world scenarios. Pre: 586.

591 Directed Study in Computer Science (1–4)

Advanced work in computer science conducted as supervised individual projects. (Independent Study) Pre: permission of chairperson. S/U credit.

592 Special Topics in Computer Science (1–4)

Advanced topics of current interest in computer science. (Lec. 1–4, Project 1–3) Pre: permission of chairperson. May be taken more than once.

593 Computer Science Seminar Series (1)

Seminar discussions presented by faculty, graduate students, and outside speakers.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Economics (ECN)

Chairperson: Associate Professor Bodah

100 Introduction to Economics (3)

General overview of concepts economists employ to address issues of public policy. Description of major institutions of present-day American economy. Historical approach to subject matter. (Lec. 3/Online) (S) [D]

201 Principles of Economics: Microeconomics (3)

Principles underlying resource allocation, production, and income distribution in a market economy. Topics include demand and supply, consumer behavior, firm behavior, market structure, and elementary welfare analysis. Institutional foundations explored. (Lec. 3/Online) (S)

202 Principles of Economics: Macroeconomics (3)

Principles underlying aggregate demand and aggregate supply in a market economy. Topics include national income determination, inflation, unemployment, economic growth, and international trade.

Institutional foundations explored. (Lec. 3/Online) Pre: 201 or equivalent. (S)

305 Competing Traditions in Economics (3)

Introductory exposure to the history of economic thought and also to competing schools of thought within modern economics. Connections between present-day controversies and competing traditions are explored. Pre: 201, 202. May be taken concurrently with 202. Only offered in spring semester.

306 Introduction to Economic Research Methods (3)

Development of supplementary skills needed to carry out economic research. Topics include: 1) widely used computer operating systems, 2) economic data sources, 3) elementary mathematical and statistical techniques, and 4) library research methods. Pre: 201, 202. May be taken concurrently with 202. (S)

310 Economics of Sports (3)

Economic analysis of professional sports. Topics include sports and television, the collegiate foundation, franchise finance, athletes' compensation, and impact upon local public finance. (Lec. 3) Pre: 100, 201, an equivalent course, or permission of instructor. Offered fall.

323 Intermediate Microeconomics (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. (Lec. 3) Pre: 201, 202 and MTH 131 or 141. Offered spring.

324 Intermediate Macroeconomics (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. (Lec. 3) Pre: 201, 202 and MTH 131 or 141. Offered fall.

327 Intermediate Economic Theory: Income and Employment (3)

Measurement of national income. Theory of the determination of the general level of income, employment, and prices. Business fluctuations. (Lec. 3) Pre: 202 or 590 or permission of instructor. Not available for credit for students who have taken 324.

328 Intermediate Economic Theory: Pricing and Distribution (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: 201 or permission of instructor. Not available for credit for students who have taken 323.

334 Money and Banking (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: 201 or permission of instructor. Offered fall.

337 Industrial Organization and Public Policy (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: 201 or 202 or permission of instructor. Offered spring in alternate years. Next offered 2010–11.

338 International Economics (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: 100 or 201 or permission of instructor. Offered spring.

342 Public Finance (3)

Examination of the theory and practice of public expenditures, revenues, and fiscal policy with major emphasis on federal fiscal affairs. (Lec. 3) Pre: 201 or 202 or permission of instructor.

344 (or PSC 344) International Financial Economics (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) Pre: 100 or 202 or permission of instructor.

351, 352 Assigned Work (3 each)

Special work in economics when it can be arranged to meet the needs of individual students who desire independent work. (Independent Study) Pre: 201 or 202 or permission of instructor. S/U credit.

360 Health Economics (3)

Economic analysis of health services. Topics include demand and supply in markets for health care and insurance, government regulation, and performance of national health systems. (Lec. 3) Pre: 201. Offered spring.

363 Economic Growth and Development (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: 201 or 202 or permission of instructor. Offered fall.

368 Labor Economics (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: 201 and 202. Offered spring.

371 Economics in Islamic Societies (3)

Principles of Islamic economic systems, private property, and the market. Freedom of enterprise and role of the state. Comparison with capitalism and socialism. Pre: 201, 202 or permission of instructor. Offered spring.

375 Introduction to Quantitative Methods 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. 3) Pre: 201 and 202 and MTH 131 or 141, or permission of instructor. Offered spring.

376 Introduction to Econometrics (4)

Application of econometric methods to economic problems. Econometric tools applied to micro- and macroeconomic problems. (Lec. 3, Lab. 2) Pre: 201 or permission of instructor. Offered fall.

381 Radical Critiques of Contemporary Political Economy (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: 202 or permission of instructor. (S) [D]

385 Economic Development of the United States (3)

Developmental factors in American economic life introduce students to the past and present business environment. (Lec. 3) Pre: 201 or permission of chairperson.

386 The Economics of Race, Gender, and Class (3)

An economic examination of the historical interrelations of race, class, and gender issues in the United States. (Lec. 3) Pre: 100 or 201 or permission of instructor. Offered fall.

445 Senior Research Project (3)

Collaborative group research under guidance of department member. Topic jointly selected by members of group, subject to faculty approval. Written report required. (Independent Study) Pre: final semester for majors in the economics B.A. and B.S. applied programs. Not for graduate credit.

480 Seminar in Labor Studies

See Labor Studies 480.

515, 516 Economic Research (1–3 each)

Independent research. (Independent Study) S/U credit.

526 Economics of Labor Markets

See Labor and Industrial Relations 526.

527 Macroeconomic Theory

See Environmental Economics 527.

528 Microeconomic Theory

See Environmental Economics 528.

534 Information Sources and Uses in Labor Relations and Labor Economics

See Labor and Industrial Relations 534.

576 Econometrics

See Environmental Economics 576.

590 Principles of Economics (3)

Survey of micro- and macroeconomic theory. (Lec. 3) Pre: graduate standing in accounting, labor and industrial relations, or M.B.A. program.

628 Advanced Microeconomic Theory I

See Environmental Economics 628.

676 Advanced Econometrics

See Environmental Economics 676.

Education (EDC)

Director: Professor Byrd

102 Introduction to American Education (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. Diversity, writing, and speaking focus. (Lec. 2, Rec. 1) Not for major credit in elementary or secondary education. (S) [D]

250 Supervised Preprofessional Field Experience (1)

Supervised early field experience and seminar for students wishing to explore one or more possible career choices in education. (Practicum) May be repeated for credit. S/U only.

279 Career Development Seminar (1)

Individualized approach to career concerns, skill identification, self-awareness, career development theory, decision making. Emphasis on understanding long- and short-term goals. (Seminar)

312 The Psychology of Learning (3)

An analysis of learning with emphasis on principles and procedures applicable to any human teaching and learning situation. (Lec. 3) Pre: PSY 113.

329 Music for the Elementary School Teacher

See Music 329.

350 Primary School Practicum (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: HDF 200 and acceptance into the early childhood education program. S/U only.

360 Foundations of American Education (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. Students must be accepted into the education program.

371 Educational Measurements (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.

400 Middle School Curriculum Assessment and Methods (4)

Contemporary middle school curriculum, assessment, methods, and research-based models are emphasized. Focus is on adolescents; teaming; thematic, integrated, interdisciplinary, standards-based instruction; differentiated instruction; and multiple intelligences. (Lec. 3 and 30 hours of field experience) Pre: prior or concurrent enrollment in 312 or 424 or 448 or permission of instructor. Undergrad/M.A./TCP candidates must take this course, one or two semesters prior to student teaching, if seeking middle level endorsement.

402 Educating Students with Special Needs in Inclusive Settings (3)

Legislative, judicial, social, and psychological issues related to assessment, identification, and education of students with special needs in general education classrooms. (Lec. 3) Pre: acceptance into a teacher preparation program or teacher certification.

403 Observation in a Middle Level Classroom (1)

Seminar and practicum (minimum of 30 hours) to observe teaching practices and adolescent behavior in middle school. Completion of a shadow study of an adolescent. Pre: concurrent enrollment in 569 or permission of instructor.

415 Adolescents and Classroom Management (4)

Seminar and practicum addressing issues of adolescent development manifested in the classroom, emphasizing management strategies for learning and adolescent developmental needs. (Seminar and 30 hours of field experience) Pre: in- or pre-service major in secondary education or elementary education, or seeking middle level endorsement, or graduate level candidate, or permission of instructor.

422 Technology Applications in Education and Training (3)

Introduction to the use of microcomputers in pre-K through adult education settings. Current use and techniques will be explored for evaluating hardware and software, implementation issues, and future developments. (Lec. 3) Pre: senior standing. Not for graduate credit.

423 Teaching Comprehension and Response in the Elementary School (3)

Analysis of narrative and expository text; strategies for teaching literacy in elementary grades using these texts, specifically focusing on vocabulary,

comprehension, response, and integrating these literacy practices throughout the curriculum. (Lec. 3) Pre: prior or concurrent enrollment in 312 or 512 or graduate standing, or permission of instructor.

424 Teaching Literacy in the Primary Grades (3)

Fundamental knowledge base in literacy development and primary grade literacy instruction. Bridges theory and practice through exposure to a variety of methods and materials used to create a comprehensive primary literacy curriculum. (Lec. 3) Pre: Elementary education majors: 312 or 512, and 423; Early childhood education majors: HDF 302 or EDC 423; Non elementary or early childhood education majors: graduate standing or permission of instructor.

425 Web Site Technology In Education & Training (3)

Focus on designing web-based curriculum. Topics include incorporating multimedia technologies into a web site, appropriate androgogical and pedagogical strategies, and web site design and development. (Lec. 3) Pre: senior standing or permission of instructor. Not for graduate credit.

426 Integrated Primary School Curriculum (4)

Principles and practices of developing knowledge, skills, and activities in language arts/reading, math, science, social studies, music, art, and physical education/health. (Lec.) Pre: portfolio interview/acceptance into ECE teaching program. Concurrent enrollment in 350. Not for graduate credit in education.

429 Emergent Literacy and Storytelling (2)

Theoretical foundations and practical applications of emergent reading, writing, and language development including field-based storytelling experiences at early childhood sites. Focuses on children birth to six years. (Lec. 2) Pre: portfolio interview/acceptance into ECE teaching program (except summer) and credit or concurrent enrollment in 424 (except summer). Spring enrollment limited to students admitted to ECE teaching program and scheduled to student teach the following fall. Not for graduate credit. Optional service learning.

430 Methods and Materials in Secondary Education (3)

Principles of education as related to curricular materials and classroom situations. Sectioned by academic major: English, mathematics, modern language, science, social studies. (Lec. 3) Pre: 102 and 250 and senior standing or permission of instructor. Concurrent enrollment in 431 required. Open only to secondary education majors and secondary M.A./TCP students. Not for graduate credit in education.

431 Clinical Experiences for Secondary Education (1)

Secondary school clinical experience, taken concurrently with secondary methods course (430) during semester prior to student teaching. Student applies content learned in methods course and prior course

work to peer teaching and classroom settings. Restricted to majors. (Practicum) Not for graduate credit. S/U only.

435 The Teaching of Composition

See Writing 435.

448 Literacy Practices for Content Subjects (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, 512 or graduate standing.

449 Teaching Adolescent Literature (3)

The current canon of adolescent literature will be reviewed and expanded, and methodologies for literature instruction will be explored. (Lec. 3) Pre: acceptance into the English education program or permission of instructor. Not open to students who have taken LSC 531.

452 Evaluation of Elementary and Middle School Students (2)

Purposes and means of evaluating elementary and middle school children will be critically analyzed. Types of tests and measurement tools will be examined, such as observation checklists, sociograms, rating scales, and portfolios. (Seminar) Pre: 453, 454, and acceptance into the elementary education program. Not for graduate credit.

453 Individual Differences (3)

Analyzing the needs of various student populations with attention given to the concomitant values, resources, and curriculum modifications necessary for success in learning. (Lec. 3) Pre: acceptance in the elementary education program. Not for graduate credit.

454 Individual Differences Field Component (1)

Supervised field experience related to 453 consisting of special education, language minority, compensatory education, gifted and talented, and at-risk students. (Practicum) Pre: acceptance in the elementary education program. Not for graduate credit.

455 Language Arts Methods in Elementary and Middle School Teaching (2)

Language arts and reading principles and practices of guiding children in the skillful use of basic means of communication (speaking, listening, writing, and reading) in the elementary and middle school classroom. (Lec. 2) Pre: 452, 456, 457, acceptance into the elementary education program, and concurrent enrollment in 458 and 459. Not for graduate credit.

456 Mathematics Methods in Elementary and Middle School Teaching (2)

Principles and practices of developing knowledge and skills in mathematics with elementary and middle school children. Service learning. (Lec. 2) Pre: 453, 454; acceptance into the elementary education

program. Concurrent enrollment in 452 and 457. Not for graduate credit.

457 Science Methods in Elementary and Middle School Teaching (2)

Principles and practices of developing knowledge and skills in science with elementary school children. (Lec. 2) Pre: 453, 454, acceptance into the elementary education program or permission of director, and concurrent enrollment in 452 and 456. Not for graduate credit.

458 Social Studies Methods in Elementary and Middle School Teaching (2)

Principles and practices of developing knowledge and skills in social studies with elementary and middle school children. (Lec. 2) Pre: 452, 456, 457, acceptance into the elementary education program, and concurrent enrollment in 452 and 459. Not for graduate credit.

459 Supervised Elementary Methods Practicum I (1)

Supervised field experience related to evaluation of elementary students and methods courses: assessment, mathematics, and science. Students will observe and teach. (Practicum) Pre: admission into the elementary education program; 102, 250, 312, and 424; and concurrent enrollment in 425, 452, 456, and 457. Not for graduate credit.

460 Supervised Elementary Methods Practicum II (2)

Supervised field experience related to evaluation of elementary students and methods courses: teaching special needs students, social studies, and language arts. Students will observe and teach. Students meet periodically throughout the semester to focus on issues of classroom management. (Practicum) Pre: admission into the elementary education program; 102, 250, 312, and 424; and concurrent enrollment in 402, 455, and 458. Not for graduate credit.

478, 479 Problems in Education (0–3 each)

Advanced work in education conducted as seminars, supervised individual projects, or supervised field experiences. Topics for 478 include "Heads Up! Reading" and "NBPTS: Pre-candidates." Topics for 479 include "NBPTS" as a permanent topic. (Independent Study) Students in seminars and supervised individual projects will be graded using standard grades (A–F); students in supervised field experiences will be graded using S/U only. May be repeated for credit with different topic.

484 Supervised Student Teaching

Under approved critic teachers, students participate in classroom teaching and other school activities for a period determined by credit to be earned. Areas include secondary education, middle level education, elementary education, early childhood education, and music. (Practicum) Pre: methods course(s)

of department involved. Not for graduate credit in education. S/U credit except for music.

485 Seminar in Teaching (3)

Seminar associated with student teaching. Classroom issues, resource materials, and teaching models are addressed. Course work from throughout the undergraduate program and student teaching is integrated into a professional portfolio. Capstone. Areas include secondary nonvocational, elementary early childhood education, home economics, resource development, business, music, physical education (S/U only), theatre. (Seminar) Pre: concurrent enrollment in 484 and permission of director. Not for graduate credit in education.

486 Student Teaching in Elementary Physical Education (6)

Under selected and approved critic teachers, students participate in classroom teaching and other school activities. (Practicum) Pre: methods courses of department. Not for graduate credit in education.

487 Student Teaching in Secondary Physical Education (6)

See 486.

500 Foundations of Adult Education (3)

Examination of fundamental structure, functions, problems, and history of adult education in America. Focus on socioeconomic factors and philosophical commitments that have shaped various programs. (Lec. 3) Pre: graduate or senior standing and permission of instructor.

502 Foundations of Curriculum (3)

History and analysis of foundational ideas and schools of thought about curriculum and how they shape modern practices in curriculum development, implementation, evaluation, and change in the United States. (Lec. 3)

503 Education in Contemporary Society (3)

Leading educators' responses to issues and challenges confronting American education. Emphasis on identification and analysis of contemporary theories and practices reflecting the relationship between characteristics of society and educational values. (Lec. 3)

504 Adult Basic Education (3)

Teaching of adults whose educational level is below high school completion. Physical, social, and psychological characteristics of disadvantaged adults and various techniques and materials useful in motivating and teaching them. (Lec. 3) Pre: permission of instructor.

505 Leadership Development in Adult Programs (3)

Discussion of leadership concepts, styles, and implications. Discussion and practice in the use of several adult education methods and techniques for increas-

ing the effectiveness of groups and organizations. (Lec. 3) Pre: permission of instructor.

506 Foundations of Education: Teaching and Learning (7)

Philosophical, cultural, and psychological foundations of American education. Focus on ideological beliefs, cultural factors, and psychological principles and practices that shape teaching and learning. Field work integrated with classroom assignments. Pre: permission of director.

508 Interdisciplinary Curriculum Development (3)

Curriculum development of interdisciplinary units for schools. Focus is on grade-level units, which incorporate multiple subject areas. Both individual and group projects required. (Lec. 3) Pre: permission of instructor.

509 Thinking Math I (3)

Examines current research in mathematics instruction (K–12). It helps teachers deepen their mathematical understanding, use assessment to guide instruction, and use research-based practices to improve student performance. (Lec. 3) Pre: teaching certification.

510 Reading Instruction (3)

Examines research in beginning reading and best practices for primary (K–2) literacy instruction, and links these to the Rhode Island Reading Policy and the Tri-State GLEs. (Lec. 3) Pre: teaching certification.

511 Reading Comprehension Instruction (3)

Examines reading comprehension research, strategies, and instructional techniques for both narrative and expository texts and links these to the RI Reading Policy and performance standards. (Lec. 3) Pre: teaching certification.

512 Educational Psychology/Classroom Learning (3)

Survey and analysis of classroom learning literature. Particular attention paid to interaction of theory and research for instructional practice. Introduces relevant measurement, statistical, and research concepts. (Seminar) Pre: previous course in psychology, or permission of instructor.

514 Current Trends in Elementary Education (3)

For teachers and administrators, the most effective use of instructional materials, media of communication, and personnel in elementary school. (Lec. 3) Pre: 529 or permission of director. In alternate years. Next offered 2009–10.

515 Job-Embedded Professional Development (3)

Job-embedded professional development focuses on assisting educators in the reflection and data analyses required to design and implement professional development activities within schools. The central purpose of these professional development activities is to improve teaching and student learning. The literature on job-embedded professional development

will be analyzed, and participants will design proposals for job-embedded professional development in their schools/districts.

516 Teaching English as a Second Language (3)

Methods and materials for those who plan to teach English as a second language. Students develop and implement appropriate strategies and techniques for teaching of ESL. (Lec. 3) Pre: permission of instructor.

517 Teaching Social Studies in the Elementary School (3)

Intensive research in various cross-subject topics within the social studies. Systematic analyses of learning theories and methods as they relate to the teaching of social studies in the elementary grades. (Lec. 3) Pre: graduate or postgraduate standing.

518 Teaching Science in the Elementary School (3)

Emphasis on methods and materials for use in the teaching of science in technology, life, earth, space, and physical science topics. (Lec. 3) Pre: permission of instructor.

520 Teaching of Mathematics (3)

For the experienced teacher, examination of the principles underlying the teaching of mathematics in the elementary school; comprehensive survey of materials and methods available for the classroom teacher of mathematics. (Lec. 3) Pre: senior or graduate standing. In alternate years. Next offered 2009–10.

521 Teaching Basic Reading to Adults (3)

Techniques for teaching basic reading skills to illiterate adults; diagnosis, methods, and materials. (Lec. 3) Pre: 504 or permission of instructor.

522 Technology Applications in Education and Training (3)

Introduction to the use of microcomputers in pre-K through adult education settings. Current use and techniques will be explored for evaluating hardware and software, implementation issues, and future developments. (Lec. 3) Pre: senior or graduate standing.

525 (523) Web Site Technology In Education and Training (3)

Focus on designing web-based curriculum. Topics include incorporating multimedia technologies into a web site, appropriate androgogical and pedagogical strategies, and web site design and development. (Lec. 3) Pre: 522 or permission of instructor.

527 (or PSY 527) Language Study for Teachers of Reading (3)

Focuses on the structure of language at the sound, syllable, and word level. Applies concepts to reading and spelling development, teaching phoneme awareness, interpreting student errors, and planning instruction. (Seminar)

528 Teaching Language Arts (3)

Preparation, presentation, use, and evaluation of methods and materials for teaching reading, writing, speaking, and listening in the language arts classroom and throughout the curriculum for K-6 grades. Pre: graduate standing.

529 Foundations of Educational Research (3)

Analysis of the current major research approaches to educational problems with emphasis on interpreting published research involving the language of statistics. Functional skills in basic descriptive statistics needed prior to enrolling. (Lec. 3)

530 Qualitative Research and Evaluation (3)

Qualitative methods, including ethnography, for obtaining and using data in describing, interpreting, and reaching warranted judgments, particularly about educational and social problems. Emphasis on developing individual projects and writing formal reports. (Lec. 3)

539 Evaluation and Monitoring of Education Programs (3)

Evaluation and monitoring theory and practice for education and training programs. Focus on development of evaluations for programs in job training, public education, and private sector programs. (Lec. 3) Pre: 529 or permission of instructor.

540 Learning Disabilities: Assessment and Intervention

See Psychology 540.

544 Reading Acquisition and Reading Disability: Research and Implications for Practice

See Psychology 544.

555 Quantitative Thinking and Applications for Education (3)

Basic logic and techniques of quantitative data analysis. For education Ph.D. students planning to conduct applied research in educational settings, this course provides foundations of receptive and expressive literacy. This course satisfies the prerequisite for EDP 625, but cannot be used for program credit. (Lec. 3) Pre: admission to joint URI-RIC Ph.D. in education program. (Spans both summer sessions.)

560 Advanced Foreign Language Teaching Methods (3)

Focuses on standards-based instruction in world language classrooms and teachers' decision-making processes. Designed to help language teachers update teaching practices based on current second-language acquisition research. For already certified teachers. (Lec. 3) Pre: teaching certification.

562 Methods of Intervention for Literacy Difficulties (3)

Teachers will explore methods and materials used for developing phonological awareness, sound/symbol knowledge, word reading skills, fluency, comprehension, and vocabulary through readings, discussions,

application, and reflection. (Lec. 3) Pre: restricted to students accepted to teacher education, or graduate standing, or permission of instructor.

563 Teaching Reading to Multicultural Populations (3)

Identification of the strengths of learners whose cultural and socioeconomic backgrounds vary, and the implications for teaching reading. Special emphasis on the selection and development of appropriate materials and teaching strategies. (Lec. 3) Pre: 424 or permission of instructor.

564 Diagnosis of Literacy Difficulties (4)

Use informal and formal techniques to assess students' reading and writing skills, evaluate contextual factors, and evaluate the match between learner and context. Culminates in case report and plan for instruction. (Lec./Lab. 4) Pre: admission to reading master's program or permission of reading program.

565 Advanced Literacy Research Seminar (3)

In-depth review of literacy research and theory from a variety of perspectives. Analysis of the relationships among research, theory, and political/instructional decisions. Includes development of a proposal to conduct literacy research. (Lec. 3) Pre: acceptance into reading master's program or permission of reading program.

566 Intervention in Reading and Writing Difficulties (3)

Supervised clinical experience in reading and writing difficulties. Students work directly with struggling readers and writers to diagnose reading/writing difficulties and plan and implement an appropriate program of instruction. (Practicum) Pre: 564 and 565.

567 Field Study in Literacy (3)

Supervised clinical experience in reading and writing difficulties. Students work directly with struggling readers and writers to diagnose reading/writing difficulties and plan and implement an appropriate program of instruction. (Practicum) Pre: 565.

568 Differentiation of Instruction (3)

Strategies for differentiating instruction to meet diverse student needs in a heterogeneous classroom are addressed. Development of lessons using integrated differentiated instruction and assessment strategies is required. (Lec. 3) Pre: 400 or 424 or 448 or 569 or permission of instructor.

569 Best Practices in the Middle Level Classroom (3)

Examination of state and school improvement data at the middle level to improve curriculum, instruction, and assessment practices. Action research is performed with an emphasis on designs, processes, and models. (Lec. 3) Pre: graduate standing or permission of instructor.

570 Elementary School Curriculum (3)

Modern curriculum in the elementary school with emphasis on the needs of children. Covers language arts, social studies, science, arithmetic, and special subjects. (Lec. 3) Pre: 529 or equivalent. In alternate years. Next offered 2009–10.

574 Current Trends in Secondary Education (3)

Effective use of instructional materials, media of communication, and organization of personnel and current research. (Lec. 3) Pre: 529 or permission of director.

575 Supervised Field Study/Practicum and Seminar in Education (3)

For nonthesis candidates. Lectures, seminars, and field work. Candidates plan and conduct a field study/practicum project approved by the instructor and the student's professor. A formal proposal is developed, submitted, and approved, the project completed, and a formal paper defended. (Practicum) Pre: admission to a master's program in education and permission of instructor. May be repeated for a maximum of 6 credits.

579 Labor Relations and Collective Bargaining in Education

See Labor and Industrial Relations 579.

581 Administering Adult Programs (3)

Administration, personnel management, resource management, recruitment, development, and supervision within programs dealing with adults as learners. (Lec. 3) Pre: 505 or permission of instructor.

582 Instructional Systems Development for Adult Programs (3)

Designing and implementing instructional systems. Discussion of the basic tenets underlying theories of instructional technology, curriculum development, and curriculum change as they apply to adult learners in a variety of settings. (Lec. 3) Pre: 581 or permission of instructor.

583 Planning, Design, and Development of Adult Learning Systems (3)

Overview of the program planning process including goal setting, needs analysis, program planning, and implementing change strategies. Discussion of effective functioning in the role of change agent within an organization. (Lec. 3) Pre: permission of instructor.

584 The Adult and the Learning Process (3)

Examination of the adult as a learner with emphasis on the factors that affect adult learning and learning processes related to instruction. (Lec. 3) Pre: permission of instructor.

586, 587 Problems in Education (0–3 each)

Advanced work for graduate students in education. Courses conducted as seminars or as supervised

individual projects. (Independent Study) For 586, topics include: "Consortium on Reading Excellence," "Hosting a SALT Visit," "Instructional Strategies for Diversified Classrooms," "Orton-Gillingham Reading Instruction," "Orton-Gillingham Reading Practicum," "Reflective Practitioner-Using Data to Inform Instruction," "SALT Visit," "Schools Attuned," "Using Blogs & Wikis to Foster Literacy," "4 Roles of Leadership," "Using the Internet for Teaching, Learning, & Practical Applications," "Seven Habits of Highly Effective People," and "Teaching the *Write Traits*." For 587, topics include: "Disciplinary Literacy." Pre: permission of director. May be repeated for credit with different topic.

594 Organization and Supervision of Literacy Programs (3)

Field experience in the roles/responsibilities of a reading specialist. Requires shadowing reading professionals, visiting schools, involvement in professional groups, developing action plans, and developing and presenting professional development sessions. (Lec./Lab. 3) Pre: 565 or permission of reading program. In alternate years. Next offered 2009–10.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

683 Psychology of the Exceptional Child

See Psychology 683.

687 Seminar: Topics in the Psychology of the Exceptional Individual

See Psychology 687.

920 Workshop for Teachers (1–3)

Current issues in education. Specific topics offered for in-service teachers and administrators. May be repeated with different topic. (Workshop) Topics include: "Using the Internet for Teaching," "Learning, and Practical Applications," and "Immersion Program for Teachers of Spanish." Pre: teacher certification.

921, 922, 923 Workshop for Teachers (1–3 each)

Current issues in education. Specific topics offered for in-service teachers and administrators. For 921, topics include: "Using Blogs & Wikis to Foster Literacy." (Workshop/Online) Pre: certified teacher.

Ph.D. in Education (EDP)

Co-Director: Professor Young

610 Core Seminar I: Issues and Problems in Educational Inquiry and Foundations (3)

Examination of issues and problems related to philosophical and historical aspects of educational thought and the role of society. Empirical analysis of classroom settings is emphasized. (Seminar) Pre: admission to the Ph.D. program in education.

611 Core Seminar I: Issues and Problems in Educational Inquiry and Foundations (3)

Examination of issues and problems related to philosophical and historical aspects of educational thought and the role of society. Empirical analysis of classroom setting is emphasized. (Seminar) Pre: 610.

612 Qualitative Research Methods in Education (3)

Survey of qualitative methods of educational research: terminology, historical development, assumptions, and models of inquiry. Pre: Current enrollment in the URI/RIC Joint Ph.D. Program.

620, 621 Core Seminar II: Issues and Problems in Human Development, Learning, and Teaching (3 each)

Issues and problems related to human development, curriculum, teaching, and learning are examined. Ways of gathering and evaluating evidence about school and curriculum effectiveness are emphasized. (Seminar) Pre: (for 620) 610, 611, 615. Pre: (for 621) 620.

623 (615) Research Design (3)

Research design process including developing problem statements, research questions, hypotheses and appropriate methods (i.e., qualitative, quantitative, or mixed). Course considers philosophical world-views, literature reviews, theory use, and research ethics. Pre: 610, 611, 612, 613.

625 Quantitative Analysis in Educational Research (3)

Educational research data is quantitatively analyzed. Data collected during Core Seminar I are analyzed and interpreted. Applications of the general linear model to a variety of research designs and analytic strategies are emphasized. (Lec. 3) Pre: 610, 611, 615, and a course in introductory statistics, or permission of instructor.

630, 631 Core Seminar III: Issues and Problems in Organizational Theory, Leadership, and Policy Analysis (3 each)

Issues and problems related to applications of organizational theory, leadership theory, and policy analysis are studied. Core seminar examines cases related to district, state, and/or regional educational offices and agencies. (Seminar) Pre: (for 630) 620, 621.

641 Field Research Seminar (1)

Bi-weekly forums present first-, second-, and third-year students' evolving research questions and empirical designs. Discussion and feedback refine individuals' research plans, enhancing the methodological perspectives and tools of all participants. (Seminar) Pre: admission to joint (URI-RIC) Ph.D. program in education. May be repeated up to a maximum of six semesters (a total of 6 credits).

692, 693 Directed Readings and Research Problems (3–6 each)

Directed readings and advanced research work under the supervision of a member of the graduate faculty, arranged to suit the individual requirements of the students. (Independent Study) May be repeated for a maximum of 12 credits. Pre: 610, 611, 615, 2 credits of 641, and permission of instructor.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U only.

Special Education (EDS)

Coordinator: Professor Eichinger

500 Inclusive Educational Practices (2)

Historical, sociological, and legal factors that shape education for students with disabilities. Definitions of disabilities and educational implications, focusing on the role of the special educator in inclusive education. (Lec. 2) Pre: acceptance into the master's degree program in special education. To be taken concurrently with 502, 503, 505, and 510 for students seeking elementary/middle certification. To be taken concurrently with 503, 507, 513, and EDC 568 for students seeking secondary/middle certification.

501 Collaboration and Co-Teaching (2)

Provides future special educators with knowledge and skills to implement culturally responsive collaboration with family members, and school based professionals. (Lec. 2) Pre: acceptance into master's degree program in special education. 500, 502, 503, 505, and 510 for students earning elementary/middle certification, 500, 503, 507, 513, and EDC 568 for students earning secondary/middle certification. To be taken concurrently with 504, 506, 509, and 511 for students seeking elementary/middle certification. To be taken concurrently with 504, 508, 516, and 517, for students seeking secondary/middle certification.

502 Assessment for Elementary Special Educators (3)

Provides future special educators with knowledge and skills to assess students using standardized and curriculum-based measures and to implement the response to intervention model. (Lec. 3) Pre: acceptance into the master's degree program in special education. To be taken concurrently with 500, 503, 505, and 510.

503 Positive Behavior Supports (3)

Provides future special educators with the knowledge and skills to examine causes of behaviors, to teach pro-social behaviors and to develop individualized positive behavioral supports. (Lec. 3) Pre: acceptance into the master's degree program in special education. To be taken concurrently with 500, 502, 505,

and 510 for students seeking elementary/middle certification. To be taken concurrently with 500, 507, 513, and EDC 568 for students seeking secondary/middle certification.

504 Research in Special Education (3)

Critical analysis of research publications in special education, the translation of research findings into practical instructional applications, and the identification of an area of proposed study in special education. (Lec. 3) Pre: acceptance into the master's degree program in special education; 500, 502, 503, 510 and 505 for students in the elementary/middle certification program; 500, 503, 507, 513 and EDC 568 for students in the secondary certification program. To be taken concurrently with 501, 506, 509, 511 for students in the elementary program, or with 501, 508, 516, 517 for students in the secondary program.

505 Supervised Practicum: Elementary and Middle Level (1)

Provides future special educators with opportunities to assess students and instruct students with disabilities under the supervision of a certified special educator. Students will be observed once by University instructor. (Practicum). Pre: acceptance into the master's degree program in special education. To be taken concurrently with 500, 502, 503, and 510. S/U only.

506 Supervised Practicum: Elementary and Middle Level (1)

Provides future special educators with opportunities to collaborate with other professionals to provide instruction under supervision of a certified special educator. One observation by University instructor. (Practicum) Pre: acceptance into the master's degree program in special education and 500, 502, 503, 505, and 510. To be taken concurrently with 501, 504, 509, and 511.

507 Supervised Practicum: Secondary and Middle Level (1)

Provides future special educators with opportunities to assess and instruct students with disabilities under the supervision of a certified special educator. One observation by university supervisor. (Practicum). Pre: acceptance into the master's degree program in special education. To be taken concurrently with 500, 503, 513, and EDC 568. S/U only

508 Supervised Practicum: Secondary/Middle Level (1)

Provide future special educators opportunities to collaborate with other professionals to plan and implement instruction under a certified special educator. One observation by a University supervisor. (Practicum) Pre: acceptance into the master's degree program in special education and 500, 503, 507, 513, and EDC 568. To be taken concurrently with EDS 501, 504, 516, and 517.

509 Teaching Students with Severe Disabilities (3)

Provides the knowledge and skills future special educators need to plan individualized instruction for students with moderate or severe disabilities in general education classes. (Lec. 3) Pre: acceptance into the master's degree program in special education; and 500, 502, 503, 505, and 510. To be taken concurrently with 501, 504, 506, and 511.

510 Teaching Elementary Students with Mild Disabilities (3)

Provides future special educators with the knowledge and skills to plan individualized instruction for students with mild disabilities based on assessment data and current research on effective instructional practices. (Lec. 3) Pre: acceptance into the master's degree program in special education. To be taken concurrently with 500, 502, 503, and 505 for students seeking elementary/middle certification.

511 Literacy and Language Instruction (3)

Provides future special educators with the knowledge and skills to plan instruction in literacy and language for students with disabilities. (Lec. 3) Pre: acceptance into the master's degree program in special education and 500, 502, 503, 505, and 510. To be taken concurrently with 501, 504, 506, and 509.

512 Leadership and Elementary Program Management (3)

Future special educators acquire knowledge and skills to coordinate their students' schedules, train and supervise paraprofessionals, conduct action research, and restructure service delivery models in special education. (Lec. 3) Pre: acceptance into the master's degree program in special education and 500, 501, 502, 503, 504, 505, 506, 509, 510, and 511. To be taken concurrently with 518.

513 Assessment for Secondary Special Educators (3)

Provides future special educators with knowledge and skills to assess students using standardized and curriculum-based measures, to implement the response to intervention model, and to plan for transition. (Lec. 3) Pre: acceptance into the master's degree program in special education. To be taken concurrently with 500, 503, 507, and EDC 568.

516 Teaching Secondary Students with Mild Disabilities (3)

Provides future special educators with knowledge and skills to plan instruction for adolescents with mild or moderate disabilities, including literacy skills, language skills and content strategy instruction. (Lec. 3) Pre: acceptance into the master's degree program in special education and 500, 503, 507, 513, and EDC 568. To be taken concurrently with 501, 504, 508, and 517.

517 Transition Planning for Post-School Outcomes (3)

Provides future special educators with knowledge and skills to implement transitions for secondary students to work or other post-secondary options. (Lec. 3) Pre: acceptance into the master's degree program in special education and 500, 503, 507, 513, and EDC 586. To be taken concurrently with 501, 504, 508, and 516.

518 Supervised Internship (9)

Under the supervision of a certified special educator, students teach in general education classes which include students with special needs, for ten (10) weeks. (Practicum) Pre: acceptance into the master's degree program in special education and 500, 501, 502, 503, 504, 505, 506, 509, 510, 511 for students seeking elementary certification; 500, 501, 503, 504, 507, 508, 513, 516, 517, and EDC 568 for students seeking secondary certification. To be taken concurrently with 512 for elementary students and 520 for secondary students. S/U only.

520 Leadership and Secondary Program Management (3)

Future special educators acquire knowledge and skills to coordinate their students' programs, develop effective schedules, train and supervise paraprofessionals, conduct action research, and restructure existing service delivery models. (Lec. 3) Pre: acceptance into the master's degree program in special education and 500, 501, 503, 504, 507, 508, 513, 516, 517, and EDC 586. To be taken concurrently with 518.

Electrical Engineering (ELE)

Chairperson: Professor Boudreaux-Bartels (Electrical, Computer and Biomedical Engineering)

201 Digital Circuit Design (3)

Digital concepts. Combinational logic: gates, Boolean algebra, K-maps, standard implementations. Sequential circuits: flip-flops, timing diagrams, state diagrams, counters and registers, design methods. MSI devices, memory, and programmable devices. (Lec. 3) Pre: credit or concurrent enrollment in MTH 141.

202 Digital Circuit Design Laboratory (1)

Laboratory experience in digital electronics. Logic design projects using standard SSI and MSI integrated circuits. (Lab. 3) Pre: credit or concurrent enrollment in 201.

205 Microprocessors (2)

Hands-on familiarization with computer and microprocessor software and hardware. Computer architecture and interfacing with input and output devices. (Lec. 2) Pre: credit or concurrent enrollment in MTH 141 and ELE 206.

206 Microprocessor Laboratory (1)

Laboratory exercises related to topics in 205. (Lab. 3) Pre: credit or concurrent enrollment in MTH 141 and ELE 205.

208 Introduction to Computer Systems (2)

Bits, binary representations, digital logic structures, and the von Neumann computing model, the machine and assembly language, interrupt and traps, input and output, subroutines, stack and high-level programming in computing systems. (Lec. 2) Pre: credit or concurrent enrollment in MTH 141 and ELE 209.

209 Introduction to Computer Systems Lab. (1)

Laboratory exercises related to topics in 208. (Lab. 3) Pre: credit or concurrent enrollment in MTH 141 and ELE 208.

212 Linear Circuit Theory (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: PHY 204 and credit or concurrent enrollment in MTH 244 or 362.

215 Linear Circuits Laboratory (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.

220 Passive and Active Circuits (3)

Electrical circuit laws and theorems, transient and steady-state response, phasors, frequency response, resonance. Diode and transistor circuits, digital logic devices. (Lec. 3) Pre: PHY 204 or 214. Not open to biomedical, computer, or electrical engineering majors.

301 (306) Electronic Design Automation (3)

Digital design, simulation, synthesis, and verification using electronic design automation tools. IEEE VHDL hardware description language and rapid prototyping with FPGAs. Register transfer level design with reusable modules and cores. (Lec. 3) Pre: 201 and 202 and 212 and 215 and (credit or concurrent enrollment in 302).

302 (307) Electronic Design Automation Laboratory (1)

Laboratory exercises related to topics in 301. (Lab. 3) Pre: credit or concurrent enrollment in 301.

305 Introduction to Computer Architecture (3)

Introduction to CPU, instruction set architecture, instruction pipeline, hazard avoidance, and branch prediction. Concept and evaluation of cache memory and memory management. Bus architecture and input and output interfaces. (Lec. 3) Pre: 201 and 212 and (205 or 208).

313 Linear Systems (3)

Fourier series, Fourier transforms, transfer functions of continuous and discrete-time systems, transient

and steady-state response, natural response and stability, convolution. (Lec. 3) Pre: 212 and (MTH 244 or 362) and (EGR 106 or permission of instructor).

314 Linear Systems and Signals (3)

Continuous-time and discrete-time systems, frequency response, stability criteria, Laplace transforms, z-transforms, filters, sampling, feedback, and applications. (Lec. 3) Pre: 313.

322 Electromagnetic Fields I (4)

Electrostatics and magnetostatics, forces on charged particles. Analysis employs vector algebra and vector calculus in orthogonal coordinates. Simple applications to engineering problems. (Lec. 3, Rec. 1) Pre: 212 and MTH 243 and PHY 204.

325 Electrical Power Distribution Systems (3)

Theory of 3-phase power systems, introduction to per unit system of analysis, distribution system components (transformers, lines, switch-gear, loads), system layout, analysis of unbalanced systems with symmetrical components. (Lec. 3) Pre: 212 and PHY 204 and MTH 362.

331 Introduction to Solid State Devices (4)

Electrical and optical properties of semiconductors. Characteristics of p-n and metal-semiconductor junctions. Application to diodes, transistors and light emitting and absorbing devices. Fabrication technology is introduced. (Lec. 3, Rec. 1) Pre: 212 and MTH 243 and (PHY 306 or 341).

338 (341) Electronics I (3)

Review of linear circuit theory, operational amplifiers, diode and transistor circuits, computer-aided design, linear and nonlinear circuit applications, CMOS logic (Lec. 3) Pre: 201 and 212 and 215 and EGR 106 and (credit or concurrent enrollment in 339).

339 (342) Electronics I Laboratory (1)

Laboratory exercises related to topics in 338. (Lab. 3) Pre: (credit or concurrent enrollment in 338).

*** 343 Electronics II (3)**

Bipolar and MOS transistor biasing, small signal amplifiers, amplifier frequency response, operational amplifiers, SPICE, nonlinear circuits, statistical circuit simulation. (Lec. 3) Pre: credit or concurrent enrollment in 344.

344 Electronics II Laboratory (1)

Laboratory exercises related to topics in 343. (Lab. 3) Pre: credit or concurrent enrollment in 343.

391, 392, 393 Special Problems (1-3)

Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. Pre: permission of instructor. 393 is for S/U credit.

400 Introduction to Professional Practice (1)

Engineering ethics. Discussions with faculty, visiting engineers, and invited speakers on ethical, social, economic, and safety considerations in engineering

*** Please see "Addendum to 2009-2010 URI Catalog" for an addition or correction to this information.**

practice; career planning; graduate study. (Lec. 1)
Pre: (205 or 208) and 212. Not for graduate credit.

401 Lasers, Optical Fibers, and Communication Systems (3)

Introduction to lasers, LEDs, optical fibers and detectors. Properties of Gaussian beams, optical resonators, and diffraction of Gaussian beams. Properties of Fabry-Perot cavities. Introduction to fiber optical communications systems. (Lec. 3) Pre: ((205 or 208) and 313 and 322 and 331 and ((338 and 339) or 342) and (credit or concurrent enrollment in 402)) or permission of instructor.

402 Lasers, Optical Fibers, and Communication Systems Lab. (1)

Laboratory exercises related to topics in 401. (Lab. 3)
Pre: credit or concurrent enrollment in 401.

405 Digital Computer Design (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: (301, 305, and (credit or concurrent enrollment in 406)) or permission of instructor.

406 Digital Computer Design Laboratory (1)

Laboratory exercises related to topics in 405. (Lab. 3)
Pre: credit or concurrent enrollment in 405

408 Computer Organization (3)

Engineering design problems involving hardware, software, and interface of computer and embedded systems. Students will apply skills and knowledge accumulated through the curriculum in a group senior design project. (Lec. 3) Pre: (305 and 313, ((338 and 339) or 342) and (credit or concurrent enrollment in 409)), or permission of instructor.

409 Computer Organization Laboratory (1)

Laboratory exercises related to topics in 408. (Lab. 3). Pre: credit or concurrent enrollment in 408.

423 Electromagnetic Fields II (4)

Transmission lines, Maxwell's equations, wave equation, reflection and refraction phenomena, polarization effects waveguides and antennas. Design project requiring application of electromagnetic theory and use of numerical methods. (Lec. 4) Pre: (313 and 322 and ((338 and 339) or 342)) or permission of instructor. Not for graduate credit.

427 Electromechanical Systems (3)

State-variable models. Electromechanical devices and systems in translation and rotation. Design of sensors, actuators, and systems as used in control applications. (Lec. 3) Pre: (313 and 322 and 331 and ((338 and 339) or 342) and (credit or concurrent enrollment in 428)) or permission of instructor.

428 Electromechanical Systems Laboratory (1)

Laboratory exercises related to topics in 427. (Lab. 3)
Pre: credit or concurrent enrollment in 427.

432 Electrical Engineering Materials (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. 4) Pre: (313 and 322 and 331 and ((338 and 339) or 342)) or permission of instructor.

435 Communication Systems (3)

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. 3) Pre: ((215 or (338 and 339) or 342) and 314 and EGR 106 and (credit or concurrent enrollment in 436)) or permission of instructor.

436 Communication Systems Laboratory (1)

Laboratory exercises related to topics in 435. (Lab. 3)
Pre: credit or concurrent enrollment in 435.

437 (or CSC 417) Computer Communications (3)

Computer networks, layering standards, communication fundamentals, error detection and recovery, queuing theory, delay versus throughput trade-offs in networks, multiple-access channels, design issues in wide and local area networks. (Lec. 3) Pre: ((205 or 208 or CSC 211) and (436 or MTH 451 or ISE 411)) or permission of instructor.

438 (or CSC 418) Information and Network Security (4)

Elementary cryptography, public key, private key, symmetric key, authentication protocols, firewalls, virtual private networks, transport layer security, and wireless network security. (Lec. 3, Project 3) Pre: 208 or MTH 362 or MTH 451 or ISE 411 or junior or senior standing in computer engineering or computer science or permission of instructor.

444 Advanced Electronic Design (3)

Review of number systems, combinational and sequential logic, state machine. Design capture tools, hardware/software design, system implementation using PC's, MSI circuits, and FPGAs (Lec. 3) Pre: ((205 or 208) and 313 and ((338 and 339) or 342) and concurrent enrollment in 445)) or permission of instructor.

445 Advanced Electronic Design Laboratory (1)

Laboratory exercises related to topics in 444. (Lab. 3)
Pre: credit or concurrent enrollment in 444.

447 Digital Integrated Circuit Design I (3)

Introduction to full custom digital integrated circuit design. Analysis of logic functions and timing at the transistor level. Realization of logic functions via hand crafted transistor layout. Design project. (Lec. 3) Pre: (202 and ((338 and 339) or 342) and 313 and PHY 204 and (credit or concurrent enrollment in 448)) or permission of instructor.

448 Digital Integrated Circuit Design I Laboratory (1)

Laboratory exercises related to topics in 447. (Lab. 3)
Pre: credit or concurrent enrollment in 447.

457 Feedback Control Systems (3)

Fundamental techniques for the analysis and design of linear feedback systems. Stability, sensitivity, performance criteria, steady-state error, Nyquist criterion, root locus techniques, and compensation methods. (Lec. 3) Pre: ((205 or 208) and 314) or permission of instructor.

458 Digital Control Systems (3)

Analysis and 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) Pre: ((205 or 208) and (314 or 461 or BME 461) and ((338 and 339) or 342 and (credit or concurrent enrollment in 459)) or permission of instructor.

459 Digital Control Systems Laboratory (1)

Laboratory exercises related to topics in 458. (Lab. 3)
Pre: credit or concurrent enrollment in 458.

461 Physiological Modeling and Control

See Biomedical Engineering 461.

480 Capstone Design I (3)

Application of engineering skills; teams focus on the design and communication of solutions to problems with real-world constraints (may include aspects of other engineering disciplines). First of a two-course sequence (Lec. 2, Lab. 3). Pre: (205 or 208) and 313 and ((338 and 339) or 342) and permission of instructor. Not for graduate credit.

481 Capstone Design II (3)

Application of engineering skills; teams focus on the design and communication of solutions to problems with real-world constraints (may include aspects of other engineering disciplines). Second of a two-course sequence. (Lab. 6) Pre: (205 or 208) and 313 and ((338 and 339) or 342) and permission of instructor. Not for graduate credit.

491, 492, 493 Special Problems (1-3)

Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. 493 is for S/U credit. Pre: permission of instructor. Not for graduate credit.

501 Linear Transform Analysis (3)

Transform analysis (including Fourier, Laplace, and z-transforms) of continuous- and discrete-time systems and signals. Properties of transforms, computational efficiency, and applications such as compact representations of video and sound. (Lec. 3) Pre: vectors, matrices, calculus with real and complex variables.

502 Nonlinear Control Systems (3)

Analysis of nonlinear systems: phase-plane analysis, Lyapunov theory, advanced stability theory, describ-

ing functions. Design of nonlinear control systems: feedback linearization, sliding control. (Lec. 3) Pre: 503 or permission of instructor.

503 (or MCE 503) Linear Control Systems (4)

State-variable description of continuous-time and discrete-time systems, matrices and linear spaces, controllability and observability, pole-placement methods, observer theory and state reconstruction, MATLAB exercises for simulation and design. (Lec. 4) Pre: 314 or MCE 366 or equivalent and MTH 215 or equivalent.

504 (or MCE 504) Optimal Control Theory (3)

Quadratic performance indices and optimal linear control, frequency response properties of optimal feedback regulators, state estimation, separation theorem, optimal control of nonlinear systems, Pontryagin's minimum principle. (Lec. 3) Pre: 503.

506 Digital Signal Processing (4)

Review of z-transform, frequency response of LTI systems, digital filter structures, sampling theorem, spectral analysis, DFT and FFT algorithms, windows, periodogram, introduction to design of FIR and IIR filters. (Lec. 4) Pre: 501 or permission of instructor.

509 Introduction to Random Processes (4)

Probability and random variables; random process characterizations and techniques. Useful models. Discrete and continuous systems with random inputs. Applications to detection and filtering problems. (Lec. 4) Pre: MTH 451 or equivalent and knowledge of calculus, linear systems, and transform methods.

510 Communication Theory (4)

Communication theory for discrete and continuous channels. Optimum-receiver principles and signal design. Fundamentals of information theory. Channel models, modulation techniques, source encoding, error control coding, decoding algorithms. (Lec. 4) Pre: 509.

511 Engineering Electromagnetics (3)

Review of electrostatics and magnetostatics. Maxwell's equations, wave propagation in dielectric and conducting media. Boundary phenomena. Radiation from simple structures. Relations between circuit and field theory. (Lec. 3)

515 Systems Simulation

See Industrial and Systems Engineering 525.

525 Fiber Optic Communication Systems (3)

Survey of important topics in optical communication devices and systems. The physical principles and operation of lasers, LEDs, fibers, and detectors are covered. (Lec. 3) Pre: 423, 331, 401 or equivalent.

527 Current Topics in Lightwave Technology (3)

Current topics of importance in lightwave technology including coherent fiber optical communication systems, optical amplifiers, active and passive single-

mode devices, infrared optical fibers. Material will be taken from recent literature. (Lec. 3) Pre: 525 or equivalent.

531 Solid State Engineering I (3)

Review of quantum mechanics, crystal properties, energy-band theory, introduction to scattering, generation-recombination processes, Boltzmann's transport equation, semiconductor junctions, devices. (Lec. 3) Pre: 331 or permission of instructor.

532 Solid State Engineering II (3)

Properties of insulators, semiconductors, conductors, and superconductors from quantum mechanical principles. Semiconductor physics and band theory of solids as applied to current semiconductor and optoelectronic devices. (Lec. 3) Pre: 531 or equivalent.

533 Bipolar Devices (3)

Device physics and computer modeling of bipolar junction devices, p-n junctions, metal semiconductor contacts, heterojunctions, bipolar junction transistors, BJT modeling, small signal equivalent circuits. (Lec. 3) Pre: 331 or permission of instructor.

534 MOS Devices (3)

Device physics and computer modeling of MOS devices, capacitors, metal semiconductor contacts, PMOS, NMOS, and DMOS transistors, short channel effects, modeling, small signal equivalent circuits. (Lec. 3) Pre: 331 or permission of instructor.

537 Digital Integrated Circuit Design II (4)

Device physics for CMOS technology, design techniques for static and dynamic logic families and arithmetic elements, design capture tools, synthesis strategies, scaling and next generation CMOS technologies, design project. (Lec. 3, Lab. 3) Pre: 447 and 501.

539 Analog Integrated Circuit Design (4)

IC processing, device modeling and simulation, building blocks for analog circuits, amplifiers, continuous and discrete-time filters, band-gap references, Nyquist-rate converters, oversampled converters, design project. (Lec. 3, Lab. 3) Pre: 447 and 501.

542 Fault-Tolerant Computing (3)

Fault and error modeling, reliability modeling and evaluation, fault-tolerant computer systems, digital and mixed analog/digital VLSI testing, concurrent error detection, and design for VLSI yield enhancement. (Lec. 3) Pre: 405 or equivalent or permission of instructor.

543 (or CSC 519) Computer Networks (4)

Computer network architectures, data link control and access protocols for LANs, internet protocols and applications, software and hardware issues in computer communication, delay analysis, and current research in computer networking. (Lec. 4) Pre: 437 or equivalent or CSC 412 or equivalent.

544 Computer Arithmetic for VLSI (4)

Hardware algorithms and implementation of fixed and floating-point adders, multipliers, and dividers. Error analysis and time/gauge complexity of arithmetic operations. Design simulation and evaluation with hardware description language. (Lec. 4) Pre: 405 or equivalent.

545 Advanced Digital Circuits and Systems (4)

Advanced topics in Boolean algebra and digital designs. Arithmetic circuits, low-power designs, cryptography, communication, concurrent error detection/correction, SoC, and quantum computing. Project in design and implementation of complex digital systems. (Lec. 3, Proj. 3) Pre: 306 or equivalent or permission of instructor.

546 Design of Computer-Based Instrumentation (3)

Design of memory systems, input-output techniques, direct memory access controllers, instrument buses, video displays, multi- and co-processors, real-time operations, device handler integration into high-level language and mass storage. (Lec. 2, Lab. 3) Pre: 408 or permission of instructor.

547 Embedded Computer Systems and Applications (4)

Principles of embedded computer system designs; CPU, memory, I/O, interfacing of embedded computers; modern hardware/software tools for embedded computing, and design of advanced systems including wired/wireless networking, image acquisition/processing, controls, medical equipment, or consumer electronics. (Lec. 3, Lab. 3)

548 Computer Architecture (4)

Classification and taxonomy of computer architectures. RISC vs. CISC. Cache and virtual memory systems. Pipeline and vector processors. Multi-processor and multi-computer systems. Interprocessor communication networks. Dataflow machines. Parallel processing languages. (Lec. 4) Pre: 405 or equivalent or permission of instructor.

549 Computer System Modeling (4)

Basic techniques used in computer system modeling, queuing theory, stochastic processes, Petri net, product form networks, approximation techniques, solution algorithms and complexity, computer simulation, performance studies of modern computer systems. (Lec. 4) Pre: 548 and 509 or MTH 451.

550 Ocean Systems Engineering

See Ocean Engineering 550.

562 Biomedical Instrumentation Design (3)

Principles of physiological measurements, patient safety, isolation, noise rejection, biomedical signal processing, electrocardiogram, pulse oximeter, electroencephalogram, pacemaker, cardiac assist devices, pressure and flow measurements. Not for undergraduate credit. Not open to students who

have credit in 489 or BME 463. (Lec. 3). Pre: graduate standing in electrical engineering or permission of instructor.

563 Biomedical Instrumentation Laboratory (1)

Development of a portable heart function monitor that measures the electrocardiogram and photoplethysmogram; embedded system design using instrumentation amplifier, op-amp, graphic LCD module, and PIC microprocessor with C programming. Not for undergraduate credit. Not open to students who have credit in 489 or BME 463. (Lab. 3) Pre: graduate standing in electrical engineering or permission of instructor.

564 Medical Imaging (3)

Engineering and clinical applications of medical imaging systems including X-ray, computed tomography, radioisotope imaging, ultrasound, magnetic resonance imaging; picture archiving and communications system and medical image processing. Term paper required. May not be taken by students who have credit in BME 464 (Lec. 3) Pre: senior standing in electrical or computer engineering or permission of instructor.

565 Medical Image Processing Laboratory (1)

Development of medical image processing algorithms with graphical user interface in C++ under the Windows operating system: smoothing and sharpening filters, morphological filters, area measurement and edge tracer. Projects involving advanced algorithms. May not be taken by students who have credit in BME 465. (Lab. 3) Pre: senior standing in biomedical engineering or permission of instructor.

571 Underwater Acoustics I

See Ocean Engineering 571.

575 (or MTH 575) Approximation Theory and Applications to Signal Processing (3)

Interpolation; uniform approximation; least squares approximation; Hilbert space; the projection theorem; computation of best approximations; applications to the design of filters and beamformers, position location and tracking, signal parameter estimation. (Lec. 3) Pre: advanced calculus, elements of the theory of functions of a complex variable, and elements of linear algebra.

581 Special Topics in Artificial Intelligence

See Computer Science 581.

583 (or CSC 583) Computer Vision (3)

Algorithms used to extract information from two-dimensional images. Picture functions. Template matching. Region analysis. Contour following. Line and shape descriptions. Perspective transformations. Three-dimensional reconstruction. Image sensors. Interfacing. Applications. (Lec. 3) Pre: MTH 362 or equivalent.

584 (or STA 584) Pattern Recognition (3)

Random variables, vectors, transformations, hypothesis testing, and errors. Classifier design: linear, nonparametric, approximation procedures. Feature selection and extraction: dimensionality reduction, linear and nonlinear mappings, clustering, and unsupervised classification. (Lec. 3) Pre: 509 or introductory probability and statistics, and knowledge of computer programming.

585 Digital Image Processing (3)

Digital representation of images. Image improvement techniques: restoration models and spatial, point, spectral, and geometric operators. Image analysis: morphological operators, edge detection, feature extraction, segmentation, and shape analysis. (Lec. 2, Lab. 2) Pre: 501 and 509.

591, 592 Special Problems (1–3 each)

Advanced work under supervision of a faculty member arranged to suit individual requirements of student. (Independent Study) Pre: graduate standing. May be repeated for a maximum of 6 credits. 592: S/U credit.

594 Special Topics in Electrical Engineering (1–3)

Intensive inquiry into a certain important field of current interest in electrical engineering. (Lec. 1–3) Pre: permission of instructor.

599 Master's Thesis Research (1–9)

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

601 Graduate Seminar (1)

Seminar discussions presented by faculty and outside speakers on topics of current research interest. (Seminar) May be repeated for a total of 2 credits. May be taken concurrently with 602. S/U credit.

602 Graduate Seminar (1)

Student seminars including the presentation of research results and detailed literature surveys. May be repeated for a total of 2 credits. S/U credit.

606 Digital Filter Synthesis (3)

Review of z-transforms and discrete-time systems, properties of digital-filter networks, design of finite and infinite-impulse-response filters, accuracy considerations for coefficients and data, hardware implementation, system examples. (Lec. 3) Pre: 506 or equivalent.

610 Applications of Information Theory (3)

Information theoretic underpinnings and practical techniques for data compression, channel coding for error control, and encryption and cryptography for secure information transmission. (Lec. 3) Pre: 509 or permission of instructor.

625 Guided Waves in Optical and IR Fibers (3)

Guided electromagnetic wave aspects of optical and IR fibers, novel approximation methods for solution

of vectorial and scalar wave equations in optical fibers, theory of transparency and nonlinear optical interactions in solids as applied to design of optical fibers. (Lec. 3) Pre: 511 and 525.

648 Advanced Topics in Computer Architectures (3)

Modern high-performance computer structures, parallel and distributed hardware and software, instruction level parallelism, memory hierarchy, fault tolerant computing, and future generation computers. (Lec. 3) Pre: 548.

658 Instruction Level Parallelism (4)

Advanced architectural methods for improving microprocessor performance. Branch effect reduction techniques based on both hardware and software. Reduced control dependencies, branch prediction, speculative execution, eager execution, disjoint eager execution. (Lec. 3) Pre: 548 or equivalent.

661 Estimation Theory (3)

Extraction of information from discrete and continuous data, best linear estimation, recursive estimation, optimal linear filtering, smoothing and prediction, nonlinear state and parameter estimation, design and evaluation of practical estimators. (Lec. 3) Pre: 503 and 509.

665 Modulation and Detection (3)

Advanced treatment of modulation and detection theory. Minimum meansquare error, maximum likelihood, and maximum posterior probability estimators. Applications to communications systems and to radar and sonar systems. (Lec. 3) Pre: 510.

670 Advanced Topics in Signal Processing (3)

Seminar for advanced students. Selected topics of current research interest. Material will be drawn primarily from recent literature. (Lec. 3) Pre: 506 and 606.

672 Underwater Acoustics II

See Ocean Engineering 672.

677 (or OCE 677) Statistical Sonar Signal Processing (3)

Basic results in probability and statistics, signal processing, and underwater acoustics are applied to the design of detection, estimation, and tracking in active sonar, passive sonar, and underwater acoustic communication. (Lec. 3) Pre: MTH 451 or ELE 509, ELE 506, and ELE 571 (or OCE 571), or equivalents. ELE 510 is useful and closely related, but not required.

691, 692 Special Problems (1–3 each)

Advanced work under supervision of a faculty member arranged to suit individual requirements of a student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 6 credits. S/U credit.

694 Advanced Special Topics in Electrical Engineering (1–3)

Intensive inquiry into a certain important field of current interest in electrical engineering, requiring advanced sophistication of a 600-level course. (Lec. 1–3) Pre: permission of instructor.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Engineering (EGR)

Dean: Professor Wright

091 Cooperative Education Internship:**Part-Time (0)**

Educational work experience in a selected engineering field. Ten to 20 hours per week at the employer's facility. (Practicum) Pre: matriculating status with at least junior standing and 2.50 quality point average.

092 Cooperative Education Internship:**Full-Time (0)**

Educational work experience in a selected engineering field. Students will work full-time as determined by the employer. (Practicum) Pre: matriculating status with at least junior standing and 2.50 quality point average.

105 Foundations of Engineering I (1)

Introduction to engineering. Problem solving. (Lec. 1)

106 Foundations of Engineering II (2)

Engineering problem solving. (Lec. 1, Lab. 2) Pre: MTH 141 or concurrent registration in MTH 141.

316 (or PHL 316) Engineering Ethics (3)

A broad introduction to moral theory and its application to engineering, professionalism, and moral responsibility as an engineer. An understanding of engineering in a societal context. (Lec. 3) Pre: sophomore standing. (L) [D]

411 (or GER 411) Advanced Technical German (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.

412 (or SPA 412) Advanced Technical Spanish (3)

Seminar on advanced scientific and engineering topics in an international context. All reading, writing, and discussion will be conducted in Spanish. (Seminar) Pre: any 400-level course in Spanish and senior standing in an approved engineering program. Not for graduate credit.

English (ENG)

Chairperson: Associate Professor Barber

110 Introduction to Literature (3)

Analysis of literature through reading and discussion of a number of genres derived from a variety of literary cultures. (Lec. 3) Not available for English major credit. (A) or (L) [D]

160 (or CLS 160) Literatures of the World (3)

Introduction to significant works of world literature. (Lec. 3) (A) or (L) [D]

201 Principles of Literary Study (3)

Introduction to the study of literature through reading and discussion of major methodologies, analytical approaches, and perspectives in literary study. Restricted to English majors. (Lec. 3)

202 Introduction to Literary Study (3)

Introduction to the study of literature and culture through written responses to and participation in a series of faculty presentations reflecting current critical and creative practices in the discipline. (Lec. 3) Pre: 201. Restricted to English majors.

205 Creative Writing (3)

Writing and analysis of works written by class members and professional writers. 205A Poetry; 205B Fiction; 205C Nonfiction; 205D Screen Writing. In 205C, type of writing varies with instructor. (Lec. 3) 205A and 205B may be offered online. Students may repeat for a total of 12 credits but may not repeat the same letter.

241, 242 U.S. Literature I, II (3 each)

241: Selections from U.S. literature, beginnings to the mid-19th century. 242: Selections from U.S. literature, mid-19th century to the present. 241 not required for 242. (Lec. 3) (A) [D]

243 The Short Story (3)

Critical study of the short story from the early 19th century to the present (Lec. 3) (A) or (L) [D]

247 (or AAF 247) Introduction to Literature of the African Diaspora (3)

Major themes, genres, and motifs of the literatures of Africa and the Americas. Focus on one or more of these regions. Study of black oral and written literatures with emphasis on cultural, historical, political, and socioeconomic contexts. (Lec. 3) (A) [D]

248 (or AAF 248) African-American Literature from 1900 to the Present (3)

Twentieth-century African-American literature, with emphasis on major issues, movements, and trends, including the study of W.E.B. DuBois, the Harlem Renaissance, the civil rights movement, and the black arts movement. (Lec. 3) (A) [D]

251, 252 British Literature I, II (3 each)

251: Selections from British literature, beginnings to 1798. 252: Selections from British literature, 1798 to

the present. (Lec. 3) 251 not required for 252. (A) or (L) [D]

260 Women and Literature (3)

Critical study of selected topics. (Lec. 3) (A) [D]

262 Introduction to Literary Genres: Non-fiction (3)

Introduction to the study of various types of non-fiction prose. (Lec. 3) (A) [D]

263 Introduction to Literary Genres: The Poem (3)

Introduction to the study of the poem. (Lec. 3) (A) [D] Professor Stein's section is Writing Intensive [W].

264 Introduction to Literary Genres: The Drama (3)

Introduction to the study of the drama. (Lec. 3) (A) [D]

265 Introduction to Literary Genres: The Novel (3)

Introduction to the study of the novel. (Lec. 3) (A) [D]

280 Introduction to Shakespeare (3)

Introduction to the major plays and poetry of Shakespeare. (Lec. 3) (A) or (L) [D]

300 Literature into Film (3)

Analysis of themes, techniques, printed and film narratives. 300A Drama; 300B Narrative. (Lec. 3) (A) [D]

302 Topics in Film Theory and Criticism (3)

Introduction to film theory and criticism. Emphasis on semiotics, auteur theory, psychoanalysis, genre studies, feminist theory, materialist critique, or cultural studies, with focus on range of popular, experimental, and documentary film traditions. May be repeated for credit when taken with different emphasis. (Lec. 3) May be taken once for General Education credit. (A) [D]

303 Cinematic Auteurs (3)

Literary study of one or more major directors with a substantial body of work exhibiting recurrent themes and distinctive style (e.g. Hitchcock, Kubrick, Kurosawa). Emphasis will vary. May be repeated once with different director. (Lec. 3) May be taken once for General Education credit. (A) [D]

304 Film Genres (3)

Literary study of the particular conventions and evolution of one or more film genres (e.g. romantic comedy, science fiction, western). Emphasis will vary. (Lec. 3) May be repeated once with a different genre. May be taken once for General Education credit. (A) [D]

305 Advanced Creative Writing (3)

For students with talent and experience in creative writing and a good reading background in the genre(s) they wish to write in, whether short fiction, drama, or poetry. (Lec. 3) May be repeated.

317 Contemporary Women Novelists of the Americas

See Women's Studies 317. (A) [D]

330 The Structure of American English (3)

Introduction to the phonology, morphology, and syntax of American English. Emphasis on skills needed to understand the prescriptive rules of grammarians and the descriptive rules of critics and teachers. (Lec. 3) (S)

332 The Evolution of the English Language (3)

History of English from a minor dialect of the North Sea to a major language of the Renaissance. Focus on the languages and cultures of Beowulf, Chaucer, and Shakespeare. (Lec. 3)

335 Interdisciplinary Studies in Comparative Literature

See Comparative Literature Studies 335.

336 The Language of Children's Literature (3)

Introduction to stylistic analysis using children's literature. Focus on sound patterns, word choice, and sentence structure to discuss appropriateness, interpretation, and evaluation. Emphasis on one writer or work. (Lec. 3)

337 Varieties of American English (3)

Study of regional and social dialects of American English. Emphasis on variations in pronunciation and word choice and on New England varieties. Includes independent or group field projects. Course contains language that may be offensive to some students. (Lec. 3)

338 Native American Literature (3)

Study of the literature of Native America. Considers early texts including mythology, legends, and traditions as well as contemporary works. (Lec. 3)

339 Literary Nonfiction (3)

Intensive study in one or more forms of nonfiction narrative (memoir, nature meditation, medical narrative, extended journalistic account, true crime, science narrative, historical account). (Lec. 3) May be repeated once for a total of 6 credits when taken with different emphasis.

347 Antebellum U.S. Literature and Culture (3)

Study of pre-Civil War poetry and prose (the period formerly known as the American Renaissance/American Romantic movement). Readings may include Emerson, Douglass, Hawthorne, Melville, Stowe, Fern, Whitman, and others. (Lec. 3)

348 U.S. Literature and Culture from 1865 to 1914 (3)

Study of post-Civil War poetry and prose. Readings may include Chesnutt, Chopin, Crane, DuBois, James, Twain, Wharton, and others. (Lec. 3)

350 Literary Theory and Criticism

See Comparative Literature Studies 350.

351 History of Literary Theory and Criticism (3)

Intensive study of the problematization of representation in works selected from classical to contemporary thought. (Lec. 3)

352 Black Images in Film

See African and African-American Studies 352.

355 Literature and the Sciences (3)

Study of the representation of scientific themes in literature and/or the relationship between literature and the sciences. (Lec. 3) Pre: junior or senior standing. Enrollment priority given to students majoring in the sciences. (A) or (L) [D]

356 Literature and the Law (3)

Study of the representation of legal themes in literature and/or the relationship between literature and the law. (Lec. 3) Pre: junior or senior standing. Enrollment priority given to students with career interests in law. (L) [D]

357 Literature and Medicine (3)

Study of the representation of medical themes in literature and/or the relationship between literature and medicine. (Lec. 3) Pre: junior or senior standing. Enrollment priority given to students with interest in medical careers. (A) [D]

358 Literature and Business (3)

Study of the representation of business themes in literature and/or the relationship between literature and business. (Lec. 3) Pre: junior or senior standing. Enrollment priority given to students majoring in business. (A) [D]

360 Africana Folk Life

See African and African American Studies 360.

362 (or AAF 362) African-American Literary Genres (Other than Short Story and Novel) (3)

Study of drama and poetry in the continued oral and written heritage of Africa and America. Focus on Baraka, Bullins, Dunbar, Giovanni, Hughes, and Walker. (Lec. 3)

363 (or AAF 363) African-American Fiction (3)

Study of formal and thematic developments in the African-American novel and short story. Focus on Baldwin, Chesnutt, Ellison, Gaines, Hurston, Jacobs, Marshall, Morrison, Naylor, Reed, Walker, Wideman, Wilson, and Wright. (Lec. 3)

364 (or AAF 364) Contemporary African Literature (3)

Study of contemporary African literature by genre, region, or theme, with emphasis on literary traditions, issues, and socio-cultural contexts. (Lec. 3)

366 Greek and Roman Drama (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)

367 The Epic (3)

Studies in epic literature from Homer to the modern period. Historical emphasis will vary with instructor. (Lec. 3)

368 The Bible (3)

Introduction to poetry and narrative in the Old Testament and the Apocrypha, primarily in the Authorized (King James) Version. (Lec. 3)

373 British Literature of the Renaissance (3)

Study of the works of major Renaissance writers such as Wyatt, Sidney, Daniel, Spenser, Marlowe, Hobbes, and others. (Lec. 3)

374 British Literature: 1660–1800 (3)

Study of major trends in late 17th- and 18th-century verse, prose, drama, and fiction by such writers as Dryden, Behn, Congreve, Pope, Swift, and Johnson. (Lec. 3)

375 British Literature of the 19th Century (3)

Poetry, drama, fiction, and nonfiction selected from Romantic and/or Victorian writers such as Blake, Wordsworth, Coleridge, the Shelleys, Byron, Keats, the Brownings, Eliot, the Brontes, Dickens, Pater, and Wilde. (Lec. 3)

378 Aspects of Postmodernism (3)

Introduction to major issues and theories of post-modern literature and culture. Emphases may include temporality, borders, cyberspace, theories of the image, and constructions of subjectivity. (Lec. 3)

379 Contemporary Literature (3)

Studies in contemporary literature with an emphasis on cultural and interdisciplinary issues. Movements and emphases may include multiculturalism, culture and technology, globalization, and politics of the body. (Lec. 3)

381 Topics in Medieval and Renaissance Literature (3)

Emphasis on cultural and interdisciplinary issues and the relationship between these periods and the contemporary one. (Lec. 3) May be repeated once with a different topic.

382 Medieval and Renaissance Authors (3)

Studies in works by one or two major medieval or Renaissance authors (excluding Shakespeare). Emphasis on work of Chaucer, Dante, Milton, or Spenser. (Lec. 3) May be repeated once, barring duplication of writers.

383 Modernist Literature, 1900–1945 (3)

Poetry, drama, fiction, and/or nonfiction prose with an emphasis on writers such as Eliot, Faulkner, Hurston, Joyce, Stevens, Yeats, Woolf, and Wright. (Lec. 3)

385 Women Writers (3)

Analysis of the poetry, drama, or fiction of women writers. Emphasis on 19th-century, 20th-century, or

contemporary authors. Course may be repeated for credit when taken with different emphasis. (Lec. 3)

387 Foundational Texts in Modern Gay and Lesbian Culture (3)

Study of literary works that trace the origins and ongoing definitions of modern homo/heterosexual identities. Selections from writers such as Whitman, Wilde, Proust, Woolf, Lawrence, Gide, Mann, Cather, and Baldwin. (Lec. 3)

394, 395 Independent Study (1–3 each)

Extensive individual study and research, culminating in a substantial essay. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 6 credits.

396 Literature of the Sea: The Rumowicz Seminar (3)

Poetry and prose of the sea. Guest lecturers and field trips. (Lec. 3)

397 The Literary Landscape of Britain (3)

Taught in England, second summer session. Examines impact of English social and natural landscapes on, and their treatment in, selected literary works. (Lec. 3) Usually taught in conjunction with HIS 397.

399 Special Topics in Literature (3)

Specialized topics in the study of literature offered by specialists in the field. (Lec. 3)

446 Modern Drama (3)

Studies in major works by modern playwrights. (Lec. 3)

447 Modern Poetry (3)

Study of major contributions and movements in poetry from 1900 to the present. (Lec. 3)

448 Traditions of the Novel in the Americas (3)

Studies in the North, South, and/or Central American novel. (Lec. 3)

451 Advanced Topics in International Film Media

See Film Media 451.

469 The Modern Novel (3)

Studies in the novel from 1900 to the present. (Lec. 3)

472 Shakespeare (3)

Studies in Shakespeare's drama and poetry. (Lec. 3)

474 (or AAF 474) Literature of the African Diaspora (3)

Study of specific authors, literary movements, or comparative themes in the literatures of Africa and the Americas, with a focus on one or more of these regions. (Lec. 3) May be repeated once for a total of 6 credits, barring duplication of writers.

480 British Restoration and Enlightenment Authors (3)

Studies in works by one or two major Restoration and Enlightenment authors. (Lec. 3) May be repeat-

ed once for a total of 6 credits, barring duplication of writers.

482 American Enlightenment Authors (3)

Studies in works by one or two major Enlightenment authors. (Lec. 3) May be repeated once for a total of 6 credits, barring duplication of writers.

485 U.S. Authors (3)

Studies in works by one or two major United States authors. (Lec. 3) May be repeated once for a total of 6 credits, barring duplication of writers.

486 British Authors (3)

Studies in works by one or two major British authors. (Lec. 3) May be repeated once for a total of 6 credits, barring duplication of writers.

487 World Authors (3)

Studies in works by one or two major world authors (excepting U.S. or British authors). (Lec. 3) May be repeated once for a total of 6 credits, barring duplication of writers.

489 Literature and Empire (3)

Studies of specific authors, literary movements, or comparative themes in texts reflecting the impact of colonization and imperialism. (Lec. 3) Pre: junior or senior standing.

493, 494 Internship in English (3)

Exploration of career goals and job opportunities. Participate in a variety of work situations, supervised by both faculty member and on-site personnel. 120 hours per 3 credits, weekly one-hour class meeting. (Practicum) Pre: 18 credits in English and permission of chairperson. May be taken for a total of 6 credits, only 3 of which may be used as credit toward the English major. Not for graduate credit. S/U only.

499 Senior Seminar (3)

Critically investigates selected topics pertinent to the field. (Seminar) Open only to junior and senior English majors. May be taken once. Not for graduate credit.

All 500-level courses require graduate standing or permission of instructor. All courses except ENG 510 and 511 may be repeated once if emphasis changes.

501 Workshop in Creative Writing (3)

Close supervision and discussion of creative writing, including poetry, nonfiction, short prose forms, scripts, and novels. (Lec. 3)

510 Introduction to Professional Study I (1.5)

Orientation to the major discourses, critical frameworks, and databases constituting graduate research in language and literary studies, including computer-assisted research methodologies. (Seminar). S/U only.

511 Introduction to Professional Study II (1.5)

Orientation to the major discourses, critical frameworks, and databases constituting graduate research in language and literary studies, including computer-

assisted research methodologies. (Seminar). Pre: 510. S/U only.

514 Studies in Critical Theories (3)

Introduction to historical or contemporary studies in critical theory; e.g. modernity and postmodernity, aesthetics, politics, interpretive traditions, audiences. May explore semiotic, psychoanalytic, materialist, feminist, postcolonial, and cultural theories. (Lec. 3)

535 Old English (3)

Introduction to the language and literature. (Lec. 3)

540 Studies in American Texts Before 1815 (3)

Cultural texts and topics of the Western Hemisphere before 1815: literary and nonliterary writings and genres; exploration and captivity narrative; African transmissions; critical theory; culture, gender, race, and class. (Lec. 3)

543 Studies in 19th-Century American Texts (3)

Literary and nonliterary cultural texts, genres, and topics of the Western Hemisphere. May include media; oral, industrial, and popular cultures; critical theory and the analysis of discourses; issues of class, gender, and race. (Lec. 3)

545 Studies in American Texts After 1900 (3)

Modern, contemporary, and postmodern cultural texts, genres, and topics of the Western Hemisphere; e.g. literary and nonliterary writings, performance modes, media, theory, and cultural studies of race, genre, and class. (Lec. 3)

550 Studies in British Texts Before 1700 (3)

Literary and nonliterary cultural texts and genres of the medieval, Renaissance, and Restoration periods. May include oral and written forms; the roles of audience, gender, class, and other social relations. (Lec. 3)

553 Studies in British Texts 1700–1832 (3)

Literary and nonliterary cultural texts and genres during the Restoration, Augustan, Enlightenment, and Romantic periods; e.g., drama, media, rhetoric, theory, and discourse analysis of gender, class, race, and other social relations. (Lec. 3)

555 Studies in 19th-Century British Texts (3)

Literary and cultural texts and genres during the 19th century. May include drama and other performance modes; critical theory and the analysis of discourses; representations of class, gender, and race. (Lec. 3)

557 Studies in British Texts After 1900 (3)

Modern, contemporary, and postmodern cultural texts; e.g., literary and nonliterary writings, drama, colonial and European cultural relations, film, theory, and cultural studies of institutional life and other social relations. (Lec. 3)

560 Studies in European Texts (3)

Introduction to the study of European texts in translation. May include different historical periods;

literary and nonliterary writings; theory; film; rhetoric; and issues of culture, gender, race, class, and sexuality. (Lec. 3)

570 Studies in Postcolonial Texts (3)

Investigation of similarities and differences between nonoccidental and occidental genres; traditions and practices of postcolonial oral, written, and visual cultural forms from Africa, Australia, New Zealand, the Americas, India, Ireland, and Scotland. (Lec. 3)

590 Selected Topics (1–3)

Selected topics in American and British literature and topics of special interest not covered by traditional department offerings. (Lec. 1–3)

595 Master's Project (1–6)

Number of credits to be determined each semester in consultation with the major professor or director of graduate studies. S/U only.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

All 600-level (seminar) courses require graduate standing or permission of instructor. Courses include specialized topics, intensive readings, occasional lectures, and frequent presentation of ongoing research by students. A substantial research project is required. May be repeated once if emphasis changes.

601 Seminar in Creative Writing (3)

Seminar for advanced students under supervision of a member arranged to suit individual project requirements of students. (Seminar)

605 Seminar in Genres (3)

In-depth study of a single or several genres and/or subgenres, such as epic, drama, or horror film. (Seminar)

610 Seminar in Historical Periods (3)

Selected topics of relevance for historical periods. Periods emphasized are medieval, 16th- and 17th-century British, 18th- and 19th-century British, North American, and postcolonial. (Seminar)

615 Seminar in Authors (3)

In-depth and critical study of selected works of one or two authors from any historical period, genre, or medium; theories and traditions of authorship; authorship and gender. (Seminar)

620 Seminar in Culture and Discourse (3)

Contrasting theoretical conceptions of culture, discursive practices, hegemony, the public and private spheres, and related concerns; may cross any historical formation or period. (Seminar)

625 Seminar in Media (3)

Critical and theoretical conceptions of one or more media across any historical formation or period. (Seminar)

630 Seminar in Canons (3)

Critical and theoretical conceptions of canons and canonicity, including emerging or revisionist canons. (Seminar)

635 Seminar in Subjectivities (3)

Critically investigates class, race, gender, sexuality, and/or other subject positions as they are constructed by literary or other media. Might emphasize reading and writing communities, form and ideology, or identity politics. (Seminar)

650 Seminar in Critical Theory (3)

In-depth study of one or several critical theories such as psychoanalytic, feminist, postcolonial, and cultural studies. (Seminar)

660 Seminar in Special Topics (3)

Topics of special interest not covered by other offerings. (Seminar)

690 Independent Graduate Study (1–6)

Number of credits is determined each semester in consultation with the major professor, director of graduate studies, and chairperson.

691, 692 Independent Graduate Study (3 each)

Advanced study of an approved topic under the supervision of a faculty member. (Independent Study)

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

999 Methods of Teaching Literature (0)

Materials and various methods of teaching literature on the college level. Required of teaching assistants who will teach English department literature courses as part of their TA assignment. (Seminar) Pre: graduate standing.

English Language Studies (ELS)

112 Expository Writing in English (3)

Equivalent to WRT 104 but restricted to students whose first language is not English. Varieties and strategies of expository writing for different audiences and situations. (Lec. 3) (ECw)

122 Academic Writing in English (3)

Practice in writing assignments for introductory and general education courses across the curriculum. Restricted to students whose first language is not English. (Lec. 3) (ECw)

312 Oral English Skills for the Public Sphere (3)

Focus on pronunciation, listening and speaking skills, and a variety of speaking projects. Special emphasis on speaking freely in academic and social situations. (Lec. 3)

322 Oral English Skills for the Academic Sphere (3)

Intensive focus on pronunciation, listening and speaking skills, and a variety of communicative projects. Develop oral presentation skills. (Lec. 3)

512 Oral Communication Skills for International Teaching Assistants (3)

Intensive focus on pronunciation, listening and speaking skills, and awareness of colloquial American speech. (Lec. 3) Pre: graduate standing and permission of instructor. May be repeated until oral proficiency requirement is met.

612 Advanced Communication Skills for International Teaching Assistants (3)

Focus on pronunciation, teaching skills, and cross-cultural differences in education. Priority given to international teaching assistants. (Lec. 3) Pre: graduate standing. May be repeated until oral proficiency requirement is met.

Entomology (ENT)

Chairperson: Professor Maynard (Plant Sciences)

286 Humans, Insects, and Disease

See Biological Sciences 286.

385 (or BIO 385) Introductory Entomology (3)

Introduction to the diverse components of entomology, emphasizing basic principles of insect morphology, physiology, behavior, and ecology. Current topics in insect biodiversity and management strategies. (Lec. 3) Pre: BIO 101 and 102, or permission of instructor.

386 (or BIO 386) Introductory Entomology Laboratory (1)

Insect structure, function, and systematics with field studies in ecology, survey, and collection of beneficial and pest insects in their natural environment. (Lab. 3) Pre: 385 or concurrent enrollment in 385.

387 Insects of Turf and Ornamentals (3)

Biology, ecology, and management of insects affecting turfgrasses, trees, and ornamental plants. (Lab. 3) Pre: PLS 200 or permission of instructor.

390 (or AVS 390) Wildlife and Human Disease (3)

Introduction to the important diseases of humans carried by wildlife, including surveillance, epidemiology, transmission, public health impact, and prevention. Interdisciplinary approach with emphasis on problem solving using real-life examples. (Lec. 3) Pre: BIO 101; BIO 262 or ENT 385 or equivalent.

411, 511 Pesticides and the Environment (3 each)

Review of the historical issues regarding pesticides, regulation, how they work, and costs/benefits associated with their use. Pre: BIO 102, CHM 103, 105; PLS 200, or permission of instructor. 411: not for graduate credit.

519 Insect Biological Control (3)

Natural regulation of pest abundance. Theoretical issues and practical experience in the use of biological controls for managing insect and weed problems. (Lec. 2, Lab. 1) Pre: 385 or permission of instructor. In alternate years. Next offered spring 2010.

520 Insect Morphology and Physiology (3)

An introduction to the structure and function of the insects and related arthropods. (Lec. 2, Lab. 2) Pre: 385 or permission of instructor.

529 Systems Science for Ecologists (3)

Concepts and techniques for computer analysis and simulation of complex biological systems. (Lec. 3) Pre: MTH 141, BIO 262, or permission of instructor.

544 Insect Ecology (2)

Ecology of insects and other terrestrial arthropods at the physiological, individual, population, community, and ecosystem levels. Pre: permission of instructor. In alternate years. Next offered fall 2009.

550 Insect Taxonomy and Systematics (3)

External morphology of insects and taxonomy of major families. (Lec. 2, Lab. 2) Pre: 385. In alternate years. Next offered fall 2009.

555 Insect Pest Management (3)

Evaluation of past and present pest-control strategies in light of insect ecology. Development of pest-management systems emphasizing biological control, resistant plants, and ecosystem redesign. (Lec. 3) Pre: PLS 200 or ENT 385 or permission of instructor. In alternate years. Next offered spring 2011.

561 Aquatic Entomology (3)

Biology of insects in aquatic environments, including systematics, morphology, and ecology. Field trips emphasize relations between species and habitat and the role of insects in aquatic management programs. (Lec. 2, Lab. 3) Pre: 385 or permission of instructor. In alternate years. Next offered fall 2010.

571 (or MIC 571) Insect Microbiology (3)

A two-part investigation of insect-microbe associations, concentrating on the comparative pathobiology of microbial agents in the insect host and the transmission of disease organisms by the insect vectors. (Lec. 3) Pre: 385 and MIC 211, or permission of instructor. In alternate years. Next offered spring 2011.

586 Medical and Veterinary Entomology

See Biological Sciences 572.

591, 592 Special Problems in Entomology (1–3 each)

Advanced independent research projects supervised by members of the research and unrelated to thesis research. Projects developed to meet individual needs. (Independent Study) Pre: permission of instructor by override only.

Environmental Economics (EEC)

Chairperson: Professor Opaluch

101 Freshman Inquiry into Environmental and Natural Resource Economics (1)

Introduction for freshmen to the opportunities, careers, research activities, applied outreach, and educational programs in the Department of Environmental and Natural Resource Economics. Interact weekly with faculty. Explore hands-on modules. (Lec. 1) S/U credit.

105 Introduction to Resource Economics (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) (S)

110 Multimedia Presentation of Environmental Issues (3)

Research pressing environmental issues and create multimedia presentations using computer technologies to combine slides, video, audio, and computer graphics. No technical knowledge or computer skills are necessary. (Lec. 2, Lab. 2)

205 Resource Management and Conservation (3)

Introduction to economically efficient resource management, the development of management regimes that support a sustainable economy; valuation, property rights, market structure, dynamic resource management. (Lec. 3) Pre: 105.

310 Economics for Environmental Resource Management and Policy (3)

Economic approaches to natural resource use and environmental policies. Exploring measures of the "economic value of environment." How scientists, managers, and markets can affect the environmental quality of life. (Lec. 3) Pre: 105 or ECN 201. (S)

325 Planning and Managing a Small Natural Resources Firm (3)

Directed toward students with an interest in managing a small marine, agricultural, or other natural resources firm. (Lec. 3) Pre: 105 or ECN 100 or 201 or permission of instructor.

345 Sustainable Development, Trade, and the Environment (3)

To understand the relationship between economic development, international trade and the environment. Topics include sustainable development, trade policies and the environment, climate change and development, and institutions for managing the commons. (Lec. 3) Pre: 105 or ECN 201 or permission of instructor.

356 Tourism Economics (3)

Application of economic principles and research methods to tourist and tourism industry behavior. Practical research methods for assessing economic,

social, and environmental benefits and costs of tourism development are examined. (Lec. 3) Pre: 105 or permission of instructor. (S)

410 Fish and Wildlife Economics (3)

Institutional, biological, and economic factors affecting the use of fish and wildlife resources. Economic analysis is applied to problems of fish and wildlife management in both marine and terrestrial ecosystems. (Lec. 3) Pre: 310 or ECN 328 or 323 or permission of instructor.

432 Environmental Economics and Policy (3)

Economic analysis of policies that address environmental and natural resource problems. Topics include pollution-control policies, economic incentives, and the optimal use of renewable and nonrenewable natural resources. (Lec. 3) Pre: 105 or ECN 201.

435 Aquacultural Economics (3)

Economics of international and domestic development of aquaculture, environmental and resource regulations on aquaculture, and management of and decision making in aquacultural enterprises. Analysis of public and private aquaculture production and marketing. (Lec. 3) Pre: 105 or ECN 201 or permission of instructor.

440 Benefit-Cost Analysis (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.

441 Markets, Trade, and Natural Resources (3)

Analysis of the role of markets in the valuation, management, and distribution of natural resources (esp. fish); price analysis; international trade; channels of distribution; commodity futures and options markets; marketing information; regulations and controls; cooperative marketing. (Lec) Pre: 105 or ECN 201 or permission of instructor.

491, 492 Special Projects (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. (Independent Study) Pre: permission of chairperson.

501 Graduate Seminar in Natural Resource Economics (1)

Presentation of research and discussion of current issues and methodologies in environmental and natural resource economics. (Seminar) Enrollment is required of all full-time graduate students in residence; exceptions made with permission from chairperson. No more than one credit may be taken for program credit. S/U credit.

502 Research Methodology in Environmental and Natural Resource Economics (3)

Practice and methods of applied research in environmental and natural resource economics. Topics include philosophical foundations, research project design, reporting research results, and criticism of proposals and research papers. (Lec. 3) Pre: 528 and 576 or permission of instructor.

514 Economics of Marine Resources (3)

Role of economics in management of estuarine and marine resources. Particular attention to resource valuation, environmental issues, and management of renewable and nonrenewable resources. (Lec. 3) Not for graduate credit in resource economics.

518 Mathematics for Economists (2 or 4)

Introduction to mathematical methods in economics and business. Economic applications of constrained and unconstrained optimization, matrix algebra, primal and dual functions, eigen roots, with illustrations from economics, finance, and environmental and natural resource economics. (Lec. 2 or 4) Pre: ECN 328 and MTH 131 or equivalent or permission of instructor.

520 Production Economics (2)

Production in natural resource economics. The formulation and estimation of production functions. Technological change in economic growth and its measures. New directions in production theory and applications. (Lec. 2) Pre: at least 2 credits of 518, or MTH 131.

522 Computer Intensive Methods in Resource Economics (3)

Use of selected software packages to analyze topics and numerical problems in environmental and natural resource economics, including GAMS/MINOS, spreadsheets, Crystal Ball, Matlab, GIS, and SAS. (Lec. 2, Lab. 2) Pre: 518 or equivalent (may be taken concurrently).

527 (or ECN 527) Macroeconomic Theory (3)

Static and dynamic models of aggregate economic behavior developed and analyzed. (Lec. 3) Pre: ECN 327 and 375 or equivalent, or permission of instructor.

528 (or ECN 528) Microeconomic Theory (3)

Analytic tools of optimization. Neoclassical price and production theory. Neoclassical theory of consumer and producer behavior, price and distribution, partial and general equilibrium, and welfare economics. (Lec. 3) Pre: ECN 328 and 375 or equivalent, or permission of instructor.

529 Game Theory (3)

Analysis of situations of conflict and cooperation, with economics and business applications. Introduction to cooperative and noncooperative games, including the extensive and strategic forms, Nash equilibrium, repeated games, and bargaining. (Lec. 3) Pre: 528 or permission of instructor.

532 Land Resource Economics

See Community Planning 537.

534 Economics of Natural Resources (4)

Microeconomic theory applied to problems of natural resource allocation. The rationale for government intervention in the market's provision of natural resources and alternative techniques for optimally allocated natural resources are investigated. (Lec. 4) Pre: 528 or permission of instructor.

535 Environmental Economics (3)

Theory of externalities; incentive-based and regulatory policy instruments for addressing market failure; theory and methods for valuing natural resource and environmental services; other environmental topics. (Lec. 3) Pre: 528 or equivalent.

540 Applied Resource Economics (3)

Examines issues in agricultural and natural resource policy through applications of theoretical and empirical tools. Applications include pollution control, fisheries management, and water and agricultural policy. (Lec. 3) Pre: 528 or permission of instructor.

542 Conservation Biology and Resource Economics

See Natural Resources Science 532

543 Economic Structure of the Fishing Industry (3)

Analysis of fishing industries from the standpoint of activity and efficiency. Problems related to common property resources, government policy, labor, and legal and institutional factors. (Lec. 3) Pre: 514 or permission of instructor. In alternate years. Next offered fall 2010.

570 Experimental Economics (3)

Controlled laboratory experiments to study economic theories, institutions, and policies. Provides an overview of experiment design and nonparametric data analysis. Applications include game theory, markets, public goods, and uncertainty. (Lec. 3) Pre: 528 or permission of instructor.

576 (or ECN 576 or STA 576) Econometrics (4)

Application of statistics and mathematics to economic analysis. Implication of assumption required by statistical methods for testing economic hypotheses. Current econometric methods examined and discussed. (Lec. 3, Lab. 2) Pre: ECN 575 or equivalent, STA 308 or equivalent, or permission of instructor.

591, 592 Special Projects (1-3 each)

Advanced work under supervision arranged to suit the individual requirement of the student. (Independent Study) Pre: permission of chairperson.

595 (or PSC 595 or SOC 595) Environment and Development Economics (3)

Application of economic principles and research methods to understand the economics of environmental and natural resource management and

poverty alleviation. (Lec. 3) Pre: 528 or permission of instructor.

598 Master's Nonthesis Research (1-3)

Credit for completion of major paper. (Independent Study) Pre: enrollment in nonthesis master's program in resource economics.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

602 Research Methodology (1)

Practice and methods of research in environmental and natural resource economics. Philosophical foundations, competing views on methodology, project design, execution and communication of results to different audiences. (Lec. 1) Pre: 528 and 576 and concurrent registration in 502. In alternate years. Next offered spring 2010. S/U credit.

610 Advanced Studies (1-3)

Advanced topics in resource economics. Mathematical models in resource management. (Independent Study) May be repeated with different topics.

624 Dynamic Economic Models (3)

Fundamentals of dynamic economic theory. Dynamic optimization techniques applied to environmental and natural resource economics. (Lec. 3) Pre: 528 or permission of instructor.

628 (or ECN 628) Advanced Microeconomic Theory I (3)

Neoclassical value and distribution theory. Theories of imperfect competition, general equilibrium theory, and dynamic analysis. (Lec. 3) Pre: 528 or permission of instructor.

630 Advanced Microeconomic Theory II (3)

Development and application of welfare theory to natural resource use. Welfare concepts such as consumer surplus, producer surplus, and marginal cost pricing in policy decisions for agriculture and natural resources. (Lec. 3) Pre: 628 or permission of instructor. In alternate years. Next offered spring 2011.

634 Advanced Economics of Natural and Environmental Resources (4)

Concepts of economic efficiency applied to natural resources with emphasis on intertemporal allocation of nonrenewable and renewable resources. Application of welfare and institutional economics to resource management and development; analysis of optimum allocation among users. (Lec. 4) Pre: 534 and 624 or permission of instructor.

635 Marine Resources Policy (3)

Analysis of public policy problems relating to estuarine and marine resources, including natural resource damage assessment, environmental issues, coastal zone concerns, and other selected topics. (Lec. 3) Pre: 534. In alternate years. Next offered spring 2010.

676 (or ECN 676) Advanced Econometrics (4)

A course covering the tools necessary for professional research in resource economics. Reviews the general linear model, but emphasis is on simultaneous equation models, Bayesian analysis, and dichotomous dependent variables. (Lec. 4) Pre: 576 or its equivalent.

677 Econometric Applications in Resource Economics (3)

Special topics in econometrics as applied to agriculture and natural resources. Topics include time series models, Bayesian analysis, and dichotomous dependent variables. (Lec. 3) Pre: 676. In alternate years. Next offered fall 2009.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Environmental Sciences (EVS)

Chairperson: Professor Paton (Natural Resources Science)

366 Communicating Environmental Research and Outreach (2)

Value and techniques of communicating scientific research and outreach efforts. Focus on technical and communication skill development. Student must be engaged in a personal research or outreach experience. (Seminar) Pre: permission of instructor; by override only.

482 Innovative Subsurface Remediation Technologies

See Geosciences 482.

484 Environmental Hydrogeology

See Geosciences 484.

582 Innovative Subsurface Remediation Technologies

See Geosciences 582.

584 Environmental Hydrogeology

See Geosciences 584.

597 Professional Internship in Environmental Science and Management (1-3)

Supervised work performed with an environmental agency, nongovernmental organization, or private firm as part of the requirements of the Master of Environmental Science and Management degree program. (Practicum) Pre: enrollment in M.E.S.M. degree program.

598 Professional Master's Research (3)

Independent investigation to satisfy the research requirement for the Master of Environmental Science and Management degree. Substantial paper required. (Independent Study). Pre: enrollment in M.E.S.M. degree program.

599 Master's Thesis Research

To be taken by students in the Master of Science in environmental sciences degree program. Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

610 Multidisciplinary Problem Solving in Coastal Ecosystems (3)

Focus on integrated research/policy in estuarine, watershed, and fisheries research through case studies emphasizing the integration of policy and science in coastal management. Methodology will stress work in multidisciplinary teams framed in humanities perspectives. (Lec./Lab.). May be repeated for credit twice. Pre: permission of instructor.

612 Leadership and Communication in Coastal Ecosystem and Management (1-3)

Weeklong workshop for development of skills and/or knowledge in the areas of social equity, ethics, human values, communication, and leadership for application in bridging science and policy in coastal stewardship. Pre: 610. May be repeated for up to 5 credits. S/U credit only.

614 White Papers in Integrated Coastal Science (6)

Preparation of a written synthesis of environmental, economic, social, and ethical dimensions of current issues in coastal ecosystem management. Project completed in collaboration with a nonacademic partner institution. (Independent Study). Pre: 610, 612.

616 Field Practicum in Coastal Science (6)

Science field practicum using array of investigative methods; insight into nature and scale, analytical and interpretative approaches applied to data; approaches to describe uncertainty; and ways research can inform policymakers. (Practicum)

618 Internship in Coastal Management (9-12)

Supervised internship in an approved work setting to provide students with experience relevant to their career goals. Students work with advisors to secure internship positions and design learning contract. Pre: permission of instructor.

699 Doctoral Dissertation Research

To be taken by students in the Ph.D. in environmental sciences degree program. Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Film Media (FLM)

Director: Professor Wills

101 Introduction to Film Media (3)

Introduction to techniques of film practice, film history, genres, analysis of film texts, and reading of

film images in their aesthetic, cultural, and literary context. (Lec. 2, Lab. 2/Online) (A) [D]

110 Introduction to Film Media Production Technologies (4)

Introduction to single-camera field production styles and aesthetics with emphasis on camera operation, lighting and editing by means of fundamental critical studies, field projects, studio supervision and experience. (Lec. 3, Lab. 2)

203 Film Theory (3)

An introductory survey of classical and contemporary approaches to film theory and criticism. (Lec. 3). (A) [D]

204 History of Film I (3)

A survey of world cinema from its invention in the 1890s to the early 1950s, examining the production, distribution, and exhibition of narrative, documentary, and experimental among other forms of film. (Lec. 2, Lab. 2. (A) [D]

205 History of Film II (3)

A survey of world cinema from the 1950s to the present time, examining the production, distribution, and exhibition of narrative, documentary, and experimental among other forms of film. (Lec. 2, Lab. 2). (A) [D]

351 Topics in Film Media Production (4)

Application of one or more production technologies in film media genres and analysis of their aesthetic implications. (Lec. 3, Lab. 2) Pre: sophomore standing or permission of instructor. FLM 110 or video or filmmaking course from ART, COM, or JOR recommended. May be repeated once with permission of instructor and change of topic.

352 Topics in Film Media Critical Studies (4)

Critical examination of historical, theoretical and aesthetic topics in world cinema. (Lec. 3, Lab. 2) Pre: sophomore standing or permission of instructor. FLM 101, 204 or 205 recommended. May be repeated once with permission of instructor and change of topic.

401 Field Experience in Film Media (1-6)

Structured academic work in a business, industry, educational, or agency setting under the supervision of a faculty advisor. (Practicum) Pre: permission of faculty advisor.

444 Advanced Topics in Documentary Film Media (4)

Critical examination and research of selected historical, theoretical or aesthetic issues in international documentary filmmaking. (Lec. 3, Lab. 2) Pre: junior standing or permission of instructor; 101 and 204 or 205. May be repeated once with permission of the instructor and with change of emphasis. Not for graduate credit.

445 Advanced Topics in Documentary Film Production (4)

Advanced study and practice of documentary production techniques, technologies and aesthetics through field projects, studio supervision and field experience. (Lec. 3, Lab. 2) Pre: junior standing or permission of instructor, and either ART 215 or COM 341 or COM 342 or JOR 331 or FLM 352. May be repeated once with change of emphasis and permission of instructor. Not for graduate credit.

451 (or ENG 451 or CLS 451) Advanced Topics in International Film Media (4)

Study of international film genres from one or more national, regional, or diasporic cultures and traditions. Emphases on theoretical, historiographic, and media research methods. (Lec. 3, Lab. 2) Pre: junior standing or permission of the instructor. FLM 204 or 205 recommended. May be repeated for a maximum of 8 credits with change of emphases or topics.

491 Directed Studies in Film Media (1-6)

Directed study for students wanting to do advanced work in film media. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of project by faculty member and approval by program director. May be repeated for a total of 6 credits.

495 Seminar in Film Media (3)

An intensive, interdisciplinary capstone course; exploring writings and ideas about film across two or more fields of study; or examining cross-cultural themes and issues in world cinema. Topic to be announced. (Seminar) Pre: 101 and 203 or ENG 302 or permission of instructor.

Following are related courses in other departments eligible for both the film media major and minor.

African and African-American Studies

352 Black Images in Film

Art

204 Digital Art and Design I

215 Video and Filmmaking I

304 Digital Art and Design II

316 Video and Filmmaking II

417 Video and Filmmaking III

Art History

374 Topics in Film

376 History of Animation

377 History of Experimental Film

Communication Studies

341 Documentary Film Pre-Production

342 Documentary Film Production

346 Social and Cultural Aspects of Media

414 Rhetoric of Sports in Film

445 Media Advertising

English

205D Creative Writing: Screen Writing

300 Literature into Film: Drama or Narrative

302 Topics in Film Theory and Criticism

303 Cinematic Auteurs

304 Film Genres

352 Black Images in Film

French

320 Studies in French Cinema

History

358 Recent America in Film

Italian

315 Italian Cinema

Journalism

110 Introduction to the Mass Media

230 Introduction to Radio and Television News

311 Media Criticism in America

331 Electronic News Gathering

Spanish

320 Studies in Spanish Cinema

Theatre

182 Script Analysis: Film Media

In addition, special topics and temporary courses offered by other departments may be eligible for both the film media major and minor.

Forensic Science (FOS)

Chairperson: Professor Euler (Chemistry)

392 Introduction to Criminalistics (3)

See Chemistry 392.

French (FRN)

Section Head: Professor Durand

101 Beginning French I (3)

Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior French is required. Will not count toward the language requirement if the student has studied French for more than one year within the last six years. (FC) [D]

102 Beginning French II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

103 Intermediate French I (3)

Development of facility in reading texts of moderate difficulty; supplemented by further work in grammar, conversation, and composition. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

104 Intermediate French II (3)

Continuation of 103. Students enrolling in this course should have taken 103 or equivalent. (Lec. 3) (FC) [D]

105 Basic Conversation (1)

Practice in basic French conversational skills. (Lec. 1) Pre: credit or concurrent enrollment in 103 or 104. May be repeated once for a maximum of 2 credits. (FC) [D]

201 French Pronunciation (1)

The sounds of French; relationship between spelling and pronunciation; regional variation. Practice in pronouncing French prose and poetry. (Lab. 2) Pre: 104 or equivalent or permission of instructor.

204 French Composition I (3)

Practice in writing French; topics selected from everyday events and readings in French; emphasis on vocabulary building; some grammar study, frequent compositions. Students enrolling in this course should have taken 104 or equivalent. (Lec. 3) (FC) [D]

207 French Oral Expression I (3)

Training in the spontaneous use of oral French. Students will extend the quantity and quality of spoken French that they are able to produce. Special focus on narration or storytelling in French. (Lec. 3) Pre: 104 or equivalent or permission of instructor. (FC) [D]

303 The French in North America (3)

Surveys the background and current status of the French diaspora in North America, including Acadians, Quebecers, French Canadians, and French Americans, with special emphasis on the literary, artistic, and other contributions of these groups to the civilization(s) of the continent. Taught in French. (Lec. 3) Pre: 204 or 207 or permission of instructor.

304 French Composition II (3)

Writing of literary French. Frequent compositions and critiques with emphasis on the stylistic devices. Recommended for those concentrating in French. (Lec. 3) Pre: 204.

307 Oral Expression 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: 207.

309 French Culture and Literature to 1789 (3)

Survey of the significant developments in the arts, society, and literature in France from the Middle Ages to the French Revolution. (Lec. 3) Pre: 204 or permission of instructor. (A) (FC) [D]

310 Modern French Culture and Literature (3)

Survey of the significant developments in the arts, history, and literature in France from the French Revolution to the present. (Lec. 3) Pre: 204 or permission of instructor. (A) (FC) [D]

315, 316 French Internship Abroad (3)

Supervised work experience in a French-speaking country for advanced language students. (Practicum) Pre: 200-level French course or equivalent or permission of instructor.

318 French Across the Curriculum (1)

Reading and discussion of original French texts in conjunction with courses throughout the university curriculum. Designed to maintain and improve French language skills and to enrich study through exposure to texts in the original language. (Lec. 1) Pre: permission of instructor. May be repeated.

320 Studies in French Cinema (3)

Study of major French/Francophone film genres and of prominent French/Francophone directors. Emphasis will vary. (Lec. 3) Course taught in English. Students counting the course for a major or minor in French are required to do all written work in French and must have credit for FRN 204 and 207. Topics include: "Films of Luc Besson," "Survey of French Cinema," and "French Film Comedies." Pre: 204 and 207 or permission of instructor. May be repeated with different topics for a maximum of 9 credits. (A) or (FC) [D]

391 Literature to 1789 in Translation (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. (A) or (FC) or (L) [D]

392 Nineteenth-Century Literature in Translation (3)

Reading in translation of selected literary works from representative 19th-century authors. (Lec. 3/Online) Not for major credit in French. (A) or (FC) or (L) [D]

393 Twentieth-Century Literature in Translation (3)

Reading in translation of selected literary works from representative 20th-century authors. (Lec. 3/Online) Not for major credit in French. (A) or (FC) or (L) [D]

408 The French Language: Past, Present, and Future (3)

Introduction to the history and present state of French. Study of standard and colloquial French, dialects, regional variations, language of youth and professions. Current tendencies; the Francophone movement. (Lec. 3) Pre: 304 or permission of instructor.

412 Topics in French Culture and Literature (3)

Topics in French literature and culture. (Lec. 3/Online) Pre: 309 or 310 or permission of instructor. May be taken more than once for credit on different topics.

473 French Canadian Literature (3)

Early historical and biographical works, but primarily the novel, poetry, and theatre of the 20th century. (Lec. 3) Pre: 309 or 310 or permission of instructor.

474 African Literature in French (3)

Authors of Africa and the diaspora; includes Camara, Césaire, Dadie, Senghor. (Lec. 3) Pre: 309 or 310 or permission of instructor.

480 Business French (3)

Study of concepts and terminology relating to the French business world. (Lec. 3) Pre: junior standing, credit or concurrent enrollment in at least one 300-level French language course.

497, 498 Directed Study (3 each)

For the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of a project by a faculty member and approval of section head.

Genetics**Aquaculture and Fisheries Science**

576 Seminar in Genetics of Aquatic Organisms

Biochemistry

242 Human Genetics and Human Affairs

353 Genetics Laboratory

452 Advanced Topics in Genetics

Biological Sciences

352 General Genetics

573 Developmental Genetics

579 Advanced Genetics Seminar

Microbiology

502 Techniques of Molecular Biology

552 Microbial Genetics

561 Recent Advances in Molecular Cloning

Plant Sciences

250 Plant Breeding and Genetics

471 Plant Improvement

Geography (GEG)

Chairperson: Professor Green (Landscape Architecture)

101 World Geography (3)

An examination of major world regions. Basic geographic concepts are presented. Physiographic, political, economic, social, and cultural influences are addressed in a spatial context. (Lec. 3) (S) [D]

104 Political Geography (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) (S) [D]

200 Human Geography (3)

The evolution of human environments from the Stone Age to the contemporary megalopolis and the

emergent world city in terms of human-earth-space-resource relationships. (Lec. 3)

202 Introductory Urban Geography: Understanding Cities

See Community Planning 202.

203 Economic Geography (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)

350 (or MAF 350) Caribbean Geography (3)

Exploration of the physical, political, economic, and cultural environment of the Caribbean region, with emphasis on small island states from the colonial era to the present. (Lec. 3)

475 The Revolutionary City: Cuba

See Community Planning 475.

511 Geographic Applications in the K-12 Curricula (3)

Learning how geography interrelates with other topical curricula. Classroom teachers integrate geographic concepts, for lesson plan development using National Geographic Standards and other source materials, into their subject specialization. Emphasis on the spatial aspects of all curricula. (Lec. 3) Pre: graduate standing, or permission of instructor.

Geosciences (GEO)

Chairperson: Associate Professor Veeger

100 Environmental Geology (3)

Geologic processes, how they affect people and vice versa; geologic hazards, earthquake impact, shoreline development, offshore oil, waste disposal, water, energy and other resources, climate change. (Lec. 3) (N)

101 Freshman Inquiry into the Geosciences (1)

Introduction for freshmen to the opportunities, careers, research activities, applied outreach, and educational programs in the Department of Geosciences. Interact weekly with faculty. Explore hands-on modules. (Lec. 1) S/U credit.

102 Evolution and Extinction of the Dinosaurs (3)

General introduction to the dinosaurs. Variety, habits, warm-bloodedness, and extinction discussed. Pterosaurs and bird origins presented. (Lec. 3) (N)

103 Understanding the Earth (4)

Processes operating within and upon the earth. Relationship of plate tectonics to volcanism, earthquakes, and mountain building. Development and modification of landscapes by rivers, glaciers, wind, waves, and ground water. Environmental implications of geologic processes. (Lec. 3, Lab. 2) (N)

110 The Ocean Planet

See Oceanography 110. (N)

113 Natural Disasters (3)

The science of natural disasters from a physical, chemical and geological perspective. Understanding of the development of and factors controlling the occurrence of natural disasters. (Lec 3) (N)

120 Geology of U.S. National Parks (3)

Selected parks are used to illustrate geologic processes and age relationships to understand earth history. Includes plate tectonics, volcanic and plutonic activity, glaciation, cave formation, stream and coastal processes, landscape formation. (Lec. 3) (N)

204 Evolution of the Earth (4)

Survey of earth history. Time, plate movements, ancient environments, climates, and the fossil record introduced in historical context (Lec. 3, Lab. 2). Pre: 103, equivalent, or permission of instructor.

210 Landforms: Origin and Evolution (4)

Development, distribution, and geologic significance of landforms produced by rivers, glaciers, coastal processes, weathering, and other geomorphic agents. Interpretation of landforms through field studies, topographic maps, and aerial photographs. (Lec. 3, Lab. 2) Pre: 103 or permission of instructor.

272 Introduction to Evolution

See Biological Sciences 272.

305 Global Warming (4)

Scientific treatment of climate change during the last 100,000 years. Implications for earth systems in context of past climates and future projections. (Lec. 3, Lab. 2) Pre: 100 or 103 or OCG 110 or permission of instructor.

320 Earth Materials (4)

Hand-sample identification and characterization of minerals and rocks, including crystallography, composition, classification, origin, and relationship to geological occurrence; also includes aspects of soil-forming minerals, ore deposits, and other mineral resources. (Lec. 3, Lab. 2) Pre: 103, credit or concurrent enrollment in CHM 101 or 103.

370 Structure of the Earth (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: PHY 213 and 285 or 111 and 185 or permission of instructor.

450 Introduction to Sedimentary Geology (4)

Principles underlying formation and composition of lithofacies and sedimentary environments. Methods, procedures, and techniques used to study sedimentary processes, depositional environments, sediment and rock sequences, and paleogeography. (Lec. 3, Lab. 2) Pre: graduate or advanced undergraduate standing in environmental, resource, or engineering major.

465 Introduction to Geophysics (3)

Physical properties of earth and the application of geophysical methods to explore the earth's interior for natural resources. Introductory interpretation of gravity, magnetic, seismic, and radiometric surveys. (Lec. 2, Lab. 2) Pre: 103, PHY 112, MTH 132.

468 Groundwater Chemistry (4)

Introduction to the chemical processes controlling water chemistry in low-temperature environments. Chemical weathering, ion exchange, redox, mineral equilibrium, isotopes, and chemical modeling of aqueous systems. (Lec. 3, Lab. 2) Pre: CHM 101, 102, 112, 114; GEO 103, 320. Offered in odd-numbered years. Next offered fall 2009.

472 Advanced Evolutionary Biology

See Biological Sciences 472.

480 Summer Field Camp (4-8)

Geologic field mapping and principles. (Practicum) Pre: 210, 320, 370, and 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.

482 (or NRS 482 or EVS 482) Innovative Sub-surface Remediation Technologies (4)

Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. (Lec. 4) Pre: permission of instructor. In alternate years. Not for graduate credit.

483 Hydrogeology (4)

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. 3, Lab. 2) Pre: 103, 210, and MTH 131 or 141, or permission of instructor.

484 (or NRS 484 or EVS 484) Environmental Hydrogeology (4)

Physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab. 2) Pre: 483 or CVE 588 or NRS 510, or permission of instructor. Not for graduate credit. Offered every other year.

485 (or CVE 485) Environmental Engineering Geophysics (3)

Field and lab methods of determining physical rock constants such as density, porosity, permeability, electrical conductivity, and seismic velocity, with applications in geology and environmental engineering. (Lec. 2, Lab. 2) Pre: 103, MTH 132 or 142, PHY 111 and 185 or 213 and 285, and junior standing, or permission of instructor. In alternate years.

491 Special Topics (1-3)

Advanced work for undergraduates under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. Not for graduate credit in geology.

497 Field Experience in the Geological Sciences (4)

Capstone field trip. (Lec. 2, Field Trip) Pre: 204, 320, 370, and 450. 3.00 GPA in major/2.50 GPA overall required, and permission of instructor. Extended field trip required. May be repeated for credit.

499 Senior Thesis (3)

Independent research. Student selects an area of study and works in close conjunction with a faculty member of his or her choice. (Independent Study) Pre: senior standing and permission of instructor. Not for graduate credit in geology.

500 Graduate Seminar (1)

Weekly seminar series featuring oral presentations of the results of ongoing, topical research. S/U credit.

501 Vertebrate Paleontology (1-3)

Advanced work in vertebrate paleontology under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

502 Readings in Paleontology (1-3)

Advanced readings in paleontology under the supervision of a member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. S/U

510 Glacial Sedimentation Research (1-3)

Advanced research in glacial sedimentation under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

511 Quaternary Paleoclimates (1-3)

Advanced work in Quaternary paleoclimates under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

515 Glacial Geology (3)

Investigation of glacial environments and processes including areas with presently existing glaciers. Emphasis on the development of glacial landscapes and deposits. Field trips in New England area. (Lec. 2, Lab. 3) Pre: graduate or advanced undergraduate standing in environmental, resource, or engineering major.

530 Petrogenetic Igneous Processes (4)

Examination of key physico-chemical processes responsible for the diversity of igneous rocks and igneous activity. Emphasis on geochemistry, petrography, field relationships, and tectonic setting. (Lec. 3, Lab. 2) Pre: 320 or permission of instructor. In alternate years. Next offered spring 2011.

531 Metamorphic Petrology (3)

Facies concept and other methods of interpreting metamorphic mineral assemblages. Chemical and fabric changes during metamorphism, including principles of structural petrology. (Lec. 2, Lab. 3) Pre: 321 or permission of instructor. In alternate years.

532 Analytical Geochemistry (1–3)

Advanced work in analytical geochemistry under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

533 Readings in Petrology (1–3)

Seminar in petrology with readings drawn from the current professional literature. S/U credit.

550 Sedimentary Processes and Environments (3)

Physical processes of sedimentation with emphasis on river, shoreline, estuarine, and lagoon environments. Emphasis on field study including 9-day field trip. (Lec. 3) Pre: graduate or advanced undergraduate standing in environmental, resource, or engineering major.

551 Coastal Sedimentation Research (1–3)

Advanced research in coastal sedimentation under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

552 Readings in Sedimentation (1–3)

Seminar in sedimentary geology with readings drawn from the current professional literature. S/U credit.

555 Reconstructing Terrestrial Paleoenvironments (4)

Sedimentological and paleontological methods used in the interpretation of the terrestrial sedimentary record. (Lec. 3, Lab. 2) Pre: 450 or permission of instructor. Offered in spring of even-numbered years.

565 Geophysical Models (3)

Model interpretation of gravity, magnetic and geoelectric field surveys with geologic constraints. Conversion of quantitative geophysical models into geologic/hydrologic structures. (Lec. 2, Lab. 2) Pre: MTH 132, PHY 112 or equivalent. Offered in spring of odd-numbered years.

568 Isotopes in Hydrogeology (3)

Use of environmental isotopes in groundwater studies; dating groundwater, delineating flow paths and identifying recharge areas; geochemical evolution of groundwater and assessment of contamination. (Lec. 3) Pre: 483 and 468 or permission of instructor. Offered in even-numbered years.

577 Coastal Geologic Hazards (3)

Geologic hazards in the coastal zone and their impact on people. Includes waves, storm-surge, mass-wasting, and sea-level rise. Geologic effectiveness of

engineering structures and management techniques. Emphasis on field study. (Lec. 2, Lab. 3) Pre: graduate or advanced undergraduate standing in environmental, resource, or engineering major.

580 New England Geology (3)

Review of the bedrock geology of New England, and its applications for the Appalachian/Caledonides mountain chain and theories of orogenesis. Mandatory field trips. (Lec. 3) Pre: 320, 370, or permission of instructor. Offered in fall of odd-numbered years.

581 Topics in Tectonic Geology (3)

Review of selected topics in continental and oceanic tectonics. (Seminar) Pre: permission of instructor. Offered in fall of even-numbered years.

582 (or NRS 583, or EVS 582) Innovative Subsurface Remediation Technologies (4)

Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. Offered alternate years. (Lec. 4) Pre: permission of instructor.

583 Groundwater Modeling (3)

Numerical modeling of groundwater flow and solute transport. Numerical methods, model conceptualization, assumptions, boundary conditions, and complex aquifer systems. Modeling exercises including full-scale modeling project using MODFLOW. (Lec. 2, Lab. 3) Pre: 483, or NRS 361 or CVE 588, or permission of instructor. Offered in odd-numbered years.

584 (or NRS 584, or EVS 584) Environmental Hydrogeology (4)

Develop an understanding of the physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab. 2) Pre: 483 or CVE 588 or NRS 510 or permission of instructor.

586 Readings in Hydrogeology (1–3)

Seminar in hydrogeology with readings drawn from the current professional literature. S/U credit.

590, 591 Special Problems (1–3 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. S/U credit for 591.

930 Workshop in Geology Topics for Teachers (0–3 each)

Especially designed for teachers of physical sciences. Basic topics of geology from an advanced or pedagogical perspective. (Workshop) Pre: teacher certification.

Note: For other related courses, see OCG 540, 625, 628, 643, 644, 645, 646, 649, 651, 652, 678, 681; OCE 582, 688; and CVE 581, 585, 587, 588, 677, 681, 682, 687.

German (GER)

Section Head: Professor Hedderich

101 Beginning German I (3)

Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior German is required. Will not count toward the language requirement if the student has studied German for more than one year within the last six years. (FC) [D]

102 Beginning German II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

103 Intermediate German I (3)

Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

104 Intermediate German II (3)

Continuation of 103. Students enrolling in this course should have taken 103 or equivalent. (Lec. 3) (FC) [D]

105, 106 Basic Conversation I, 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.

111, 112 Intensive Beginning German (4 each)

Study of the fundamentals of German with special emphasis on listening and speaking skills. Students enrolling in 112 should have taken 111 or equivalent. (Lec. 4). Not for major credit in German.

113, 114 Intensive Intermediate German (4 each)

Practice in listening and speaking. Development of basic reading and writing skills. Review of grammatical structure. Students enrolling in 113 should have taken 112 or equivalent; students enrolling in 114 should have taken 113 or equivalent. (Lec. 4)

201, 202 Intermediate Conversation I, II (1 each)

Conversation skills for students who have completed intermediate German. 202: Continuation of 201. Students enrolling in 201, 202 should have taken 104 or equivalent. (Lec. 3)

205, 206 Conversation and Composition (3 each)

Development of facility in spoken and written German using contemporary writings and topics; special emphasis on general classroom discussion. Students enrolling in 205, 206 should have taken 104 or equivalent. (Lec. 3) (FC) [D]

215, 216 Advanced Conversational German (4 each)

Intensive practice in speaking and listening, with some attention to writing skills. Students enrolling

in 215, 216 should have taken 114 or equivalent. (Lec. 4)

221 Introduction to Business German (1)

Conversational practice in German with emphasis on the acquisition of vocabulary pertinent to international business. (Lec. 1) Pre: 112 or equivalent.

305 Advanced Conversation (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.

306 Advanced Composition (3)

Training in various forms of writing by means of frequent compositions and critiques. (Lec. 3) Pre: 206 or equivalent. In alternate years.

315, 316 Language Study Abroad (3–5 each)

Credit for advanced language study in a German-speaking country. (Practicum) Pre: 206 or equivalent and permission of section head.

327 Introduction to German Studies and Literature (3)

Major developments and figures in German culture, literature, art, and society of the 20th century. (Lec. 3) Pre: 206 or permission of instructor.

328 Introduction to German Cultural History and Literature (3)

Overview of major German cultural developments starting with the “Germany” of the Romans and ending with unification. Significant figures and developments in literature, art, and society. (Lec. 3) Pre: 206 (or equivalent) or permission of instructor.

408 (or LIN 408) The German Language: Past and Present (3)

Introduction to the history and present state of the German languages. Study of standard and colloquial German, dialects, Swiss and Austrian variations, language of youth and professions. Analysis of various test types. Tendencies in present-day German. (Lec. 3) Pre: 305 or permission of instructor. Not for graduate credit.

411 Advanced Technical German

See Engineering 411.

421 Business German (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.

485, 486 Special Studies (3 each)

Special topics in German literature not emphasized in other courses. (Seminar) Pre: one semester of German at the 300 level or permission of section head. May be repeated with a change in topic. In alternate years.

497, 498 Directed Study (1–3 each)

Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of project by a faculty member and permission of section head.

585, 586 Seminar in German Studies (1–3 each)

Topics in German literature and civilization. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topics.

598 Directed Studies (1–3)

Individual research on problems of special interest. (Independent Study) Pre: graduate standing, acceptance of project by a faculty member, and permission of chairperson. May be repeated with different topics.

987, 988 German Play Production (1 each)

Study and production of a German play or plays. (Workshop) Pre: 215 and 216 or equivalent. Students may enroll concurrently in 485, 486. S/U only.

Gerontology

Director: Professor P. Clark

Human Development and Family Studies

312 Adult Development
314 Introduction to Gerontology
421 Death, Dying, and Bereavement
431 Family and the Elderly
440 Environmental Context of Aging
513 Seminar in Adult Development
514 Seminar in Older Adulthood
527 Health Care Policy and the Elderly

Human Science and Services

530 Multidisciplinary Health Seminars for the Elderly

Kinesiology

563 Fitness Programs for the Middle-Aged and Elderly

564 Physiology of Aging

Nursing

349 Aging and Health

Nutrition and Food Science

395 Nutrition in the Life Cycle II

Sociology

438 Aging in Society

Greek (GRK)

Chairperson: Professor Morello (Languages)

For Modern Greek, see LAN 191, 192.

101 Ancient Greek I (3)

Grammar and syntax of Attic Greek, reading practice. (Lec. 3) Pre: no previous Greek is required. Will not count toward the language requirement if the student has studied Greek for more than one year within the last six years. (FC) [D]

102 Ancient Greek II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3). (FC) [D]

301 Intermediate Greek I (3)

Grammar review; readings such as Lysias' *Against Eratosthenes*. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

302 Intermediate Greek II (3)

Readings selected in accordance with interests of students. Students enrolling in this course should have taken 301 or equivalent. (Lec. 3) May be repeated for credit with a different topic. May be taken once for General Education credit. (FC) [D]

310 Greek Across the Curriculum (1)

Reading of original Greek texts and discussion in conjunction with courses throughout the University curriculum. Designed to maintain language skills and to enrich the study of different subjects by texts in the original language. (Lec. 1) Pre: 301 or permission of instructor.

497 Directed Study (1–6)

Individual readings and research. (Independent Study) Pre: acceptance of project by faculty member and approval of chairperson. May be repeated for credit with a different topic.

Health Services Administration (HSA)

Coordinator: A. Hubbard

360 Health Services Administration (3)

Introduction to key concepts and principles in health services administration through both didactic and experiential means. (Seminar/Online) Pre: admission to the B.G.S. program as a health services administration major and a minimum of 60 credits. Offered fall.

380 Introductory Practicum in Health Services Administration (3)

Didactic and experiential introduction to the delivery of health services including acute care, long-term care, nursing homes, and special services problems such as hepatitis, tuberculosis, and HIV. (Practicum) Pre: admission to the B.G.S. program as a health services administration major and a minimum of 75 credits.

480 Advanced Practicum in Health Services Administration (6)

An intensive experience in a health care setting selected by the student, combined with class meetings. (Practicum) Pre: admission to the B.G.S. program as a health services administration major and a minimum of 90 credits. Not for graduate credit.

Hebrew (HBW)

Chairperson: Professor Morello (Languages)

101 Beginning Hebrew I (3)

Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior Hebrew is required. Will not count toward the language requirement if the student has studied Hebrew for more than one year within the last six years. (FC) [D]

102 Beginning Hebrew II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

103 Intermediate Hebrew I (3)

Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

104 Intermediate Hebrew II (3)

Continuation of 103. Students enrolling in this course should have taken 103 or equivalent. (Lec. 3) (FC) [D]

History (HIS)

Chairperson: Professor Schwartz

111 History of Ancient Greece and Rome (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) (L)

112 History of Medieval Europe (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) (L)

113 History of Western Civilization from the Late Middle Ages to 1789 (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) (L) [D]

114 History of Western Civilization Since 1789 (3)

Continuation of 113. Western civilization of the present time. (Lec. 3) (L) [D]

116 History of Western Science (3)

Development of western science from ancient Greece and Rome until the present. Topics include relations of science and religion, emergence of science-based industry, and interaction between science and politics, especially during war. (Lec. 3) (L)

117 History of Medicine (3)

Professionalization of medicine, status of healers in different cultures, creation of scientific medicine, alternative medical practice, effect of changing disease patterns on medical theory/practice. Focus on the U.S. in the 19th and 20th centuries. (Lec. 3) (L)

118 Women in European History (3)

Attitudes toward women, their role in society, women's work, and the feminist movement. Emphasis on 19th and 20th centuries with background material from earlier periods. (Lec. 3) (L) [D]

123 Modern British Civilization (3)

An introduction to British culture in the 19th and 20th 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. (Lec. 3)

130 History and the Sea (3)

The history of seafaring from ancient times to the 20th century. The course considers the political, military, economic, and social history of the maritime world. (Lec. 3) (L) [D]

132 Introduction to Russian and Soviet History (3)

Selected topics in the development of Russian civilization since the ninth century. (Lec. 3) (FC) or (L) [D]

141 History of the United States to 1877 (3)

Colonial and Revolutionary periods, and economic, social, and political development of the United States through the Civil War and Reconstruction. (Lec. 2, Rec. 1) (L) [D]

142 History of the United States Since 1877 (3)

General social, economic, and political development from 1877 to the present. (Lec. 2, Rec. 1) (L) [D]

145 Women in the North American Colonies and the United States, 1500–1890 (3)

Legacies of Native-American, Hispanic, and Anglo-American culture; slavery and abolition; women's work and sexuality; women's rights movements; ethnic and regional diversity, with emphasis on women in the West, the South, and Northeast. (Lec. 3) (L) [D]

146 Women in the United States, 1890–Present (3)

Impact of immigration and industrialization; legacy of slavery and segregation; changes in sexuality, reproduction, and work; images of women in popular culture; women's political movements. (Lec. 3) (L) [D]

150 (or AAF 150) Introduction to Afro-American History (3)

Survey of Afro-American history from African origins to the current racial confrontation. (Lec. 3) (L) [D]

160 Technology and American Life: 1800–Present (3)

Surveys the development and social impact of technology on American life during the past two centuries. (Lec. 3) (L) [D]

171 East Asian Culture and History (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) (FC) or (L) [D]

172 Southeast Asian Culture and History (3)

Broad overview of the culture and history of Southeast Asia. Emphasis on society, culture, and religion and their influence on contemporary developments. (Lec. 3) (FC) or (L) [D]

177 The Islamic Middle East: From the Mongols to Modern Times (3)

History of the Islamic Middle East from the Mongol invasions of the 13th 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)

180 Introduction to Latin American Civilization (3)

Social, cultural, and political history of the Latin American region from the pre-conquest era to the present time. (Lec. 3) (FC) or (L) [D]

300 Ancient Greece: Hellenic and Hellenistic Period from the Trojan Wars to Alexander the Great, 800 B.C.–300 B.C. (3)

Social, economic, political and intellectual development of Greece from the Archaic to Hellenistic period. (Lec. 3) Pre: sophomore standing or permission of instructor.

303 From Republic to Empire: Ancient Rome (3)

Social, economic, political, and intellectual history of Ancient Rome, covering the foundation of the city, the Roman Republic and Empire, and the spread of Christianity. From about 750 B.C. to about 300 A.D. (Lec. 3) Pre: sophomore standing or permission of instructor.

304 Western Europe in the High Middle Ages (3)

Primarily France and England in the 12th and 13th centuries. Emphasis on the medieval Gothic-Catholic culture, the rise of towns, and the development of a money economy. (Lec. 3) Pre: sophomore standing or permission of instructor.

305 The Renaissance (3)

Europe in transition during the 14th through the early 16th centuries. The economic, social, and religious backgrounds of the Renaissance. Emphasis on culture and artistic developments. (Lec. 3) (L) Pre: sophomore standing or permission of instructor.

306 The Protestant and Catholic Reformations (3)

Changes in European Society resulting from the Protestant Reformation and Catholic Counter Reformation, including the rise of secular states and the effects of religions crisis on society and culture. (Lec. 3) Pre: sophomore standing or permission of instructor.

308 Between Eve and Mary: Women in the Middle Ages (3)

History of women in western Europe from about 500 A.D. to about 1500 A.D. Understanding the variety of medieval women's experiences (rich or poor, secular or religious, urban or rural) and how women were perceived by their society. (Lec. 3) Pre: sophomore standing or permission of instructor.

309 The French Revolution and Napoleon (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.

310 History of Europe: 1815–1914 (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. (L) [D]

311 History of Europe Since 1914 (3)

Detailed study of developments from 1914 to present: wars, postwar adjustments, communist and fascist ideologies, history of individual states, and social and intellectual trends. (Lec. 3) Pre: junior standing. (FC) or (L) [D]

314 Seventeenth- and Eighteenth-Century European Cultural History (3)

Intellectual and social movements of the Age of Reason and the Age of Enlightenment. (Lec. 3) Pre: sophomore standing or permission of instructor. (L)

323 History of Great Britain in the 19th Century (3)

Politics, culture, and economy of Great Britain in the 19th century: elements of both continuity and change in the social life and organization of its inhabitants, and in their religious and social beliefs: effects of British imperial expansion on the colonizers and on the colonized. (Lec. 3) Pre: sophomore standing or permission of instructor. (L) [D]

327 German History Since 1914 (3)

Topics in German social and political history from the first world war to the present. Emphasis on the history of National Socialism. (Lec. 3) Pre: sophomore standing or permission of instructor. (FC) or (L) [D]

328 The Holocaust (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.

332 History of Imperial Russia (3)

Russian society, politics, and world view from the modernizing reforms of Peter the Great to the installation of parliamentary government in 1905. Emphasis on student writing, analysis of documents, trends, interconnections. (Lec. 3) Pre: sophomore standing or permission of instructor. (L) [D]

333 Twentieth Century Russia (3)

From Imperial Russia's progress toward modernization to society, economy, and politics in the 1990s. The Soviet experiment is studied from domestic and international angles. Close attention given to the Stalin Revolution, Cold War, and attempts to revitalize the one party state. (Lec. 3) Pre: sophomore standing or permission of instructor. (L) [D]

335 American Colonial History to 1763 (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: sophomore standing or permission of instructor.

336 The American Revolution and Confederation: 1763–1789 (3)

Social, political, and economic aspects of the Revolution and Confederation periods. (Lec. 3) Pre: sophomore standing or permission of instructor.

337 Creation of the Union: America from 1789–1848 (3)

The development of the new nation through the Jacksonian years, with emphasis on the transformation of society and politics. (Lec. 3) Pre: sophomore standing or permission of instructor.

339 Emergence of Industrial America: 1877–1914 (3)

Growth and consolidation of business, urbanization, and the Populist and Progressive movements. America's emergence as a world power. (Lec. 3) Pre: sophomore standing or permission of instructor.

340 United States History from 1914 to 1941 (3)

Social, political, and economic developments in the U.S. from the onset of World War I through the end of the Great Depression. (Lec. 3) Pre: sophomore standing or permission of instructor. (L) [D]

341 United States History from 1941 to 1974 (3)

U.S. involvement in World War II. Social, political and economic developments in the postwar era. Equal emphasis on the domestic sphere and America's role in world affairs. (Lec. 3) Pre: sophomore standing or permission of instructor. (L) [D]

342 United States History from 1968–2001 (3)

From Woodstock to the AIDS crisis, Richard Nixon to George Bush, Vietnam to Iraq, and Bob Dylan to

Jay-Z, students will explore the developments that created today's United States. (Lec. 3) Pre: 142 and sophomore standing.

344 History of the North American Indian (3)

Native North Americans from pre-Columbian times to present. Emphasis on ideological conflict between Indians and whites. (Lec. 3) Pre: sophomore standing or permission of instructor.

346 Immigration, Ethnicity and Race in America (3)

History of immigration to the U.S. from the colonial period to the present, with emphasis on the 19th and 20th centuries. Compares different waves, explores shifting attitudes toward immigrants, and discusses how race and ethnicity shaped immigrants' experiences. (Lec. 3) Pre: sophomore standing or permission of instructor. (L) [D]

349 History of American Labor (3)

Changes in work, lifestyle, and political consciousness of American workers in the 19th and 20th centuries; conflicts between labor and capital, and relationship to emergence of labor movements. (Lec. 3) Pre: sophomore standing or permission of instructor.

351 Historical Perspectives on Women and Health (3)

History of women healers, including midwives, nurses and physicians. Topics in women's health care will also be addressed. (Lec. 3) Pre: sophomore standing or permission of instructor. (L) [D]

352 Topics in the History of Women and Gender (3)

Themes in women's history, sexual identities, and the construction of gender roles. Primarily deals with United States since 1800. (Lec. 3) Pre: sophomore standing or permission of instructor. May be repeated.

353 United States Diplomatic History to 1914 (3)

Analysis of the people, ideas, and institutions that shaped the rise of the United States from thirteen colonies to the most powerful nation in the world. (Lec. 3) Pre: sophomore standing or permission of instructor.

354 United States Diplomacy in the 20th Century (3)

Analysis of people, ideas, and institutions that have shaped American relations with the rest of the world from World War I to the present. (Lec. 3) Pre: sophomore standing or permission of instructor.

355 (or AAF 355) Black Women in the U.S.: Colonial Times to the Present (3)

Women's experiences in the study of African-American history. Assigned readings familiarize students with the state of scholarship and examine the intersection of race, class, and gender in that experience. (Lec. 3) Pre: sophomore standing. (L) [D]

356 (or AAF 356) Black Urban History: Late 19th and 20th Centuries (3)

Examines the historical black experience in urban environments in the U.S. Assigned readings, research, and group discussions examine the issues of migration, community, politics, class, and gender. (Lec. 3) Pre: sophomore standing. (L) [D]

357 History of Religion in the United States (3)

Diversity of religious traditions in the U.S. especially in the 19th and 20th centuries. Emphasis on political, cultural, and ethnic/racial dimensions of religion. (Lec. 3) Pre: sophomore standing or permission of instructor.

358 Recent America in Film (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) Pre: sophomore standing or permission of instructor.

359 (or AAF 359) History of Slavery in America (3)

Origins, development, and demise of slavery, with emphasis on the area that currently constitutes the United States. (Lec. 3) Pre: sophomore standing or permission of instructor.

360 American Culture 1865–1940 (3)

Explores the nature and sources of American culture with emphasis on the diversity of its origins and forms of expression. (Lec. 3) Pre: sophomore standing or permission of instructor.

361 (or WMS 361) Women's Lives in New England, 1790–1930 (3)

Social, political and literary history of women in New England with an emphasis on women's work and how that work shaped gender relations. Theoretical approaches from women's studies, race and gender studies will inform the treatment of women's history and the history of material culture in New England. (Lec. 3) Pre: junior standing or permission of the instructor.

362 History of Rhode Island (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: sophomore standing or permission of instructor.

365 Civil War and Reconstruction (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) Pre: sophomore standing or permission of instructor.

366 (or AAF 366) Twentieth Century Black Politics and Protest (3)

Explores the development and evolution of black politics and protest in the twentieth century including the Civil Rights and Black Power Movements and their legacies. (Lec. 3) Pre: 150 or AAF150 or HIS 142 and sophomore standing or permission of Instructor

374 History of Modern China (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) Pre: sophomore standing or permission of instructor. (FC) or (L) [D]

375 History of Modern Japan (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) Pre: sophomore standing or permission of instructor. (FC) or (L) [D]

376 Women in Muslim Societies (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) Pre: sophomore standing or permission of instructor.

377 Revolution in Islam (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) Pre: sophomore standing or permission of instructor.

378 Arab-Israeli Conflict (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) Pre: sophomore standing or permission of instructor.

381 History of Colonial Latin America (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) Pre: sophomore standing or permission of instructor.

382 History of Modern Latin America (3)

Historical analysis of the political, cultural, and social-economic dimensions of tradition, reform, and revolution in Latin America since 1810. (Lec. 3) Pre: sophomore standing or permission of instructor.

384 The Caribbean: New World/Third World (3)

Historical and contemporary development of the Caribbean world, emphasizing efforts by the region's peoples to achieve political, economic, and cultural independence from external domination. (Lec. 3) Pre: sophomore standing or permission of instructor.

385 Revolution and Unrest in Central America and the Caribbean (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: sophomore standing or permission of instructor.

388 (or AAF 388) History of Sub-Saharan Africa (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.

389 Exploration, Commerce, and Conflict in the Atlantic World, 1415–1815 (3)

The Atlantic world from the 15th to early 19th centuries. Voyages of exploration, cultural contact, Atlantic economy, piracy, smuggling, fishing, naval warfare, imperialism, migration, and life at sea in the Age of Sail. (Lec. 3) Pre: sophomore standing or permission of instructor.

390 The Atlantic World in the Age of Iron, Steam, and Steel (3)

The Atlantic world in the 19th and early 20th centuries. Maritime technology, seaborne commerce, naval warfare, imperialism, migration, whaling, the slave trade, piracy, and life at sea. (Lec. 3) Pre: sophomore standing or permission of instructor.

391 Directed Study or Research (3)

Special work arranged to meet the needs of individual students who desire advanced work. (Independent Study) Pre: permission of chairperson. May be repeated for a total of 6 credits with permission of instructor and chairperson.

393 Topics in History (1–3)

Subject, course content, and years offered will vary according to expertise and availability of instructors. (Lec. 1–3) May be repeated for credit with permission of chairperson. Pre: sophomore standing or permission of instructor.

396 Maritime History and Underwater Archaeology Field School (3)

Usually, but not exclusively, taught in Bermuda. Students may select an archaeological diving option, an archaeological non-diving option, or an archival research option. Pre: junior standing and those students who select the archaeological diving option will be required to go through the URI research diving certification process prior to departure.

397 The Historical Landscape of Britain (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. (Lec. 2, Lab. 3) Usually taught in conjunction with ENG 397. Pre: sophomore standing or permission of instructor.

398 History Through Science Fiction (3)

Ideas about history in popular culture as seen in the literary genre of science fiction. (Lec. 3) Pre: sophomore standing or permission of instructor.

401 Advanced Topics in European History (3)

Subject and course content will vary from semester to semester. Student work will emphasize historiographical analysis and the use of specialized research materials. (Lec. 3) Pre: junior, senior, or graduate standing in history or permission of instructor. May be repeated for credit with permission of chairperson.

441 Advanced Topics in American History (3)

Subject and course content will vary from semester to semester. Student work will emphasize historiographical analysis and the use of specialized research materials. (Lec. 3) Pre: junior, senior, or graduate standing in history or permission of instructor. May be repeated for credit with permission of chairperson.

481 Advanced Topics in Asian or Latin American History (3)

Subject and course content will vary from semester to semester. Student work will emphasize historiographical analysis and the use of specialized research materials. (Lec. 3) Pre: junior, senior, or graduate standing in history or permission of instructor. May be repeated for credit with permission of chairperson.

490 (or APG 490) Underwater Historical Archaeology (3)

Methodological and theoretical foundations of underwater historical archaeology. Examines the contribution of shipwrecks and other inundated sites to our understanding of the global nature of modern life. (Seminar) Pre: At least 3 credits of course work at the 300-level in history, anthropology, or art history, or permission of instructor.

495 Seminar in History (3)

Development of skills in historical research and writing and in the critical analysis of historical works. Topics vary. (Seminar) Pre: completion of 401 or 441 or 481, with the same instructor, or permission of the department. This course is required of undergraduate history majors. May be repeated for credit with different topic with permission of instructor.

502, 503 Special Readings in European History (3 each)

Intensive tutorial work, research, and readings in European history. (Independent Study) Pre: graduate standing, permission of instructor, and concurrent audit of parallel 300-level course. May be repeated.

506 Seminar in European History (3)

Selected topics in European history, with intensive reading of important secondary and/or primary sources; critical written analysis of historical method, research, and modes of interpretation. May be repeated for credit with different topics. (Seminar) Pre: graduate standing or permission of instructor.

507 Seminar in United States History (3)

Selected topics in United States history, with intensive reading of important secondary and/or primary sources; critical written analysis of historical method, research, and modes of interpretation. May be repeated for credit with different topics. (Seminar) Pre: graduate standing or permission of instructor.

508 Seminar in Asian or Latin American History (3)

Selected topics in Asian or Latin American history, with intensive reading of important secondary and/or primary sources; critical written analysis of historical method, research, and modes of interpretation. May be repeated for credit with different topics. (Seminar) Pre: graduate standing or permission of instructor.

536, 537 Special Readings in American History (3 each)

Intensive tutorial work, research, and readings in American history. (Independent Study) Pre: graduate standing, permission of instructor, and concurrent audit of parallel 300-level course. May be repeated.

544 Colloquium in Worker History

See Labor and Industrial Relations 544.

588, 589 Special Readings in Asian or Latin American History (3 each)

Intensive tutorial work, research, and readings in Asian or Latin American history. (Independent Study) Pre: graduate standing and permission of instructor. Concurrent audit of parallel 300-level course. May be repeated.

591 Directed Study or Research (3)

Directed readings, research, or study designed to meet the particular needs of individuals or small groups of graduate students. (Independent Study) Pre: permission of chairperson.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Honors Program (HPR)

Director: Professor R. McIntyre

Honors courses (HPR) are open only to eligible students. See page 43 of this catalog or the Honors Program brochure for requirements. Sections of honors courses that have been approved for general education credit are marked.

For a complete listing of all honors courses, consult the Honors Program Web site at uri.edu/hpr, or use the "Class Search" feature of e-Campus, choose "Additional Search Criteria" and type the word "Honors" in the field "Course Title Keyword." Specific topics are listed in the Schedule of Courses.

107 Honors Study in Letters (3)

Exploration of themes and topics in the field of Letters. Topics include: "U.S. and Francophone Hip Hop Culture;" "Narratives of Ability and Disability;" and "Spain, the Jews and the Inquisition." (Seminar) (L)

108 Honors Study in Mathematics (3)

Exploration of topics and creative use of problem solving in mathematics. Topics include "Computer Forensics." (Seminar)] (MQ).

109 Honors Study in Natural Sciences (3)

Exploration of themes and topics in the natural sciences. Topics include "Biology for the Citizen." (Seminar) (N).

110 Honors Study in Social Sciences (3)

Exploration of themes and topics in the social sciences. (Seminar) Topics include: "Psychology of Violence and Nonviolence" and "The Irish in Ireland, the United States, and Rhode Island." (S)[D]

112 Honors Study in Writing (3)

Exploration of the elements of writing. (Seminar)

119 Honors Course in Interdisciplinary Studies (1-4)

(Seminar)

124 Honors Course in Fine Arts (1-4)

(Seminar) (A)

125 Honors Course in Literature (1-4)

Topics include "Origins of Fantasy." (Seminar) (A)

201, 202 Honors Colloquium (3-4 each)

(Lec. 2-3, Rec. 1-2) May be repeated for a maximum of 8 credits each. Pre: GPA of 3.30 or better and one completed honors course, or permission of the director of the honors program. 201A, 202A (A); 201F, 202F (FC); 201L, 202L (L); 201M, 202M (MQ); 201N, 202N (N); 201S, 202S (S).

203 The Prepared Mind: Critical and Analytical Problem Solving (3)

Introduction to problem solving through the development of creativity, critical thinking, and communication skills. Focus on individual development in these areas. (Seminar)

301, 302 Honors Tutorial Topic: Administrative Internship (1–4 each)

Experiential course that provides an opportunity for students to learn and practice administrative decision-making and to develop research skills in an administrative setting. Placements include Brown Medical School, the Institute for International Sport, RI Planned Parenthood, and the URI Honors program. 302: a continuation of 301. (Practicum) Pre: permission of the director of the honors program.

307 Honors Tutorial in Letters (1–4)

(Seminar) Pre: 3.30 GPA or better or permission of the director of the honors program. (L)

308 (321) Honors Tutorial in Mathematics (1–4)

(Seminar) Pre: 3.30 GPA or better or permission of the director of the honors program.

309 (323) Honors Tutorial in Natural Sciences (1–4)

(Seminar) Pre: 3.30 GPA or better or permission of the director of the honors program. (N)

310 Honors Tutorial in Social Sciences (1–4)

(Seminar) Pre: 3.30 GPA or better or permission of the director of the honors program. (S)

313 Honors Tutorial in Philosophy (I and II, 1–3)

(Seminar)

319 Honors Tutorial in Interdisciplinary Studies (1–3)

(Seminar)

324 (311) Honors Tutorial in Fine Arts (1–4)

Topics include "Rebel Images in Film." (Seminar) Pre: 3.30 GPA or better or permission of the director of the honors program. (A)

325 (312) Honors Tutorial in Literature (1–4)

Topics include "Dwarves and Elves: The World According to Tolkien." (Seminar) Pre: 3.30 GPA or better or permission of the director of the honors program. (A)

326 Honors Tutorial in Writing (1–4)

(Seminar) Pre: 3.30 GPA or better or permission of the director of the honors program. (ECw)

397 Honors Directed Study (1–4)

(Independent Study) Pre: 3.30 GPA or better or permission of the director of the honors program.

401, 402 Honors Project (3 each)

(Independent Study) Pre: permission of the director of the honors program.

411, 412 Honors Seminar (3 each)

Topics for 411 include "Controversies in Environmental Science" and "Film and Video Practicum." (Seminar)

Following are honors sections of courses which may be taken for credit through the Honors Program. Courses approved for general education are identified.

African and African American Studies

466H Honors section of AAF 466: Urban Problems

Art History

251H Honors section of ARH 251: Introduction to Art History: Ancient to Medieval (A) [D]

252H Honors section of ARH 252: Introduction to Art History: Renaissance to Modern (A), [D]

Business Administration

140H Honors section of BUS 140: Introduction to Business

201H Honors section of BUS 201: Financial Accounting

320H Honors section of BUS 320: Financial Management

341H Honors section of BUS 341: Organizational Behaviors

365H Honors section of BUS 365: Marketing Principles

402H Honors section of BUS 402: Leadership and Motivation

445H Honors section of BUS 445: 445 Strategic Management

Communication Studies

100H Honors section of COM 100: Communication Fundamentals (EC), [D]

322H Honors section of COM 322: Gender, Communication, and Culture

361H Honors section of COM 361: Intercultural Communication

Community Service

302H Honors section of CSV 302: Community Service at URI

Comparative Literature

235H Honors Section of CLS 235: Modern Thought: Philosophy and Literature (L)

335H Honors section of CLS 335: Interdisciplinary Studies in Comparative Literature

Economics

100H Honors section of ECN 100: Introduction to Economics (S), [D]

Education

102H Honor Section of EDC 102: Introduction to American Education (S) [D]

Engineering

105H Honors section of EGR 105: Foundations of Engineering I

106H Honors section of EGR 106: Foundations of Engineering II

316H Honors section of EGR 316: Engineering Ethics (L) [D]

English

335H Honors section of ENG 335: Interdisciplinary Studies in Comparative Literature

Film Media

101H Honors section of FLM 101: Introduction to Film Media (A), [D]

Geosciences

102H: Honors section of GEO 102: Evolution and Extinction of the Dinosaurs (N)

History

305H Honors section of HIS 305: The Renaissance (L)

328H Honors section of HIS 328: The Holocaust

351H: Honors section of HIS 351: Historical Perspectives on Women and Health (L) [D]

Journalism

110H Honors section of JOR 110: Introduction to Mass Media (L) or (S), [D]

230H Honors section of JOR 230: Introduction to Radio and Television News

Mathematics

108H Honors section of MTH 108: Topics in Mathematics (MQ)

Nursing

150H Honors section of NUR 150: Human Sexuality (S), [D]

360H Honors section of NUR 360: Impact of Death on Behavior (L), [D]

Philosophy

101H Honors Section of PHL 101: Critical Thinking (Ec) or (L)

212H Honors section of PHL 212: Ethics (L) [D]

235H Honors section of PHL 235 Modern Thought: Philosophy and Literature (L)

325H Honors Section of PHL 325: American Philosophy (L) [D]

Physics

203H Honors section of PHY 203: Elementary Physics I (N)

204H Honors section of PHY 204: Elementary Physics II (N)

205H Honors section of PHY 205: Elementary Physics III (N)

273H Honors section of PHY 273: Elementary Physics Laboratory I (N)

274H Honors section of PHY 274: Elementary Physics Laboratory II (N)

275H Honors section of PHY 275: Elementary Physics Laboratory III (N)

Political Science

341H Honors Section of PSC 341: Political Theory: Plato to Machiavelli (L)

342H Honors section of PSC 342: Political Theory: Modern and Contemporary (L)

422H: Honors section of PSC 422: International Political Economy

466H Honors section of PSC 466: Urban Problems

Psychology

479H Honors section of PSY 479: Honors Topics in Psychology

Thanatology

360H Honors section of THN 360: Impact of Death on Behavior (L), [D]

471H: Honors Section of THN 471: Responding to Grief

Human Development and Family Studies (HDF)

Chairperson: Professor Adams

180 Personal and Career Development in Human Services (1)

Exploration of skills and interests related to career development. Seminar for human service career opportunities. Understanding of short- and long-term goal process emphasized. (Seminar) HDF students only.

190 First Year Leaders Inspired to Excellence (3)

Leadership development course focusing on leadership theories, personal and academic adjustment issues, civic leadership and community service, and basic communication skills. Core requirement for the minor in leadership studies. (Lec. 3) Pre: concurrent enrollment in URI 101.

200 Life Span Development I (3)

Physical, social, cognitive, and emotional growth and development of young children within the family and varied cultural settings. Review of contemporary issues and their relevance for social policy. (Lec. 3)

201 Life Span Development II (3)

Physical, social, cognitive, and emotional growth and development from adolescence to senescence. Attention to varied cultural settings and relevant social policy. (Lec. 3)

202 Research Perspectives in Human Development and Family Studies (3)

Introduction to research processes in human development and family studies. Emphasis on reading and evaluating the research literature and preparing and presenting literature reviews. (Lec. 3/Online) Pre: admission to the human development and family studies program.

203 Introduction to Work with Children (4)

Theory and practice in care, teaching, and guidance of preschool children. Lectures, discussion, and participation in a field setting for three hours a week. (Lec. 3, Lab. 3) Pre: 200 or PSY 232.

205 Family Financial Issues Across the Life Span (3)

Introduction to financial issues faced by families and individuals at each stage of the life cycle from different income levels, family types, and cultural backgrounds. (Lec. 3)

210 Family Resource Management (3)

Interaction of resources, goals, and managerial processes in the home seen in the context of the larger community. Applications primarily in the area of human resources. (Lec. 3) Pre: 205 or permission of chairperson.

225 Consumer in the Economy (3)

Application of basic economic principles to consumer problems in a complex marketplace, buyer-seller

relationships, effective consumer decision making, effects of government policies on consumers. (Lec. 3/Online). (S)

230 Marriage and Family Relationships (3)

Male-female and other close relationships in courtship and family systems as influenced by personality and culture in a changing society. Professional and functional orientation. (Lec. 3/Online)

290 Modern Leadership Issues (3)

Introductory leadership class. Topics include basic leadership theories, international governance/economic systems, critical thinking, and leadership in: U.S. education; community service organizations; families; diverse workplaces. Core option for the leadership studies minor. (Lec. 3) Pre: permission of instructor or sophomore standing.

291 Rose Butler Brown Peer Mentoring Program (3)

Explores cultural identity, adult development, leadership, body image and the media, issues relevant to women of color, community engagement and mentoring. Elective for leadership minors (Lec. 3). Pre: permission of instructor.

297 Contemporary Issues in Student Development (1-3)

Student orientation, leadership, and training practices presented by various Student Affairs and other University programs, such as Student Life, Residential Life, Health Services, University College, and Affirmative Action. (Seminar) May be repeated for up to 6 credits. S/U only.

298 Contemporary Issues in Student Development (1-3)

Student leadership models and practices in various student development settings, such as Student Affairs, Student Life, Residential Life, University College, and Health Services. (Seminar) Topic A: FLITE is service learning. May be repeated for a maximum of 6 credits.

301 Curriculum in Early Childhood (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 and admission to the early childhood education program, or permission of instructor.

302 Literature for Children (3)

Literary heritage of American children from all subcultures, and criteria for the selection and presentation of literature to children. (Lec. 3) Pre: junior standing.

303 Early Childhood Practicum (4)

Early childhood curriculum design and assessment; supervised teaching for three hours a week in the Child Development Center with preschool and kindergarten age children. (Lec. 3, Lab. 3) Service learn-

ing. Pre: 301 and admission to the early childhood education program or permission of instructor.

305 Involving Families in Diverse Early Childhood (3)

This class examines how early childhood professionals establish and maintain positive, ongoing, effective reciprocal relationships with diverse families in various settings. (Lec. 3) Pre: 203 or 306, and 230.

306 Infant Development (4)

Study of development in the first three years including family interaction and early education. Emphasis is on cultural differences in parenting. Supervised observation/participation working with infants and toddlers three hours a week included. (Lec. 3, Lab. 3) Pre: 200 or PSY 232.

310 Adolescent Growth and Development (3)

Physical, psychological, social, and emotional growth and development of the individual during adolescent years. Lecture, discussion, and participation in a field setting with concurrent enrollment in 311. (Lec. 3) Pre: 201 or permission of instructor.

311 Early Field Experience With Adolescents (1)

Supervised observation and participation experience working with adolescents. Pre: concurrent with 310. S/U only.

312 Adult Development (3)

Identification of influences, processes, and forces shaping adult development to late life. Environmental and lifetime theoretical approaches emphasized and stage theories reviewed. (Lec. 3) Pre: 201 or permission of instructor.

314 Introduction to Gerontology (4)

Introduction to the study of aging processes: biological, psychological, and social theories. Health, social, and other age-related problems. Lecture, discussion, and participation in a field setting. (Lec. 3, Lab. 3) Pre: completion of 24 or more credits.

357 Family and Community Health (3)

Specific health and maintenance concerns throughout the life span. Community and world health needs and related agencies. (Lec. 3) Pre: junior standing.

400 Child Development: Advanced Course (3)

Review and critique of major theories of child development. Examination of research studies and issues associated with the first decade of life. Emphasis on cultural contexts. (Lec. 3) Pre: 200 or PSY 232 and HDF 201.

412 Historical, Multi-Ethnic and Alternative Leadership (3)

Examines issues of cultural anthropology, critical thinking, theories of inclusion, and crisis leadership. Capstone requirement for leadership minors. (Lec. 3). Pre: permission of instructor and 190 or 290 and junior or senior standing.

413 Student Organization Leadership Consulting (3)

Examines experiential education, organizational development, facilitation techniques, and ethical issues of peer leadership. Elective for leadership minors (Lec. 3). Pre: permission of instructor and 190 or 290.

414 Leadership for Activism and Social Change (3)

Explores issues related to social change, power and privilege, coalition building, non-violence, civic engagement and activist movements. Elective for leadership minors (Lec. 3). Pre: permission of instructor and 190 or 290.

415 FLITE Peer Leadership (3)

Explores mentoring strategies, leadership and identity development models, leadership style, and community involvement. Elective for leadership minors (Lec. 2, Lab. 2). Pre: permission of instructor and HDF 190 or 290.

416 Personal and Organizational Leadership (3)

Topics include leadership theory and style, experiential learning, peer mentoring, critical thinking, quality improvement, and organizational development. (Lec. 3) Elective for leadership minors Pre: 290 or 190 and permission of instructor.

417 Internship for Leadership Minors (3)

Supervised internship experience for leadership studies minors. A core requirement for the minor in leadership studies. (Practicum 3). Pre: permission of instructor and 190 or 290 and enrollment in the leadership minor.

418 Personal Finance (3)

Personal financial planning and decisions for attaining individual and family goals. Factors that affect, protect, and enhance financial security. (Lec. 3) Pre: completion of 24 or more credits.

421 (or THN 421) Death, Dying, and Bereavement (3)

Exploration of human death, dying, and bereavement. Focus on biomedical, psychological, social, and multicultural dimensions. Implications for social policy. (Lec. 3) Pre: junior standing or above.

424 Personal Finance Applications (3)

Application of principles of family financial planning and decision making. Emphasis on mathematical and analytical evaluation and analysis including the use of computer software. (Lec. 3/Online) Pre: 418 or permission of instructor.

426 Retirement Planning (3)

Explanation and evaluation of financial information needed for effective retirement planning, including defining goals, estimating expenses, and analyzing resources. Pre: 418 or permission of instructor.

428 Consumer Protection (3)

Effectiveness of diverse approaches to consumer protection. Analysis of techniques such as information disclosure, standards for products and services, government and private agencies, redress channels, and legislation. (Lec. 3/Online) Pre: 205 or 225 or permission of instructor.

430 Family Interaction (3)

Interdisciplinary approach to the dynamics of intra-family relationships, interactions of family units and family members within the sociocultural environment. Implications for social policy. (Lec. 3) Pre: 202 and 230.

431 Family and the Elderly (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)

432 Perspectives on Parenting (3)

Historic examination of childhood and parenting philosophies and comparison of practices among different cultures. Attention to contemporary social policy and practices surrounding parenting. (Lec. 3) Pre: 200 or PSY 232.

433 Family Life Education (3)

History, philosophy, and goals of Family Life Education including requirements for certification. Program planning, implementation, and evaluation. Current issues, trends, research, and theory. Emphasis on diversity of clientele and settings. (Lec. 3) Pre: 202 and 230.

434 Children and Families in Poverty (3)

Interdisciplinary approach to understanding the effects of poverty with attention to cultural, political, and policy issues and implications. (Lec. 3) Service learning. Pre: senior standing in the major or permission of instructor and 202.

437 (or SOC 437) Law and Families in the United States (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. (Seminar) Pre: 200 and 230 or SOC 212.

440 Environmental Context of Aging (3)

Study of normal aging-related changes as design determinants of the physical environment. Identifies theories and models of person-environment interaction and environment-behavior issues and procedures for post-occupancy evaluation studies. (Lec. 3) Pre: 202 and 314.

450 Introduction to Counseling (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 learn-

ing. (Lec. 3) Pre: senior standing in HDF, graduate standing, or permission of instructor.

451 Financial Counseling and Debt Management (3)

Examination of debt and budgeting problems affecting families. Utilization of a problem-solving approach and inclusion of financial counseling strategies for coping with financial issues and becoming proactive in family financial management. (Lec) Pre: 418 and 450.

455 Assessment in Early Childhood (3)

An overview of cognitive, affective, and psychomotor assessments used by early 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 2010.

456 Assessment Practicum (3)

Supervised experience in completing cognitive, affective, and psychomotor assessments of young children. (Practicum) Pre: credit or concurrent enrollment in 455. In alternate years. Next offered spring 2010.

458 R.I. Early Learning Standards (3)

Prepares early childhood professionals to implement the R.I. Early Learning Standards in diverse early care and education settings to increase program quality and support children's learning and development. (Lec. 3) Pre: enrollment in R.I. Early Learning Standards Project sponsored by R.I. Dept. of Education. S/U only for undergraduate students. A-F grades for graduate students.

471 (or THN 471) Responding to Grief (3)

Examines conceptual, psychosocial, somatic, and pragmatic issues faced when grieving and how to cope or assist others accommodating imminent or realized loss due to death. (Lec. 3) Pre: 421, or prior thanatology course or permission of instructor.

477, 478 Field Experience in Family Financial Counseling and Planning (3)

Approved, supervised work experience related to consumer well-being. Examples include research, advocacy, education, and dissemination of information, or provision of service. (Practicum) Pre: senior standing or permission of instructor. S/U credit. Not for graduate credit.

480 Senior Field Experiences in Community Agencies (6-12)

Senior field experience in community agencies. (Practicum) Service learning. Pre: concurrent enrollment in 481; senior standing and permission of instructor. Application must be made on or before Feb. 1 in the year preceding internship. Orientation and learning contract occurs semester before field work. Not for graduate credit. S/U only.

481 Field Experience Seminar and Reflections (1)

Group discussions of field experiences in community agencies and related academic assignments. Includes senior reflections and portfolio. (Seminar) Service learning. Pre: permission of instructor. Not for graduate credit.

492 Leadership Minor Portfolio (1)

Preparation of portfolios required for graduation with minor in leadership studies. (Seminar) Pre: enrollment in leadership studies minor.

497 Special Problems (1–3)

Open to qualified seniors who wish to do advanced work primarily consisting of lab or field experiences. Students must obtain written approval from proposed faculty supervisor prior to registration. Pre: senior standing and permission of chairperson. May be repeated for no more than 9 credits. Not for graduate credit. S/U only.

498 Special Problems (1–3)

Open to qualified seniors who wish to do advanced work. Conducted as a seminar or supervised individual project. Students must obtain written approval from proposed faculty supervisor prior to registration. Pre: senior standing and permission of chairperson. May be repeated for no more than 9 credits. Not for graduate credit.

500 Human Development Seminar (3)

Contemporary research issues emerging in the human development literature at five stages of development (infancy, childhood, adolescence, adulthood, and old age), with emphasis placed on continuity and transition across the life span. (Seminar) Pre: 400 or permission of instructor.

505 Human Sexuality and Counseling (3)

Historical, cultural, and developmental issues in human sexuality and counseling. Implications for self and client understanding through personal exploration and desensitization to sensitive topics. (Lec. 3) Pre: graduate standing or permission of instructor.

506 Rhode Island Early Childhood Institute (1–3)

Intensive institute focused on contemporary issues in early childhood education in Rhode Island and the nation. Topics vary, with discussion of theoretical, empirical, and practical issues. (Seminar) Pre: enrollment in Early Childhood Institute program or permission of instructor. May be repeated as topics vary.

507 Seminar in Early Childhood Education

Seminar in trends and model programs in early childhood education. Special attention to substantive evaluation and program design issues for the professional early childhood educator. (Seminar) Pre: student teaching or equivalent classroom experience or permission of instructor.

511 Seminar in Infancy and Early Childhood (3)

Survey and critical examination of research from infancy and early childhood. Implications for diverse

populations and human service settings will be drawn. (Seminar) Pre: graduate standing or permission of instructor.

512 Seminar in Middle Childhood and Adolescence (3)

Survey and critical examination of research from middle childhood through adolescence. Implications for diverse populations and human service settings will be drawn. (Seminar) Pre: 500 or permission of instructor.

513 Seminar in Adult Development (3)

Critical examination of research on development from the onset of legal adulthood to the beginning of late life. Highlights multicultural nature of adult experience in U.S. and implications for social policy. (Seminar) Pre: 500 or permission of instructor.

514 Seminar in Older Adulthood (3)

Review of major theories of aging and application in clinical and policy contexts. Emphasis on current research and practice issues. Interdisciplinary focus on biopsychosocial aspects of growing older. (Seminar) Pre: graduate standing or permission of instructor.

518 Seminar in Life-Span Financial Issues (3)

Survey and critical examination of research on life-span financial issues. Implications for diverse populations and human service settings will be drawn. (Independent Study) Pre: 418 or permission of instructor.

527 Health Care Policy and the Elderly (3)

Present and future problems in policy development to meet health care needs of the elderly. Consideration of historical aspects, demographic change, policy models. (Seminar) Pre: graduate standing.

530 Advanced Family Studies (3)

Intensive study of theories in the family field, integrated with contemporary family issues and family intervention. (Seminar) Pre: graduate standing or permission of the instructor.

533 Family Policy and Program Evaluation (3)

Seminar examining the political, socio-economic, and cultural forces influencing development and implementation of national and local family policies with emphasis on evaluations of child and family programs. (Seminar) Pre: graduate standing or permission of instructor.

535 Families Under Stress: Coping and Adaptation (3)

Theoretical models of family interaction, development, and stress as applied to understanding of family behavior in managing stress or events. Concepts of stress, vulnerability, adaptability, coping, regenerative power, social supports, and related research. (Seminar) Pre: 430 or equivalent course work in family development or family sociology and permission of instructor.

540 Interdisciplinary Teamwork in Health and Human Services (3)

Basic principles of interdisciplinary teamwork in health care, human service, and education professions. Practice in promoting effective communication, conflict resolution, and leadership in teams. Focus on social and experiential learning. Pre: permission of instructor.

551 Counseling Theory and Techniques (3)

Theoretical foundation and practice of counseling with diverse adult populations. (Lec. 3) Pre: graduate standing and permission of instructor.

553 Higher Education Practicum (3)

Supervised practicum in higher education placements. Emphasis on applied assignments in the initial stages of college student personnel program. (Practicum) Pre: credit or concurrent enrollment in 567, permission of instructor. S/U only.

559 Gender Issues in Therapy (3)

Systemic integration of the issues and therapeutic dilemmas growing out of society's changing views of women and men. Emphasis on research, therapist self-awareness, and evaluation of current therapies. (Seminar) Pre: 450 or equivalent and graduate standing or permission of instructor.

560 Group Procedures and Leadership (3)

Approaches and processes for conducting a range of group interventions from small group meetings to psychoeducational techniques. A practical and theoretical approach to facilitation skills, team leadership, and group dynamics in higher education and other adult settings. Enrollment is limited. (Lec. 2, Lab. 4) Service learning. Pre: graduate standing and permission of instructor.

562 Organization Development in Human Services (3)

Conceptual and technical components of organization development (OD) and consultation to various types of organizations, with emphasis on human service arenas. Approaches to the different phases of intervention in planned change efforts using theoretical frameworks, case, and client applications. (Lec. 2, Lab. 4) Service learning. Pre: graduate standing and permission of instructor.

563 Marital and Family Therapy I (3)

Major theoretical perspectives, including system theory as related to therapy. Communication and relationship skills, negotiation and behavioral contracting, treating specific relationship problems, therapy evaluation. (Seminar) Pre: permission of instructor.

564 Marital and Family Therapy II (3)

Major contemporary theories of family therapy and the development of family therapy as a unique intervention strategy; special consideration of issues and problems commonly confronted in conducting family therapy. (Seminar) Pre: permission of instructor.

565 Family Therapy Practicum (3)

Supervised clinical experience in marriage and family therapy. Case materials will be presented by students, and taped segments of actual counseling sessions will be reviewed. (Lec. 3) Pre: admission to MFT program or permission of instructor. May be repeated for a maximum of 18 credits.

566 Theoretical and Clinical Problems (3)

Examination of major ongoing and emerging theoretical issues in family therapy. The implications of these problems in clinical practice with families. (Lec. 3) Pre: 564 and graduate standing.

567 Principles and Practices of College Student Personnel (3)

Survey of the historical, philosophical, sociological, and cultural influences on college student personnel work as a profession and exploration of selected functional areas within student affairs. (Lec. 3) Pre: graduate standing in CSP and permission of instructor.

568 College Student Development and Learning (3)

Examination of human development and learning of students in higher education. Emphasis on psychosocial, intellectual, and moral development in a sociohistorical context. (Lec. 3) Pre: 567.

569 Assessment in Family Therapy (3)

Administration and interpretation of assessment instruments for treatment, planning, and evaluation. Ethical, legal, and theoretical issues related to family systems assessment are discussed. (Seminar) Pre: graduate standing or permission of instructor.

570 Research in Human Development and Family Studies (3)

Historical, philosophical, and procedural foundations of scientific inquiries into individuals and families. Explores the various ways to acquire information about human development and family relationships. (Lec. 3) Pre: graduate standing or permission of instructor.

572 Administrative Practices in Human Development and Family Studies (1)

Introduction to administrative practices affecting entry level professionals in HDF. (Lec. 3) Pre: permission of instructor.

573 Legal Issues in Higher Education (1–3)

An overview of the effect of federal and state legal systems on university administration and service delivery. Reviews authorities and agencies, major court decisions, and the application of substantive and procedural law principles. (Lec. 1–3) Pre: graduate standing and permission of instructor.

574 Environmental Theory and Assessment in Higher Education (3)

Overview of selected person-environmental interaction theories and assessment frameworks applicable

in higher education settings. Emphasis on campus ecology, cultural, perceptual, human aggregate, physical/architectural, and behavior setting approaches. (Seminar) Pre: 568 and 570.

575 Cultural Competence in Human Services (1)

Exploration of skills needed to enhance a diverse work environment and other human service settings. (Seminar) Pre: graduate standing and permission of instructor.

576 Diversity in Higher Education (2)

Survey of the historical and current demographical profile of students in higher education. Emphasis on implications for programs, policies, and leadership. (Lec. 2) Pre: graduate standing in College Student Personnel or permission of instructor.

577 Seminar: Topics in Higher Education (1–3)

Recent developments and current issues in higher education. May be repeated for a maximum of 6 credits. (Seminar)

578 Ethical, Legal, and Professional Concerns in Family Therapy (3)

Ethical, legal, and professional issues encountered by family therapists in the delivery of services. These aspects of therapy practice along with systemic theory are cornerstones of competent practice. (Seminar) Pre: 563 and 565, 530 and 535, and concurrent enrollment in 583. Pre: permission of instructor.

580 Professional Seminar (1–3)

Emphasizes initial implementation phases of master's research requirement as well as legal, ethical, and professional issues. (Seminar) Pre: advanced standing and permission of instructor.

581 Professional Seminar (1–3)

Emphasizes research applications, completion of master's research requirement, and making a transition to a professional position. (Seminar) Pre: concurrent enrollment in 584 and permission of instructor.

583, 584 Master's Internship (3 or 6 each)

Supervised field experience in various settings. Culminating experience integrates program theory and skills. (Practicum) Service learning. Pre: advanced standing and permission of instructor. College Student Personnel students must enroll concurrently in 580, 583 (fall) and 581, 584 (spring). S/U credit.

595 Master's Project: Action Research (1–6)

Number of credits is determined each semester in consultation with the major professor. Minimum of 6 credits is required of students who have chosen the action-thesis option. (Independent Study) S/U credit.

597, 598 Advanced Study (1–3 each)

Survey of important research contributions significant to the understanding of human development and relationships. (Independent Study)

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. Minimum of 6 credits is required of students who have chosen the thesis option. (Independent Study) S/U credit.

Human Science and Services (HSS)

Dean: Professor McKinney

120 Introduction to Human Science and Services (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 100, PSC 113, SOC 100, PSY 113, HDF 200 or 201.

130 Introduction to Hunger Studies (3)

Survey exploring the nature and extent of hunger in the United States, food and dietetics, public policy, food production and distribution, and programs to provide food to hungry people. (Lec. 2, Lab. 2) (S) [D]

140 Ways of Knowing in Human Science and Services I (1)

Examination of the human service field; exploration and identification of educational and career goals. (Seminar) Service learning. Pre: 120 or concurrent registration.

141 Ways of Knowing in Human Science and Services II (2)

Exploration and identification of education and career goals; documentation of learning experiences; development of program of study. (Seminar) Service learning. Pre: 120 or concurrent registration, 140.

270 Field Experience in Human Science and Services II (2–6)

Didactic and experiential learning in student-selected settings. Emphasis on achievement of pre-established learning goals leading to selected competencies. Goals established by the students, instructor, and site supervisor. (Practicum) Pre: admission to the human science and services program and permission of instructor.

350 Foundations of Public Policy in Human Services (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)

370 Field Experience in Human Science and Services (6–12)

Supervised field experience in human service agencies. Prior to placement, the student must develop a learning contract in consultation with the agency

and his or her faculty advisor. (Practicum) Pre: junior standing in human science and services and permission of instructor. S/U only.

470 Fourth-Year Field Experience in Human Science and Services (2–6)

Didactic and experiential learning in student-selected settings. Emphasis on achievement of pre-established learning goals leading to selected competencies. Goals established by the students, instructor, and site supervisor. (Practicum) Pre: admission to the human science and services program and permission of instructor. Not for graduate credit.

480 Senior Seminar in Human Science and Services (3)

Interdisciplinary capstone seminar, with content developed to fit learning goals and programs of study of the students. Portfolio development and assessment as culminating experience. (Seminar) Pre: senior standing in human science and services and permission of instructor. Not for graduate credit.

491 Special Problems (1–3)

Advanced work in the human services under the supervision of a faculty member. (Independent Study) Pre: permission of instructor and the Division of Interdisciplinary Studies. Not for graduate credit in human development and family studies.

530 Multidisciplinary Health Seminars for the Elderly (3)

Field experience for students in various health disciplines. Development of assessment techniques, curricular materials, and team delivery of health seminars to the elderly at community sites. (Seminar) Service learning. Pre: graduate standing or permission of instructor.

590 Seminar in Human Science (3)

Investigation of human science as lived experience, reflective inquiry, and reflective practice. Development and presentation of individual projects embodying these characteristics of human science. (Seminar)

Industrial and Systems Engineering (ISE)

Chairperson: Professor Wang

220 Industrial and Systems Engineering Seminar (1)

Role of industrial and systems engineers in a variety of professional settings; system performance evaluation and improvement. (Seminar).

240 Manufacturing Processes and Systems (3)

Introduction to a wide variety of manufacturing processes. Basic facility layout and manufacturing system design, including material handling and lean principles. (Lec. 3) Pre: CHM 101.

241 Laboratory for Manufacturing Processes and Systems (1)

Laboratory demonstrations and experiments in machining, casting, metrology, and rapid prototyping. Plant visits and lab tours. (Lab. 3) Pre: credit or concurrent enrollment in 240.

325 Computer Tools for Engineers (3)

Visual basic programming, including VBA and other computer applications used for engineering problem solving, system design and evaluation. (Lec. 2, Lab. 3) Pre: MTH 141.

391, 392 Special Problems in Industrial Engineering (1–3 each)

Independent study and seminar work under close faculty supervision. Discussion of advanced topics in preparation for graduate work. (Independent Study) Pre: junior standing and permission of instructor.

404 Engineering Economy and Project Planning (3)

Effects of economics on engineering decisions in design, selection, and product or project proposals, project planning, resource allocation, and scheduling using computer-based tools. (Lec. 3) Not for graduate credit in industrial and systems engineering.

411 Probability and Statistics for Engineers (3)

Introduction to probability and statistics in engineering applications including data analysis, probability theory, probability distributions, sampling distributions, statistical inference, hypotheses testing, confidence intervals, analysis of variance, and receiver operating characteristics. (Lec. 3) Pre: MTH 243 or permission of instructor.

412 Statistical Methods and Quality Systems (3)

Study of statistical methods methods and quality systems in engineering applications including statistical methods, quality improvement tools, control charts, process capability, linear regression, design of experiments, and acceptance sampling. (Lec. 3) Pre: 411 or STA 409 or MTH 451 or permission of instructor.

432 Operations Research: Deterministic Systems (3)

Introduction to major areas of operations research and their application to systems analysis. Linear programming, transportation and transshipment models, elementary network analysis, integer programming, and related topics. (Lec. 3) Pre: MTH 243, 362 or equivalent.

433 Operations Research: Stochastic Systems (3)

Markov chains, dynamic programming, queuing theory, simulation, forecasting, game theory simple stochastic models, and their relation to selected problems. (Lec. 3) Pre: 411 and MTH 362 or 244 or permission of instructor.

443 Machining and Machine Tools (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 ISE 240 or 340.

444 Assembly and Handling Automation (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 ISE 240 or 340.

446 (or MCE 446) Metal Deformation Processes (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.

449 (or MCE 449) Product Design for Manufacture (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 343, or permission of instructor.

451 Industrial Engineering Design I (3)

Stochastic and deterministic models of production and inventory systems. Aggregate planning, push and pull production control systems, lean production systems, and scheduling. (Lec. 3) Pre: 432 and concurrent enrollment in 433 or permission of instructor.

452 Industrial Engineering Design II (3)

A team project approach to industrial engineering design including assembly lines, transfer lines, scheduling, cellular manufacturing, flexible manufacturing facilities, operation and material flow design; facilities design and operation; production systems design. (Lec. 3) Pre: 451 or permission of instructor.

460 Product Design for Environment (3)

Principles and practices of designing more environmentally beneficial products. Environmental effects. Life cycle analysis, recycling and remanufacturing. Design for disassembly and environment. Group projects on product and process design using LCA and DFE analysis tools. (Lec. 3) Pre: 240 or 340, CHE 333 or 437.

491, 492 Special Problems (1–6 each)

Advanced work under the supervision of a member of the faculty and arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

500 Project Planning and Management in Systems Engineering (3)

Presents the tools and processes to help plan and manage real-world systems engineering projects including network planning, scheduling, analysis, synthesis; critical path method/PERT; computer-aided planning; and other contemporary tools. (Lec. 3) Pre: 432 or permission of instructor.

513 (or STA 513) Quality Systems (3)

Topics in statistical quality control systems. Single, multiple, and sequential sampling. Design and analysis of a wide variety of statistical control systems used in conjunction with discrete and continuous data, for several kinds of data emission. (Lec. 3) Pre: 411 or equivalent.

525) (or CSC 525 or ELE 515) Systems Simulation (3)

Simulation of random processes and systems. Continuous and discrete simulation models. Data structures and algorithms for simulation. Generation of random variates, design of simulation experiments for optimization and validation of models and results. Selected engineering applications. (Lec. 3) Pre: CSC 212 or ISE 325, ISE 433 or ELE 509, or permission of the instructor.

533 Advanced Statistical Methods for Research and Industry (3)

Describing and analyzing data, design of experiments, analysis of variance, regression analysis, and applications in industry and applied science research. (Lec. 3) Pre: 411 or permission of instructor.

540 Production Control and Inventory Systems (3)

Theory and practice of industrial production control and inventory systems. A broad spectrum of mathematical models for static, dynamic, perpetual, and periodic inventory systems as they affect and relate to production. (Lec. 3) Pre: 432 or permission of instructor.

541 Advanced Materials Processing (3)

Engineering analyses in the processing of materials. Rapid manufacturing fundamentals. Nontraditional manufacturing techniques. Dynamic coupling, tool-work-piece interaction, energy and thermal analysis; mechanics of material removal and displacements. (Lec. 3) Pre: 240 or 340, or permission of instructor.

542 Introduction to Computer-Aided Manufacturing (3)

Use of computers in manufacturing. Solid modeling principles and applications. Numerical and adaptive control. CNC programming. Introduction to rapid manufacturing. (Lec. 3) Pre: 240 or permission of instructor.

543 Fundamentals of Machining (3)

Fundamental treatment of the mechanics and economics of metal machining and grinding. Includes an introduction to numerical control and computer-

aided programming of CNC machine tools. (Lec. 3) Pre: CVE 220 and ISE 240 or 340 or permission of instructor. Not for graduate credit for students with credit in 443.

544 Automatic Assembly Systems (3)

Types and economics of automatic assembly systems. Analysis of automatic feeding and orienting techniques for small parts. Application of robots in assembly. Economics of assembly systems for printed circuit boards. (Lec. 3) Pre: 240 or permission of instructor. Not for graduate credit for students with credit in 444.

545 Manufacturing Systems: Analysis, Design, Simulation (3)

Problems in system analysis and design as related to modern manufacturing. Quantitative models and simulation methods for manufacturing planning, control, scheduling, flexible manufacturing and highly automated manufacturing systems. (Lec. 3) Pre: 432 or permission of instructor.

546 Advanced Metal Deformation Processes (3)

Theory of metal flow under different loading conditions. Prediction of metal forming process capabilities. Advanced topics include effects of anisotropy and mechanics of powder forming. (Lec. 3) Pre: 240 or 340 or permission of instructor. Not for graduate credit for students with credit in 446.

549 (or MCE 549) Advanced Product Design for Manufacture (3)

Techniques for analyzing product structures for ease of assembly and manufacture. Considers mechanical and electronic products and choice of materials and processes. A design project and term paper are required. (Lec. 3) Pre: 240 or 340 or permission of instructor. Not for graduate credit for students with credit in 449.

550 Design for Producibility (3)

Project work on product development, collaboration with industry, and submission of design project report. Concentration on effect of design decisions on manufacturing efficiency and cost. (Independent Study) Pre: 449 or 549 or permission of instructor.

552 Lean Systems (3)

Advanced study of enterprise system design including application of lean principles to service industries. Specific topics include lean manufacturing, waste elimination, reduction of cycle and set-up times, reconfigurable systems, quality and performance analysis. (Lec. 3) Pre: 451 or 540 or permission of instructor.

555 Deterministic Systems Optimization (3)

Linear, nonlinear, and integer formulations and solutions. Sensitivity analysis and pricing problems; degeneracy and duality; decomposition methods for large-scale systems; use of mathematical programming languages and applications. Pre: 432 or permission of instructor. In alternate years.

591, 592 Special Problems (1–6 each)

Advanced work under supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

634 Design and Analysis of Experiments (3)

Advanced topics in the design and analysis of experiments: factorial designs, blocking and confounding in factorial designs, fractional factorial designs, response surface methods and designs, nested and split-plot designs, other design and analysis topics. (Lec. 3) Pre: 533 or permission of instructor.

660 Nonlinear Systems Optimization (3)

Methods of optimization: indirect, direct elimination, climbing. Geometric programming. Problems and other topics in applied optimization. (Lec. 3) Pre: 432 or permission of instructor.

691, 692 Advanced Special Problems in Industrial Engineering (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U only.

Internships and Experiential Education (ITR)**301, 302 Field Experience I, II (3–12 each)**

Field experience gained at placement site through participation in the ITR program. The experience will be defined by a job description and learning contract arranged by the ITR director between the student intern, the intern's faculty advisor, and the relevant agency supervisor. (Practicum) Pre: junior or senior standing, a minimum quality point average of 2.50, participation in the ITR program, and permission of faculty advisor. May be repeated for a maximum of 24 credits. S/U credit.

303, 304 Colloquium I, II (3 each)

Seminar format. Discussions of issues and problems raised by internship experiences in public service agencies. (Seminar/Online) Pre: concurrent enrollment in 301 for 303, and in 302 for 304. Required for and open only to students enrolled in the ITR program.

Italian (ITL)

Section Head: Associate Professor Sama

101 Beginning Italian I (3)

Elements of the language, pronunciation, grammar, inductive reading; exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior Italian is required. Will not count toward the language requirement if the student has studied Italian for more than one year within the last six years. (FC) [D]

102 Beginning Italian II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

103 Intermediate Italian I (3)

Development of facility in reading texts of moderate difficulty, supplemented by further work in grammar, conversation, and composition. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

104 Intermediate Italian II (3)

Continuation of 103. Students enrolling in this course should have taken 103 or equivalent. (Lec. 3) (FC) [D]

105 Basic Conversation (1)

Practice in basic Italian conversation skills. (Lec. 1) Pre: credit or concurrent enrollment in 103 or 104. May be repeated once for maximum of 2 credits.

111 Accelerated Elementary Italian (6)

Accelerated Elementary Italian equivalent to 101–102. Develops basic communication skills in Italian. Explores the products, practices, and perspectives of Italian culture. (Lec. 6) (FC) [D]

205, 206 Conversation and Composition (3 each)

Intensive course in conversation and composition. Promotes facility in speaking and understanding idiomatic Italian. Students enrolling in 205 should have taken 104 or equivalent. (Lec. 3) (FC) [D]

301, 302 Civilization of Italy (3 each)

The most important aspects of Italian civilization. 301: From the Middle Ages to the end of the Renaissance. 302: From the 17th century to the present. (Lec. 3) Pre: 205 or 206 or permission of chairperson.

305 Advanced Conversation and Composition (3)

Intensive practice in spoken and written Italian. (Lec. 3) Pre: 205 or 206 or permission of chairperson.

309 Techniques of Translation (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.

315 Italian Cinema (3)

Representative Italian films and their directors through viewing and discussions of films, lectures, and readings. Course taught in English. (Lec. 3) Students counting the course for a major or minor in Italian are required to do written work in Italian and must have credit for 205 or 206 or permission of instructor. May be repeated with different topics for a maximum of 9 credits.

325, 326 Introduction to Italian Literature (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.

391, 392 Masterpieces of Italian Literature (3 each)

Reading in English translation of selected Italian authors of greatest significance. 391: Medieval and Renaissance. 392: Post-Renaissance to 20th century. (Lec. 3) Not for major credit in Italian.

395 Dante's *Divine Comedy* (3)

Reading in English translation of Dante's chief work. (Lec. 3) Not for major credit in Italian.

455 Selected Italian Authors (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. May be repeated for a maximum of 12 credits.

465 Topics in Italian Literature (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. May be repeated with change in topic for a maximum of 9 credits.

480 Business Italian (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.

481 The Works of Dante Alighieri (3)

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.

497, 498 Directed Study (3 each)

Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of project by a faculty member and approval of chairperson.

Japanese (JPN)

Chairperson: Professor Morello (Languages)

101 Beginning Japanese I (3)

Fundamentals of grammar and pronunciation, exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior Japanese is required. Will not count toward the language requirement if the student has studied Japanese for more than one year within the last six years. (FC) [D]

102 Beginning Japanese II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

103 Intermediate Japanese I (3)

Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

104 Intermediate Japanese II (3)

Continuation of 103. Students enrolling in this course should have taken 103 or equivalent. (Lec. 3) (FC) [D]

Journalism (JOR)

Chairperson: Professor Levin

110 Introduction to the Mass Media (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) Recommended for nonmajors. Not for major credit in journalism. (L) or (S) [D]

115 Foundations of American Journalism (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.

210 History of American Journalism (3)

Development of American newspapers, magazines, and broadcast industry with analysis of the ideas that have changed American journalism. Exploration of the journalist's 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. In alternate years. Next offered fall 2009.

211 History of Broadcasting (3)

Survey of broadcasting. Examines its pioneers and the impact of significant historical events as covered by radio and television. Considers the origins of modern news shows, talk-show formats, magazine broadcasts, and quiz shows. (Lec. 3) Pre: 110 or 115. In alternate years. Next offered fall 2010.

215 Free Speech and American Society (3)

Legal and social parameters of freedom of speech in the United States. The legal and social history of freedom of speech will be examined and applied to discussions of recent free-speech controversies. (Lec. 3) Pre: 110 or 115.

220 Media Writing (3)

An introduction to writing for newspapers, magazines, broadcasting, and public relations. Includes consideration of objectivity, information gathering, language use, clarity and style, legal and ethical concerns. (Lec. 2, Lab. 2) Pre: WRT course with a grade of B or better and major in journalism or public relations, or permission of instructor

230 Introduction to Radio and Television News (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 and major in journalism or permission of instructor.

310 Media Law for Journalists (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, broadcasting, and advertising. Case studies. (Lec. 3) Pre: junior standing and 110 or 115 and one 300-level journalism skills course or permission of instructor.

311 Journalism Criticism (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.

313 Alternative News Media in the United States (3)

Critical analysis of nontraditional media in the United States, including black, religious, feminist, gay and lesbian press, as well as broadcast stations operated by and for minority groups. (Lec. 3) Pre: 110 or 115. In alternate years. Next offered spring 2010.

320 Public Affairs Reporting and Writing (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 and major in journalism or public relations, or permission of instructor.

321 Magazine Article and Feature Writing (3)

Planning, researching, and writing articles and feature stories for magazines and newspapers. Discussion of markets, freelance and job opportuni-

ties. Articles written and submitted to publications. (Seminar) Pre: 220 with a grade of C or better and major in journalism or public relations, or permission of instructor.

330 Television News (3)

Reporting, writing, anchoring and producing news for television. Group work leads to production of a 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.

331 Electronic News Gathering (3)

Skill development in the visual technology of television news. Techniques of single-camera field production are stressed. Introduction to fundamentals of videotape 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.

340 Public Relations

See Public Relations 340.

341 Editing for Publication (3)

An introduction to editing for the print media, including newspapers, magazines, and public relations. Focuses on taking work written by others and preparing it for publication. Includes consideration of legal and ethical issues. (Lec. 2, Lab. 2) Pre: 220 with a grade of C or better.

345 Journalism Internship (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. (Practicum) Pre: journalism majors and minors and public relations minors only. Prerequisite courses depend on internship. Permission of instructor and application required.

410 Ethics in Journalism (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 and senior standing or permission of instructor. Not for graduate credit.

411 Senior Portfolio (1)

Structured opportunity to select, review and reflect on examples of work for a portfolio. Formal presentations of portfolio to faculty required. (Portfolio) Pre: journalism major and senior standing and concurrent enrollment in 410. Not for graduate credit.

415 (or WRT 415) Perspectives on Reporting (3)

Critical assessment of reporting through the reading and analysis of book-length works of journalism and magazine and newspaper series of articles. (Seminar) Pre: 110 or 115 and junior standing. Not for graduate credit.

420 Advanced Reporting and Writing (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. 2, Lab. 2) Pre: junior standing and 320 with a grade of C or better. Not for graduate credit.

430 Advanced Television News (3)

Practical experience in longer, more specialized news formats. Students report, write, videotape in-depth television news pieces. (Lec. 3)

440 Independent Study (1-3)

Individual reading programs, research, or project in journalism or mass media. (Independent Study) Pre: junior standing and submission to chairperson of proposal signed by supervising faculty member. Not for graduate credit.

441 Public Relations Practices

See Public Relations 441.

442 Publication Design for Journalism and PR (3)

An introduction to designing and producing for the print media, including newspapers, magazines, and newsletters. Extensive use of computers and desktop-publishing technology. Includes consideration of legal and ethical issues. (Lec. 2, Lab. 2) Pre: junior standing. 341 with a grade of C or better recommended. Not for graduate credit.

445 Special Topics in Journalism (3)

Subject, course content, and years offered will vary according to expertise and availability of instructors. (Independent Study) Pre: permission of instructor. May be repeated for credit with different topic. Not for graduate credit.

Kinesiology (KIN)

Chairperson: Professor Riebe

105 Beginner Elective Activity I: Individual and Dual Sports (1)

Beginning level of instruction for students with little or no previous experience in the activities offered. (Studio 3) L. Aerobics is offered in 2009-10.

115 Team Sports (0.5)

Emphasis on analysis of skills, strategies, class organization, and teaching techniques. Select appropriate letter for activity desired. (Studio 3) Open to kinesiology majors only.

A Basketball	E Lacrosse
B Field Hockey	F Soccer
C Flag Football	G Softball
D Recreational Sports	H Volleyball

116 Teaching Individual Sports Activities (1)

Emphasis on learning rules of play, sport specific skills, and teaching and instructional methods for sport activities and games that are individually based. (Lab. 3) Pre: kinesiology majors only.

117 Teaching Team Sports Activities (1)

Emphasis on learning rules of play, sport s specific skills, and teaching and instructional methods for sport activities and games that are team based. (Lab. 3) Pre: kinesiology majors only.

118 Teaching Lifetime Physical Activities (1)

Emphasis on learning rules of play, sport specific skills, and teaching and instructional methods for physical activities and games that are lifetime fitness based. (Lab. 3) Pre: kinesiology majors only.

120 Weight Training and Physical Conditioning (1)

Principles of weight training and conditioning with emphasis on constructing individual and group exercise programs. (Studio 3) Open to kinesiology majors only.

121 Principles of Youth Fitness (1)

Principles of exercise as it relates to children and adolescents. Emphasis on teaching principles of aerobic exercise, flexibility, and resistance training. (Lec. / Lab. 2) Open to kinesiology majors only.

123 Foundations of Health (3)

Development of attitudes and practices that lead to more healthful living. Personal and community health problems studied. (Lec. 3) (S) [D]

130 Beginning Swimming (1)

Beginning level of instruction for students with little or no previous experience. (Studio 3)

172 Basic First Aid and CPR (0.5)

Instruction and practice in basic level of injury prevention and first aid and CPR procedures. Students successfully meeting requirements will receive Basic First Aid and CPR certifications. (Lec. /Lab. 1)

205 Intermediate Elective, Activity I (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. (Studio 3)

215 Individual Sports (0.5)

Emphasis on analysis of skills, strategies, class organization, and teaching techniques. Select appropriate letter for activity desired. (Studio 3) Open to kinesiology majors only.

- | | |
|-------------|-------------------|
| B Badminton | F Tennis |
| C Bowling | H Track and Field |
| E Golf | |

217 Field Experience in Physical Education, Health, and Recreation (1)

Students assist in one of the following: community agency, public or private school program, summer

camp or recreation program, special education program. (Practicum) Pre: permission of chairperson. May be repeated but with different agency. S/U credit.

222 Basic Movements and Gymnastics (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. (Studio 3) Open to kinesiology majors only.

230 Intermediate Swimming (1)

Intermediate level of instruction for those students who have acquired the basic skills and have performing experience in swimming. (Studio 3)

243 Prevention and Care of Athletic Injuries (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 kinesiology majors only or with permission of instructor.

263 Principles of Athletic Coaching (3)

Principles of exercise physiology, leadership, and psychology applied to athletic coaching. Includes materials on administration of athletics. (Lec. 3)

270 Introduction to Teaching Physical Education and Health (3)

Foundations of teaching physical education and health. Application of current theories of effective practices of teaching physical education and health in the elementary and secondary schools. (Lec. 3)

272 Basic First Aid and CPR Instructor (1)

Instruction and practice in performance and teaching the basic level of injury prevention and first aid and CPR procedures. Students successfully meeting requirements will receive First Aid and CPR Instructor certifications. (Lec. /Lab. 2)

275 Introduction to Exercise Science (3)

Principles of exercise, components of health-related fitness, weight control, and stress management. Basic exercise prescription for cardiorespiratory endurance, muscular strength, and endurance and flexibility. (Lec. 3/Online)

278 Physical Activity, Cultural Diversity, and Society (3)

Introduction to the multiple ways in which issues of cultural diversity shape physical activity in American society. (Lec. 3) Pre: open to kinesiology majors only or with permission of instructor.

304 Methods of Teaching Physical Education in Elementary Schools (3)

Instruction in contemporary techniques used in a program of physical education for elementary school children. Types of activities found in basic programs and in planned progressions for various age groups. (Lec. 2, Lab. 2) Pre: concurrent enrollment in 305,

admission to the teacher education program by the start of semester.

305 Supervised Experience—Physical Education in the Elementary School (1)

Students participate in supervised experience laboratory for methods learned in 304. (Practicum) Pre: concurrent enrollment in 304, admission to the teacher education program by the start of semester.

307 Methods of School Health Instruction (3)

Designed to teach methods, techniques, learning styles, and skills necessary to recognize the developmental, physical, social, and emotional growth of elementary and secondary level students. (Lec 3) Pre: admission into the PHETE program.

309 Supervised Experience in Health Education (1)

Students participate in supervised experience laboratory for methods learned in 307: Methods of School Health Instruction; (Practicum) Pre: Concurrent enrollment in 307 and admission in the PHETE program.

310 Principles of Human Motor Development (3)

Overview of the principles of motor development for the physical education teacher. Examines human motor development across the life span with emphasis on assessment and program development. Includes basic principles of motor learning. (Lec. 3) Pre: admission to the teacher education program and PSY 232 or HDF 200; or permission of chairperson.

314 Methods of Teaching Physical Education in Secondary Schools (3)

Instruction in contemporary techniques used in a program of physical education for secondary school children. Types of activities found in basic programs and in planned progressions for various age groups. (Lec. 2, Lab. 2) Pre: 304, 305, concurrent enrollment in 315, admission to the teacher education program.

315 Supervised Experience—Physical Education in the Secondary School (1)

Students participate in supervised experience laboratory for methods learned in 314. (Practicum) Pre: 304, 305, concurrent enrollment in 314, admission to the teacher education program.

322 Outdoor Leisure Pursuits (1)

Principal philosophical foundations of adventure theory and wilderness leadership are examined while the student learns to teach outdoor leisure activities. Concepts of judgment, decision making, leadership, and environmentally sensitive practices are introduced. (Lec. 1) Pre: kinesiology majors only.

324 Rhythms and Dance (1)

Instruction in the fundamental skills of folk, square, ballroom, and social dances, emphasizing personal skill acquisition and the skills necessary for teaching dances in the public/private school physical educa-

tion environment. (Lab. 3) Pre: kinesiology majors only.

325 Exercise Testing and Prescription (3)

Theory and application of physical fitness assessments with focus on appropriate test selection and performance. Emphasis on practical skills of test administration. Preparation for ACSM-HFI certification. (Lec. 2, Lab. 2) Pre: 275.

334 (or BIO 334) Physiology of Exercise (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. 3) Pre: BIO 201 or 242, junior or senior standing; or permission of instructor.

335 (or BIO 335) Physiology of Exercise Laboratory (1)

Student participation in laboratory sessions designed to understand the physiology of exercise relating to body composition, EKG, pulmonary, and metabolic functions. (Lab. 3) Pre: 201 or 242.

341 Techniques of Officiating 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)

342 Techniques of Officiating 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)

368 Assessment in Physical Education and Health (3)

Focuses on the method and materials for measurement and evaluation in PE. Provides a basic introduction to data analyses and statistical inference. (Lec. 3) Pre: basic mathematics background.

369 Measurement and Evaluation in Kinesiology (3)

Students learn statistical basis for descriptive analyses and hypothesis testing in kinesiology. Students also learn to select, administer, and create reliable and valid tests in exercise, sport, fitness, health, and physical education. (Lec. 3) Pre: completion of math general education requirement; completion of at least 30 credit hours. Open to kinesiology majors only.

370 Kinesiology (3)

The study of human movement based on anatomical, physiological, and mechanical principles. Emphasis on application of these principles to fundamental movement and physical education activity. (Lec. 3) Pre: BIO 121 and 242. For majors only.

382 Psycho-Social Aspects of Physical Education and Sport (3)

The scientific study of the behavior of individuals and groups within sport and physical activity. (Lec. 3) Pre: PSY 113, or permission of instructor.

391 Directed Study (1-3)

Development of an approved project supervised by a member of the department faculty. (Independent Study) Pre: junior standing and permission of chairperson and instructor.

401 Current Issues in Health Education (3)

Designed to develop student awareness of contemporary issues that are of concern to school health and other health educators. Extensive review of contemporary literature and film and critical analysis of selected issues and their effect on health education at the local, national, and global level. (Lec. 3) Pre: Acceptance into the PHETE program.

410 Adapted Physical Education (3)

Planning and evaluation of physical education programs for individuals with special needs. Includes issues regarding disability laws and various mental, psychological, and physical conditions. (Lec. 2, Lab. 2) Pre: credit or concurrent enrollment in 304 or 314 or permission of instructor.

411 Assessment of Special Populations (3)

Assessment and programming of fitness, motor, and functional skill behaviors for individuals with special needs. (Lec. 2, Lab. 2) Pre: 410, 369 or permission of chairperson.

414 Fundamentals of Strength and Conditioning (3)

Scientific and practical basis for developing, designing, evaluating, and implementing resistance training programs. Emphasis on the physiological basis of program design. Prepares students for National Strength and Conditioning Association certification. Pre: BIO 242, KIN 334, and KIN 370.

420 Fitness Programs for Individuals with Chronic Diseases (3)

Theory and application of physical fitness programs and testing of individuals with cardiovascular, musculoskeletal, and metabolic diseases. (Lec. 3) Pre: 325, 334, and 335. Not for graduate credit.

425 Fitness and Wellness Program Development (3)

Development and administration of fitness and wellness programs. Includes program leadership and managerial skills for corporate, commercial, community, and clinical settings. (Lec. 3) Pre: 275.

430 Adapted Aquatics (3)

Planning, administering, and teaching adapted aquatics. Application of kinesiological concepts, characteristics, and methods of teaching aquatics to people with disabilities. (Lec. 2, Lab. 2) Pre: 410, intermediate level swimming ability, admission to

the teacher education program or permission of instructor.

475 Gender Issues in Sport and Physical Culture (3)

Use of critical social theories to examine the complexities of how gender manifests within, and unavoidably structures, every person's experience in sport and physical culture. (Lec. 3) Pre: SOC 100 or WMS 150 or JOR 110 or KIN 278 or permission of instructor.

478 Sport, Cultural Politics, and Media (3)

Critical examination of social issues and cultural politics mediated through print, film, television, Internet and video games related to sports, fitness, and physical activity. (Lec. 3) Pre: SOC 100 or WMS 150 or JOR 110 or KIN 278 or permission of instructor.

484 Supervised Field Work (12)

Supervised field work in health, physical education, or recreation in community and/or commercial agencies. (Practicum) Pre: 369, 370, and 420. Not for teacher certification or graduate credit.

486 Field Experience Seminar (3)

Seminar for students completing fieldwork in health, physical education, or recreation. Topics include identification of problems, resource materials, and discussions of future career concerns. (Seminar) Pre: concurrent enrollment in 484. Not for graduate credit in physical education.

Note: Student teaching includes practicum in both elementary and secondary schools under the supervision of the department. See EDC 485, 486, 487, 488, and 489.

501 Seminar in Kinesiology (1)

This course provides a forum for students, faculty, and staff from the Department of kinesiology to present and discuss research and current issues related to the field of kinesiology. (Seminar) Pre: graduate standing or permission of chairperson. Must be taken twice prior to graduation.

508 Physical Activity Promotion: Theory and Practice (3)

This course examines theory and methods to facilitate individual and group behavior change, focused on promoting physical activity. Concepts in behavioral sciences affecting health behavior, motivation, and decision making are explored. (Lec. 3)

510 Current Issues in Physical Education, Health, and Recreation (3)

Designed to develop student awareness of contemporary situations that are of concern to the above professions. Extensive review of contemporary literature. Critical analysis of selected issues, their components and effects. (Lec. 3) Pre: permission of instructor.

515 Physiology of Physical Activity and Health (3)

The physiological basis of human movement, including contemporary topics such as the relationship between physical activity and health, obesity, exercise and aging, and youth fitness. (Lec. 3)

520 Curriculum Construction in Physical Education (3)

Analysis of criteria and procedures for curriculum construction in physical education. Standards for the evaluation and revision of elementary and secondary school physical education courses. (Lec. 3) Pre: permission of instructor.

524 Obesity: Causes, Consequences, and Care (3)

Overview of the obesity epidemic and implications for morbidity and mortality. Consideration of energy balance issues and metabolism. Emphasis on the role of physical activity in preventing and treating obesity. (Lec. 3) Pre: graduate standing or permission of instructor.

530 Research Methods and Design in Physical Education and Exercise Science (3)

An introduction to the basic aspects of research, including problem selection, literature review, instrumentation, methodology, and the writing of research reports and articles. (Lec. 3) Pre: competence in basic statistics and permission of instructor.

531 Advanced Experimental Techniques in Exercise Science (3)

Instruction in using the computer for research purposes with an emphasis on data analysis (i.e., statistical techniques). (Lec. 3) Pre: 530 or permission of instructor.

545 Advanced Motor Development (3)

Advanced study of the continuous process of motor development across the life span. Planning and directing movement experiences, factors mediating growth and development, and individual and gender differences are investigated. (Lec. 3)

555 Women in Sport: Issues and Controversies (3)

Critical analysis of women's sports using contemporary feminist perspectives. Emphasis on psychosocial and political-economic constructs that regulate women's emergence into sport. (Lec. 3)

559 Principles of Exercise Testing and Interpretation (3)

Theory and practical application of the graded exercise test including oxygen consumption measurements. Special emphasis on writing a safe exercise prescription based on the interpretation of the exercise test data. (Lec. 3) Pre: BIO 343 or permission of instructor.

560 Seminar in Health, Physical Education, and Recreation (3)

Selected topics within the three areas, depending on availability of specialized instruction including

visiting professorship. (Seminar) Pre: permission of instructor.

562 Advanced Exercise Physiology (3)

Advanced study of the physiological factors limiting physical performance and work capacity with emphasis on the effects of physical conditioning on health and fitness. (Lec. 3) Pre: BIO 343 or permission of instructor.

563 Epidemiology of Physical Activity (3)

Presentation of exercise epidemiology and the effects of exercise on health. Current findings regarding the association between physical activity and chronic diseases and their risk factors. (Lec. 3) Pre: graduate standing or permission of instructor.

564 Physiology of Aging (3)

Library searches, reports, and discussion of topics of current research on the physiology of aging. Subject matter adapted to meet interests of students. (Lec. 3) Pre: BIO 242 or permission of instructor.

565 Cardiovascular Disease: Prevention and Rehabilitation (3)

Focus on cardiac rehabilitation, underlying pathology and pathophysiology, diagnostic and prognostic testing, and principles of rehabilitation. Special emphasis on electrocardiographic analysis and exercise intervention. (Lec. 3) Pre: BIO 343 or permission of instructor.

578 Cultural Studies of Sport and Physical Activity

Survey course focusing on the social, cultural, political, and economic conditions that produce and influence sport and physical activity. Emphasis on critical analyses of the social and political dimensions of physical activity, fitness, sport, health and wellness. (Lec. 3) Pre: 278, graduate level standing, or permission of instructor.

580 Inclusive Practices in Adapted Physical Education (3)

Strategies for inclusion of children and youth with disabilities into general physical education, including legal, moral, and ethical considerations and responsibilities; theories of inclusive practices; and application based on individual needs. (Lec. 3)

581 (or PSY 581) Psychological Aspects of a Healthy Lifestyle (3)

Considers the psychological processes and behaviors related to exercise participation and the adoption of a healthy lifestyle. Analysis of models and theories used in exercise psychology, associated research, and the implications for practitioners. (Lec. 3) Pre: graduate standing, PSY 113 and 232, or permission of instructor.

582 Applied Sport Psychology (3)

Focus on performance enhancement techniques (i.e., imagery, goal-setting, etc.) designed to improve individual and team performance. (Lec. 3) Pre:

graduate standing, PSY 113 and 232, or permission of instructor.

585 Disability Sports (3)

Sports and recreational opportunities for individuals with disabilities; federal legislation effecting participation opportunities; spectrum of participation in community recreation to elite athletic opportunities within various disability sports organizations and events. (Lec. 3)

591 Special Problems (3)

Written paper reporting an in-depth investigation of a pertinent problem in the field, including a review of relevant literature, and analysis and solution of the problem based on scientific methodology, with recommendations for improved practices. (Independent Study) Limited to and required of all graduate students in physical education who elect the non-thesis option.

592 Internship in Physical Education and Exercise Science (3)

Directed field experience under the supervision of a faculty member and a professional member of the cooperating institution. Application of knowledge, synthesis of practical experiences. Paper required. (Practicum) Pre: a minimum of 12 graduate credits in physical education and permission of major professor and chairperson.

595 Independent Study (3)

Development of an approved project supervised by a member of the graduate faculty. (Independent Study) Pre: permission of chairperson and instructor. May not be substituted for 591 or 599.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Labor Relations and Human Resources (LRS)

Director: Professor Scholl

432 Work, Employment, and Society

See Sociology 432.

480 (or ECN 480) Seminar in Labor Studies (3)

Intensive studies examining various important topics in labor studies. Class discussion of assigned readings and student reports. (Lec. 3) Pre: permission of instructor. Not for graduate credit.

500 (or MBA 571) Labor Relations and Human Resources (3)

Introduction to labor relations and human resources, including employment practices in unionized and non-union organizations; also issues related to data sources and research methodology. (Lec. 3) Pre: graduate standing or permission of instructor.

503 Problems in Public Personnel Administration
See Political Science 503.

520 Developments in Worker Representation (3)
Structure, functions, responsibilities, and programs of unions and union leadership. Emphasis on policies and decision making. Evaluation of labor and management performance. Consideration of administrative problems associated with growth of white collar unions. (Lec. 3) Pre: graduate standing or permission of instructor.

521 (or PSC 521) Comparative Labor Relations Systems (3)
Comparative labor and industrial relations systems, including union, management, and government functions and roles; also the functions of international organizations in labor relations. (Lec. 3) Pre: permission of instructor.

526 (or ECN 526) Economics of Labor Markets (3)
The theory of labor market behavior, and application of theory for public policy analysis in areas such as discrimination, unemployment, and education. (Lec. 3) Pre: ECN 201 and 202 or 590 or equivalent.

531 Employment Law (3)
Analysis of legislation protecting worker health, employment, and income security, including OSHA, workers' compensation, equal opportunity, fair labor standards, Walsh-Healy and Davis-Bacon, pension funds, unemployment compensation, and social security. (Lec. 3) Pre: permission of Labor Research Center director.

532 Seminar in Employment Law (3)
Advanced seminar to review and evaluate current issues and changing trends in selected aspects of employment law. May be repeated for credit with different topic, for maximum of 6 credits. (Seminar) Pre: permission of instructor.

533 Pension, Health Care, and Employee Benefit Programs (3)
An analysis of employee assistance plans (EAPs), health fringe benefits, and pension plans and their negotiation within both private and public sectors. (Lec. 3) Pre: permission of instructor and Labor Research Center director.

534 (or ECN 534) Information Sources and Uses in Labor Relations and Labor Economics (3)
Analysis and use of data and information sources specific to the professional fields of labor and industrial relations and labor economics. A major project utilizing personal computer software is required. (Lec. 3) Pre: 526 and MBA 501 or permission of instructor. Not for graduate credit for M.B.A. or M.S. in accounting students.

541 Labor Relations Law (3)
Legal framework for private and public sector collective bargaining. Regulation of activities with emphasis on individual rights, collective rights, and policy considerations of federal and state courts, the NLRB,

and state labor boards in determining society's rights. Case studies. (Lec. 3) Pre: graduate standing or permission of instructor.

542 Labor Relations and Collective Bargaining (3)
Collective bargaining literature, theories, and practice. Emphasis on the institutional features of bargaining in both public and private sectors as well as techniques and dynamics of the bargaining process. (Lec. 3) Pre: graduate standing or permission of instructor.

543 (or PSC 543) Public Sector Labor Relations (3)
Public sector (state, municipal, federal, police, fire, K-12 education, and higher education) collective bargaining theory, practice, and legal foundations. Comprehensive case studies. (Lec. 3) Pre: credit or concurrent enrollment in 542 or permission of Labor Research Center director.

544 (or HIS 544) Colloquium in Worker History (3)
Selected topics in American worker history with an emphasis on the most recent literature in the field. (Seminar) Pre: graduate standing or permission of instructor.

545 Arbitration and Mediation of Labor and Employment Disputes (3)
Students prepare, present, and analyze labor and employment arbitration/mediations. The course also covers interest arbitration and innovative methods for resolving disputes. Pre: graduate standing or permission of instructor.

546 Negotiation and Alternative Dispute Resolution (3)
Examination of the interpersonal dynamics of negotiations and conflict resolution processes, including interest-based or collaborative bargaining in a variety of contexts; e.g. labor relations, community, environmental, divorce, racial, commercial. (Lec. 3) Pre: permission of instructor.

551 (or MBA 571) Human Resource Strategy (3)
Human resource issues addressed in context of changing product and labor markets, including relationship among human resource policies, the economic, social, and political environment, and firms' strategic objectives. (Lec. 3) Pre: permission of instructor.

579 (or EDC 579) Labor Relations and Collective Bargaining in Education
Collective bargaining in public and private educational sectors, K-12, higher education; literature, theory, practice, and legal foundations in education. Comprehensive case studies will be used. (Lec. 3)

580 Professional Seminar in Labor Relations and Human Resources (3)
Advanced labor relations seminar of variable coverage and focus; adjusted yearly to consider most recent labor relations developments. Major research

paper required. (Seminar) Pre: final semester graduate standing in labor relations and human resources and permission of Labor Research Center director.

581 Internship: Labor Relations and Human Resources (3-6)
Variable length internship with a trade union, a public or private sector personnel or industrial relations department, or a governmental administrative or regulatory agency, under the supervision of both a URI Labor Research Center faculty member and a member of the affiliated organization. May be taken as one 6-credit unit or two 3-credit units. (Practicum) Pre: graduate standing in labor relations and human resources and permission of Labor Research Center director. S/U only.

590, 591 Directed Readings and Research in Labor Relations and Human Resources (3 each)
Readings and research under the direction of LRC-associated faculty to meet individual student requirements. (Independent Study) Pre: graduate standing in labor relations and human resources and permission of Labor Research Center director and instructor.

Landscape Architecture (LAR)

Chairperson: Professor Green

101 Freshman Inquiry into Landscape Architecture (1)
Introduction for freshmen to landscape architecture: the profession, practices, and principles. Interact weekly with faculty and staff. Explore hands-on studio and field studies. (Lec. 1) S/U credit.

201 Survey of Landscape Architecture (3)
Introduction to landscape design theory and composition as an applied art form. (Lec. 3/Online) (A)

202 Origins of Landscape Development (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) (L) [D]

243 Landscape Architecture Graphics (4)
Introduction to landscape graphic communication techniques with emphasis on design and construction drawing and perspective illustration. (Lec. 2, Studio 4) For landscape architecture majors only. Pre: permission of instructor is required.

244 Basic Landscape Architectural Design (4)
Introduction to the development of outdoor space with emphasis on the design process and the manipulation of spatial volumes. (Lec. 2, Studio 4) Service learning. Pre: 243.

300 Computers in Landscape Architecture (4)
Intensive course in computer usage for landscape architects. Focus on the application of landscape architecture computer-aided design software to proj-

ect development applications. (Lec. 2, Studio 4) Pre: sophomore standing in landscape architecture.

301 Landform Expression (2)

Examines the three-dimensional relief of the earth's surface as a physical design element. Introduction to methods of land measurement, graphic depiction, and sculptural interpretation. (Lec. 1, Lab. 2) Pre: 244 and MTH 111. Intended for landscape architecture majors only.

302 Applied GIS for Landscape Architecture (3)

GIS software, data, and orthophotos will be explored and used for site analysis and the creation of plans suitable for standing alone or being incorporated into CAD design/planning applications. (Lec. 2, Lab. 2) Pre: junior or senior landscape architecture major or permission of instructor.

343 Landscape Architecture Studio 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.

344 Landscape Architecture Studio 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: 301, 343, and 345. Pre: credit or concurrent enrollment in 346. Intended for landscape architecture majors only.

345 Landscape Construction I (4)

A comprehensive survey of construction materials and their uses in landscape construction. (Lec. 2, Studio 4) Pre: 244 and 300. Intended for landscape architecture majors only.

346 Landscape Construction II (4)

The study of soil adjustment: grading, drainage, cut and fill, reshaping of earth surfaces. (Lec. 2, Studio 4) Pre: 300, 301, and 345. Intended for landscape architecture majors only.

353 (or PLS 353) Landscape Plants 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 104A or PLS 150.

354 (or PLS 354) Landscape Plants 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.

399 Landscape Architecture Internship (1-6)

Directed work experience program at landscape architecture offices, contracting firms, and related industries. (Practicum) Pre: permission of instructor.

443 Planting Design (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.

444 Landscape Architecture Studio III: Sustainable Design (4)

Environmental analysis and sustainable design principles are emphasized in this studio which focuses on the preparation of ecologically based designs for individuals and communities. Sustainable concepts, public workshops and presentations (Lec. 2, Studio 4) Service learning. Pre: 344 and 346. Intended for landscape architecture majors only. Not for graduate credit.

445 Landscape Architecture Studio IV (4)

Study of comprehensive landscape architectural projects. Coordination of research, preparation of contract documents, and office procedures. (Lec. 2, Studio 4) Service learning. Pre: 443 and 444. Intended for landscape architecture majors only. Not for graduate credit.

447 Professional Landscape Architectural Practice (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.

450 Landscape Architecture Portfolio Development (1)

This senior level course will cover the strategy and skills necessary for constructing a professional portfolio and provide students with an opportunity to understand the full potential of the portfolio within the profession. (Lec. 1) Pre: 443 and 444. Not for graduate credit.

491, 492 Special Projects and Independent Study (1-3 each)

Special work to meet specialized needs in the landscape architecture profession. (Independent Study) Pre: permission of instructor. Not for graduate credit.

Languages (LAN)

Chairperson: Professor Morello

191 Beginning Foreign Language I (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 a specific language is required. May be repeated for credit for different languages. Choice of specific language to be taught subject to availability and student demand. (FC) [D]

192 Beginning Foreign Language II (3)

Continuation of 191. Students enrolling in this course should have taken 191 or equivalent in the same language. (Lec. 3). May be repeated for credit for different languages. Choice of specific language to be taught subject to availability and student demand. (FC) [D]

193 Intermediate Foreign Language I (3)

Development of facility in speaking, listening comprehension, writing, and reading texts of moderate difficulty in a language not included in regular departmental offerings. Students enrolling in this course should have taken 192 or equivalent in the same language. (Lec. 3) Choice of specific language to be taught subject to availability and student demand. (FC) [D]

194 Intermediate Foreign Language II (3)

Continuation of 193. Students enrolling in this course should have taken 193 or equivalent in the same language. (Lec. 3) Choice of specific language to be taught subject to availability and student demand. (FC) [D]

205, 206 Advanced Foreign Language I and II (3)

205: Further development of all language skills with emphasis on writing and reading. Students enrolling in this course should have taken HBW 104 or JPN 104 or LAN 194 or equivalent in the same language. 206: Continuation of 205. Students enrolling in this course should have taken 205 or equivalent in the same language. (Lec. 3) (FC) [D]

Latin (LAT)

Chairperson: Professor Morello

101 Beginning Latin I (3)

Latin grammar and syntax. Exercises in reading prose. (Lec. 3) Pre: no previous Latin is required. Will not count toward the language requirement if the student has studied Latin for more than one year within the last six years. (FC) [D]

102 Beginning Latin II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

301 Intermediate Latin (3)

Grammar review; readings such as Petronius' Satyricon. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

302 Intermediate-Advanced Latin (3)

Study of Latin texts from different time periods and different genres; syllabus changes on a four-year rotational basis. Students enrolling in this course should have taken 301 or equivalent. (Lec. 3) May be repeated for a maximum of 12 credits with different topics. May be taken once for General Education credit. (FC) [D]

310 Latin Across the Curriculum (1)

Reading of original Latin texts and discussion in conjunction with courses throughout the University curriculum. Designed to maintain language skills and to enrich study of different subjects by using texts in the original language. (Lec. 1) Pre: 301 or permission of instructor.

497 Directed Study (1–6)

Individual readings and research. (Independent Study) Pre: acceptance of a project by a faculty member; approval of section head. May be repeated for credit with different topic.

Latin American Studies (LAS)

Committee Chair: Associate Professor Morin

390 The Hispanic Caribbean: Study Abroad in the Dominican Republic (3)

Emphasis on the Dominican Republic, Cuba, and Puerto Rico. Topics will include colonization and slavery, race, gender, religion, European and U.S. interventionism, migration, and development. (Lec. 3) Pre: SPA 104; HIS 180 is suggested.

397 Directed Study for Senior Research Project (3)

Research in a particular area of Latin American studies. Project must be approved by the LAS Committee. (Independent Study) Pre: approval of LAS Committee and instructor.

The following are related courses offered by various departments of the University.

Anthropology

303 New World Prehistory
315 Cultures and Societies of Latin America
470 Problems in Anthropology

Communication Studies

361 Intercultural Communication

Economics

338 International Economics
363 Economic Growth and Development

History

180 Introduction to Latin American Civilization
382 History of Modern Latin America
391 Directed Study or Research
508 Seminar in Asian or 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

Sociology

329 Contemporary Mexican Society

Spanish

305 Early Spanish-American Literature and Culture
306 Modern Spanish-American Literature and Culture
393 Modern Hispanic-American Literature in Translation
470 Topics in Hispanic Literature
488 Spanish-American Poetry and Drama
489 The Spanish-American Narrative
497, 498 Directed Study
570 Topics in Hispanic Literature and Culture
572 Evolution of Spanish-American Culture and Thought
574 Interpretations of Modern Spanish-American Thought
590 The Hispanic Presence in the United States

Letters (LET)

Coordinator: Associate Dean Dvorak

151 Topics in Letters (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 past and present. (Seminar) May be repeated for credit with different topic. May be taken once for General Education credit. Approved topics: "Francophone Hip-Hop Culture (L) or (FC) [D]," "Contemporary France (L) or (FC) [D]," "The European Union (L) or (FC) [D]," "Introduction to Native American History (L) [D]," "Archaeology Frontiers (L) [D]"

351 Topics in Letters (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 past and present, at an advanced level. (Seminar) Pre: junior standing. May be repeated for credit as often as the topic changes.

Library (LIB)

Dean: Professor Maslyn

120 Introduction to Information Literacy (3)

In-depth exploration and practice of information literacy skills designed to support college-level research and lifelong learning. (Lec. 3/Online) (EC)

140 Special Topics in Information Literacy (1)

Introduction to core concepts of information literacy and essential skills in finding, analyzing, organizing, and presenting information. (Lec. 1) Must be taken concurrently with a course that requires information literacy skills.

508 Seminar in Biological Literature

See Biological Sciences 508.

Library and Information Studies (LSC)

Director: Professor Eaton

Students in good standing may take up to 6 credits 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.

502 Management of Library and Information Services (3)

Introduction to the process, principles, practices, theories, and case studies in the administration, management, and supervision of libraries and information services. Focus on management functions: planning, organizing, staffing, directing, and controlling. (Lec. 3)

503 Collection Management (3)

Introduction to the process of collection building and management of resources including various formats and subjects for libraries or information centers. Community assessment, formulation of policies, procedures, and evaluation methods. (Lec. 3)

504 Reference and Information Services (3)

Practical experience in the use of basic electronic and print information sources with readings and discussion on the philosophy and administrative aspects of reference work. (Lec. 3)

505 Organization of Information (3)

Theory and practice of organizing information following national and international standards; focus on bibliographic information. Emphasizes the understanding and application of cataloging and classification principles, standards, tools, bibliographic utilities, and networks. (Lec. 3)

506 Technical Services (3)

Principles and policies in the acquisition, organization, conservation, and circulation of materials in libraries and information centers. Includes examination of automation of library processes. (Lec. 3)

508 Introduction to Information Science and Technology (3)

Introduction to information science through the exploration of fundamental information science theories and information technologies. Theory and technology are discussed and applied to practical purposes in library and information services. (Lec. 3)

510 History of Books and Printing (3)

The art and craft of book production through the ages; printers, methods, and materials with consideration given to the role of the book in cultural development. (Lec. 3)

514 Information Policy (3)

This course provides an opportunity to examine the large world of information policy and how changing

technology, specifically the Internet, has affected our information policies. (Lec. 3)

515 Informational Ethics and Intellectual Freedom (3)

Examines the history, socially constructed norms, and legal context framing issues in LIS including privacy, censorship, and intellectual freedom; applies principles of ethical reasoning to professional decisions. (Lec. 3)

517 Community Relations for Libraries (3)

Includes public relations, advocacy, determining community needs, identifying potential partners, building partnerships, developing a community relations plan, and envisioning the library's future. Incorporates programs and strategies of core professional organizations. (Lec. 3) Pre: 502 or permission of instructor.

518 International and Comparative Librarianship (3)

Library developments on an international level. Application of comparative method to analysis of library issues in the U.S.A. and foreign countries. Major international library and information organizations and their programs. (Lec. 3) Pre: 3 core courses or permission of the instructor.

520 School Library Media Services (3)

The role of the library media specialist as teacher, information specialist, instructional partner, and program manager, with emphasis on creating instructional programs in schools. Summer or fall semester prior to practicum. (Lec. 3) Pre: completion of 21 hours including core courses 502, 504, 505, and 508 or permission of instructor.

521 Public Library Service (3)

Planning, evaluation, and programming in public libraries, with an emphasis on community analysis and responsive services. Development of a grant proposal or equivalent project required. (Lec. 3) Pre: 502 or permission of instructor.

522 College and University Library Service (3)

Study of the functions, organization, management, and services of college and university libraries. (Lec. 3) Pre: 502.

523 Special Library Service (3)

A survey of some of the major categories of special libraries in academia, corporations, foundations, government agencies, and the military, typically including museums, conservatories, divinity schools, legal institutions, businesses, laboratories, industries, and health care organizations. (Lec. 3) Pre: 502.

524 Teaching About Information: Philosophy and Methodology (3)

An introduction to all aspects of instructing a diverse clientele in the effective use of information in all forms. Philosophy, cognitive aspects, methodologies, media, and the administration, coordination,

and evaluation of information literacy instruction will be considered (Lec. 3) Pre: 504 or permission of instructor.

525 Multiculturalism in Libraries (3)

Determining information needs and planning library collections, services, and programs for a diverse population. Historical, philosophical, and comparative aspects of multiculturalism in libraries will also be considered. (Lec. 3) Pre: 6 graduate credits in library and information studies or permission of instructor.

527 Information Literacy Instruction (3)

Design and teach research strategies to undergraduates in conjunction with academic courses to teach effective, efficient, and honest use of library and information resources. (Lec. 3) Pre: 504.

528 Instructional Technology in Library and Information Services (3)

Provides an introduction to instructional design, development, and motivation theories and their application in producing instructional materials, including emerging technology in library and information environments. (Lec. 3)

529 Information Design (3)

Provides an introduction to the analysis, planning, presentation, and evaluation of effective communication through the use of tools and theories of communication, and message, instructional, and information design. (Lec. 3)

530 Reading Interests of Children (3)

Building, maintaining, evaluating, and promoting collections for children in public libraries and elementary school media centers. Fiction and nonfiction books emphasized; digital and other resources also discussed. (Lec. 3)

531 Reading Interests of Young Adults (3)

Building, maintaining, evaluating, and promoting collections to serve the special interests and information needs of adolescents in public and secondary school libraries. Focus on books; graphic novels, Internet, etc. included. (Lec. 3)

533 Digital Resources for Children and Teens (3)

Investigate informational, educational, and recreational resources, primarily on the Internet. Emphasis on selection, evaluation, promotion, and the development of information literacy. (Lec. 3) Pre: 530 or 531 or permission of instructor

535 Public Library Youth Services (3)

Public library services to children and young adults, with emphasis on the development of programs to meet library goals and objectives. (Lec. 3) Pre: 502 or permission of instructor.

537 Health Sciences Librarianship (3)

Serves as an introduction to the field. Covers the literature, vocabulary, computer applications, reference tools, information retrieval, and environments

relating to health sciences libraries. (Lec. 3) Pre: 502 and 504 or permission of instructor.

538 Law Librarianship (3)

Introduction to legal bibliography and research and to a broad range of problems involved in the administration and operation of various kinds of law libraries. (Lec. 3) Pre: 502 and 504 or permission of instructor.

539 Business Information (3)

An introduction to many aspects of business information services, as well as to business information in all formats. This course will emphasize services in business libraries and information centers, and the fields of corporate intelligence and knowledge management will also be considered and discussed. (Lec. 3) Pre: 504.

540 Humanities Information and Materials (3)

Information needs and services of all areas of the humanities. Unique aspects of library services and materials in all formats will be considered. Pre: 504.

541 Social Science Information (3)

Information needs and services in all areas of the social sciences and the professions, including information in all formats. Pre: 504.

542 Library Materials in Science and Technology (3)

Library resources in science and technology, including the major works, serial publications, and reference and bibliographical materials. (Lec. 3) Pre: 503 and 504.

543 Government Publications (3)

Survey of the publishing activities and publications of national, state, and local governments with emphasis on the publications of the United States government. (Lec. 3) Pre: 504.

544 Visual Information Science (3)

An introduction to the interdisciplinary study of visual information science related to visual information (data) collection, analysis, processing, transmission, utilization, and communication in modern and digital libraries and information centers. (Lec. 3) Pre: 508 or permission of instructor.

545 Indexing and Abstracting (3)

Principles and techniques of indexing for the purpose of information storage and retrieval. Includes periodical indexing, book indexing, automatic indexing, abstracting, and thesaurus construction. (Lec. 3) Pre: 504.

547 Information Storage and Retrieval and Online Searching and Services (3)

Theory, methods, evaluation, and research of analyzing, storing, indexing languages, information storage media, information storage and retrieval systems, and information seeking and retrieving in libraries and information services. (Lec. 3) Pre: 504.

548 Information Architecture and Website Development (3)

Introduces principles of information architecture, library science, and information science to plan, design, develop, and evaluate cohesive Web sites and intranets that are attractive, navigable, manageable, and expandable. Pre: 508 or permission of instructor.

550 Organization of Digital and Nonbook Resources (3)

Using the most current international and national standards for organization of digital and nonbook resources, the course emphasizes not only bibliographic control of these resources for retrieval but also issues relating to subject analysis, standards, access, and other mark-up languages for better retrieval. (Lec. 3) Pre: 505.

557 Research and Evaluation in Library and Information Services (3)

Introduction to research methods for community analysis, information needs assessment, and evaluation of library and information services; critique of published research. Includes substantial paper involving significant independent study. (Lec. 3) Pre: completion of 15 credits or permission of instructor.

562 Administration of Special Collections, Archives, and Manuscripts (3)

Principles and techniques for administering manuscript and archival repositories, including acquisition policies, appraisal criteria, methodology, and preservation practices. (Lec. 3) Pre: core courses 502–508, or permission of instructor.

564 Introduction to Preservation of Library Materials (3)

Organization, management, principles, and techniques as they apply to the development and administration of a library preservation program. Includes causes of deterioration of materials, deacidification, and reformatting and selecting for preservation. (Lec. 3)

565 Rare Book Librarianship (3)

Organization, management, principles, and techniques as they apply to the development and administration of rare book collections. (Lec. 3) Pre: 510 or permission of instructor.

590 Introduction to Chinese Information Services (3)

The seminar will provide students and professionals with an opportunity to study the history of Chinese librarianship and libraries and information services from the ancient to the contemporary times. (Seminar)

593 Independent Work (1–6)

Supervised reading or investigation in areas of special interest. Student must obtain written approval prior to registration for the semester for which the study is proposed. (Independent Study) Pre: 18 hours of library science with B average and permis-

sion of instructor. 557 strongly recommended. 593 and 595 may be repeated for a combined total of 6 credits.

595 LIS Professional Field Experience (1–6)

Directed field experience in approved LIS placement; required capstone for MLIS. 45 hours on-site per credit hour. Guided online discussion; face-to-face orientation and final poster session. Reflective portfolio. (Practicum). 593 and 595 may be repeated for a combined total of 6 credits. Pre: 18 hours of LSC with a B average and permission of instructor.

596 Professional Field Experience: School Library Media Practicum and Seminar (9)

Directed field experience in two school library media centers (150 hours in elementary and 150 hours in secondary). Perform roles and demonstrate competencies of a library media specialist. Bi-weekly seminars. (Lec./Lab. 9) Pre: 520 with a B or better and 30 credits of library science with a B average or permission of the instructor.

597 Selected Topics (1–3)

Selected topics of current and special interest in library and information studies not covered in existing course offerings. Topics and number of credit hours announced prior to each offering. May be repeated with different topics. (Lec. 1–3) Pre: permission of instructor.

Linguistics (LIN)

Section Head: Professor Rogers

200 Language and Culture
See Anthropology 200.**220 (or APG 220) Introduction to the Study of Language (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. (Lec. 3) (S)

320 (or APG 320) Sociolinguistics (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.

408 The German Language: Past and Present
See German 408.**420 Second Language Acquisition (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. (Seminar) Pre: 200 or EDC 312 or 3 credits of language courses numbered 300 or above, or permission of section head. Next offered spring 2010.

431 Applied Linguistics in the Language Laboratory (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. (Lab. 2) Pre: 9 credits of language courses at the 300 level or above, or permission of section head.

497, 498 Directed Study (3 each)

Individual research and reports on problems of special interest. (Independent Study) Pre: 220 and acceptance of project by member and approval of section head.

The following are related courses offered in the departments of Communicative Disorders, English, Modern and Classical Languages and Literatures, Philosophy, and Psychology.

CMD 273	Phonetics
CMD 375	Language Development
ENG 330	The Structure of American English
ENG 332	The Evolution of the English Language
ENG 336	The Language of Children's Literature
ENG 337	Varieties of American English
ENG 530	Studies in Language and Linguistics
FRN 503	History of the French Language
PHL 440	Philosophy of Language
PSY 388	The Psychology of Language

Literature in English Translation

Coordinator: Professor Manteiga

The following courses are offered in the Department of Modern and Classical Languages and Literatures and may be used for major credit in comparative literature studies. They may not be used for major credit in English or languages. (CLA 391, 395, 396, 397 may be used for major credit in classics.)

Classics

- 391 Ancient Laughter: The Comic Tradition in Greece and Rome
- 395 Greek Mythology: Gods, Heroes, and Humans
- 396 Myths of Rome
- 397 Greek Myth and Tragedy

Comparative Literature Studies

- 235 Modern Thought: Philosophy and Literature
- 250 Themes and Myths
- 335 Interdisciplinary Studies in Comparative Literature
- 350 Literary Theory and Criticism
- 450 Studies in Comparative Literature

French

- 391 Literature to 1789 in Translation
- 392 19th-Century Literature in Translation
- 393 20th-Century Literature in Translation

German

- 392 Masterpieces of German Literature

Italian

391, 392 Masterpieces of Italian Literature
395 Dante's *Divine Comedy*

Russian

391, 392 Masterpieces of Russian Literature

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 Literatures of the World
335 Interdisciplinary Studies in Comparative Literature
350 Literary Theory and Criticism
366 Greek and Roman Drama
367 The Epic
468 Traditions of the Continental Novel
560 Studies in European Texts

Literature in English translation courses and literature courses are offered in the Department of English and the Department of Modern and Classical Languages and Literatures, and constitute part of the offerings for a major in comparative literature studies.

Marine Affairs (MAF)

Chairperson: Professor Pollnac

100 Human Use and Management of the Marine Environment (3)

Examination of uses and management efforts in the coastal and ocean environment. Assessment of problems arising from those uses and attempts to conserve resources, protect the environment, and minimize use conflicts in the context of changing technological capabilities, knowledge, and values. (Lec. 3) (S)

120 New England and the Sea (3)

An examination of the human and environmental impacts of the sea and its uses on the New England and Gulf of Maine region. Considers marine resource use and management from colonial to modern times. (Lec. 3)

220 Introduction to Marine and Coastal Law (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) (S) [D]

312 The Politics of the Ocean (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)

320 Shipping and Ports (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.

330 World Fishing (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.

350 Caribbean Geography

See Geography 350.

410 Senior Seminar in Marine Affairs (3)

Advanced work in the management of the coastal and marine environment, with special emphasis on case studies and student projects. Seniors only. (Seminar) Required for seniors in marine affairs. Not for graduate credit in marine affairs.

413 Peoples of the Sea

See Anthropology 413.

415 Marine Pollution Policy (3)

Introduction to management techniques for marine pollutants (biodegradable materials, nutrients, petroleum, metals, synthetic organics, radioactive materials, plastics, heat, and dredge spoils) with emphasis on strategies to limit environmental impacts. (Lec. 3) Pre: junior standing or above. Not for graduate credit.

434 Introduction to Environmental Law

See Community Planning 434.

461 Coastal Zone Management (3)

Examination of activities and management efforts in the coastal zone of both developed and developing countries and their impacts on the environment. Resolution of use conflicts. (Lec. 3)

465 GIS Applications in Coastal and Marine Management (3)

The use of geographical information systems (GIS) technology in coastal and marine settings. Database acquisition and management are emphasized. Case application in coastal zone management, artificial habitat, and fisheries management. (Lec. 3)

471 Island Ecosystem Management (3)

An ecosystem approach to the sustainable development and environmental management of mid-oceanic islands in the Caribbean and the Pacific Ocean. Topics include tourism, reef fishery, cultural heritage, and marine conservation. Simulation game on island-wide management process. (Lec. 3)

472 Marine Recreation and Tourism Management Seminar (3)

Analysis of domestic and international case studies emphasizing identification of and solutions to problems of coastal recreation and tourism. Use of experiential learning. Emphasis placed on presentation, leadership, and negotiation skills. (Seminar)

475 Human Responses to Coastal Hazards and Disasters (3)

Examines the impact of hazards and disasters on human population inhabiting the coastal zone. Sets human adaptations to coastal hazards and disasters in an historical context. Extracts lessons learned for comparative analysis. (Lec. 3)

482 Quantitative Methods in Marine Affairs (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: STA 220 or equivalent for undergraduate students.

484 Environmental Analysis and Policy in Coastal Management (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)

490 Field Experience in Marine Affairs (3–6)

Supervised undergraduate internship within an approved work setting designed to provide students with on-the-job experience relevant to their academic training and career goals. Students are responsible for securing internship positions and learning contract. (Practicum) Pre: permission of instructor, senior standing recommended. Not for graduate credit.

491, 492 Special Problems (3 each)

Individual guidance in major readings and methods of research. (Independent Study) Pre: permission of chairperson.

494 Cases in Marine Policy (3)

A single, current problem drawn from areas such as coastal management, ports, or fisheries is examined through detailed analysis of alternatives and decision processes. (Seminar). Pre: permission of instructor or chairperson.

499 Directed Study (1–3)

Individual research and reports on problems of special interest, including honors thesis research. (Independent Study) Pre: permission of instructor.

502 Research Methods in Marine Affairs (3)

Emphasis on the application of alternative research methods utilized in a typical interdisciplinary study. Development of specific research projects. (Lec. 3) Pre: 482 or permission of chairperson.

511 Ocean Uses and Marine Sciences (3)

Introduction to selected ocean uses focusing on the interplay of public policy and marine science. Emphasis on policy implications of uses such as resource and energy extraction. (Lec. 3)

512 (or PSC 512) Marine Science and Policy Analysis (3)

The role of ocean science in initiation, forecasting, implementation, and evaluation of public policy is examined through waste disposal, protected areas, and oil development, among other topics. (Seminar) Pre: 511 or permission of instructor. For graduate standing only.

515 Marine Pollution Policy (3)

Introduction to management techniques for marine pollutants (biodegradable materials, nutrients, petroleum, metals, synthetic organics, radioactive materials, plastics, heat, and dredge spoils) with emphasis on strategies to limit environmental impacts. (Lec. 3) Pre: graduate standing only.

516 (or CPL 516) Seminar on the Urban Waterfront (3)

The urban environment and its evolution, structure, and function as it pertains to metropolitan waterfronts and small recreational harbors. Emphasis on the permitting process, public participation, marine recreation, and management issues. Field trip and student project required. (Seminar)

520 Seminar in Coastal Margin Management (3)

Nature of oil, mineral, and fishery resources on the continental shelf and environmental issues are reviewed. Emphasis on the utility of data for policy development. (Seminar)

521 Coastal Zone Law (3)

Examination of the authority of different levels and agencies of government to make decisions affecting coastal regions. Survey of existing and proposed state and national legislation affecting coastal regions. (Lec. 3)

523 Fisheries Law and Management (3)

Examination of the relationship between law and fisheries policy on the international and national levels, law relating to fisheries, jurisdictional levels, function of law in implementing fisheries management policy. (Lec. 3)

526 Management of Marine Protected Areas (3)

Examination of ecological, political, legal, and social factors in establishing and managing marine protected areas. Case studies of MPA efforts highlight interrelationships among interest groups, institutions, and legislation. (Lec. 3)

527 (or NRS 527) Marine Protected Areas: An Interdisciplinary Analysis (3)

Examination of the ecological, political, social, cultural, and economic factors influencing the use of MPAs. (Lec. 3) Pre: permission of instructor.

530 International and Domestic Coastal Area Management Seminar (3)

Using international and national coastal management case studies, this seminar focuses on coastal management problems using an interdisciplinary,

project-orientated approach to problem solving. Emphasis is placed on development of leadership, presentation, and negotiation skills. (Seminar)

563 Maritime Transportation (3)

Passenger and commodity transportation. Analysis of the relationship between transportation services and the spatial distribution of activities. Emphasis on multimodal transport and bulk commodities. (Lec. 3) Pre: senior or graduate standing or permission of instructor.

564 Port Operations and Policy (3)

Analysis of coastal and international trade routes and the response of ports. Special emphasis on the container revolution, liquid natural gas transportation, and deep-water ports for supertankers. (Lec. 3)

565 Cruise Ship Operations, Marketing, and Ports (3)

Explores the many facets of the cruise ship industry from the points of view of social, management, and policy science. Designed to familiarize the student, utilizing an interdisciplinary approach, with the genesis, current status, and future roles of this dynamic industry. (Seminar) Pre: graduate standing, or seniors with permission of instructor.

577 (or PSC 577) International Ocean Law (3)

Principles of international law as they relate to ocean management problems. Jurisdiction in zones, such as territorial seas, exclusive economic zones, and the high seas will be examined, as well as the problems posed by zonal approaches to ocean-use management.

578 International Ocean Organizations (3)

International organizations involved in marine-related activities, including their planning, management, regulatory, and assistance functions. Attention to the impact of organizations on ocean management efforts in the developed and developing world. (Lec. 3) Pre: 577 or permission of instructor.

582 Coastal Ecosystem Governance (3)

This course links human impacts on coastal environments with existing or proposed governance solutions. Management regimes for individual sectors, coastal regions, and land/estuarine ecosystems are introduced and compared. (Seminar)

586 Environmental Impact Assessment and Analysis (3)

Focuses on environmental impact assessment and auditing methods for public and private projects. Emphasis on mitigation and mediation of project alternatives, public hearing processes, and developing project reports. (Lec. 3)

589 Master's Project Research (3)

Preparation of a major research paper for M.M.A. students under the guidance of a graduate faculty member. (Independent Study) Pre: graduate standing in the M.M.A. program. S/U credit.

591, 592 Directed Study or Research (3 each)

Areas of special research interest of graduate students. (Independent Study) Pre: permission of chairperson.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

602 Federal Ocean Policy and Organization (3)

Ocean policy development and implementation by the executive and legislative branches of government. Allocation of powers and analysis of the decision-making process for the oceans. (Lec. 3)

651, 652 Marine Affairs Seminar (3 each)

Interdisciplinary seminar conducted by marine affairs program faculty supplemented by guest speakers from industry and government. Focuses on problems of marine resources development and management at the local, state, national, and international policy levels. (Seminar)

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. Maximum of 6 credits of 699 may be taken prior to completing approved dissertation proposal. (Independent Study) S/U credit.

Marine and Environmental Topics**Animal and Veterinary Science (AVS)**

- 101 Introduction to Animal Science
- 323, 324 Animal Management I, II
- 331 Anatomy and Physiology
- 333 Anatomy and Physiology Laboratory
- 412 Animal Nutrition
- 440 Seminar on Marine Mammals
- 472 Physiology of Reproduction
- 473 Physiology of Reproduction Laboratory
- Anthropology
- 413 Peoples of the Sea

Aquaculture and Fisheries Science (AFS)

- 101 Freshman Inquiry into Fisheries and Aquaculture
- 102 Introductory Aquaculture
- 104 Introductory Aquaculture Laboratory
- 201 Shellfish Aquaculture
- 202 Finfish Aquaculture
- 211 Introduction to the Marine Environment Laboratory
- 270 Basic Scuba Diving in Science and Technology
- 290 Small Boats: Their Equipment and Operation
- 300 Aquaculture Health Management
- 311 Exploration of Marine Bioresources
- 315 Living Aquatic Resources
- 316 Living Aquatic Resources Laboratory
- 321 World Fishing Methods
- 322 Laboratory for World Fishing Methods
- 332 Interactions between Fisheries and Protected Species

- 342 Marine Auxiliary Systems
 343 Vessel Repair and Maintenance
 362 Crustacean Aquaculture
 380 Inshore and Coastal Navigation
 381 Mid-Ocean Navigation
 415 Fishery Science
 416 Fishery Science Laboratory
 421 Design of Fish Capture Systems
 425 Aquaculture and the Environment
 426 Ecological Aquaculture
 432 Marine Finfish Aquaculture
 433 Research Diving Methods
 434 Aquatic Food Quality and Processing
 435 Aquatic Food Product Development
 481 Shellfish Aquaculture Laboratory
 483 Salmonid Aquaculture
 486 Fish Physiology
 500 Diseases of Aquatic Origin
 501, 502 Seminar
 510 Application of Quantitative Methods to Marine Fisheries Ecology
 508 Seminar in Biological Literature
 516 Early Life History of Aquatic Animals
 521 Evaluation of Fish Capture Systems
 531 Fish Stock Assessment
 532 Experimental Design
 534 Animal Virology
 536 Virology Laboratory
 555, 556 Pathology Rotation
 576 Seminar in Genetics of Aquatic Organisms
 581 Current Topics in Molluscan Aquaculture
 584 Advanced Aquaculture Systems
 586 Fish Nutrition
- Biological Sciences (BIO)**
 101, 102 Principles of Biology I, II
 130 Topics in Marine Biology
 262 Introductory Ecology
 286 Humans, Insects, and Disease
 345 Marine Environmental Physiology
 355 Marine Invertebrates of Southern New England
 360 Marine Biology
 412, 512 Evolution and Diversity of Fishes
 418 Ecology of Marine Plants
 441 Environmental Physiology of Animals
 442 Mammalian Physiology
 445, 545 Endocrinology I, II
 455 Marine Ecology
 457 Marine Ecology Laboratory
 458 Freshwater Ecology
 465 Biology of Algae
 466 Vertebrate Biology
 467 Animal Behavior
 469 Tropical Marine Invertebrates
 475 Coral Reef Ecology
 480, 580 Community Ecology
 495 Tropical Marine Biology Research
 524 Methods in Plant Ecology
 541 Comparative Physiology of Marine Animals
 551 Seminar in Marine Ecology
 560 Seminar in Plant Ecology
- 563 Biology and Ecology of Fishes 567
 Natural Selection
 568 Ornithology
 664 Phytoplankton Ecology
 675 Advanced Ecology Seminars
- Chemical Engineering (CHE)**
 212 Chemical Process Calculations
 403, 404 Introduction to Ocean Engineering Processes I, II
 534 Corrosion and Corrosion Control
 548 Separations for Biotechnology
- Civil and Environmental Engineering (CVE)**
 374 Environmental Engineering
 375 Environmental Engineering Laboratory
 470, 471 Water and Wastewater Transport Systems I, II
 474 Water Quality Sampling and Analysis
 475 Water in the Environment
 478 Hazardous Waste Disposal and Solid Waste Management
 485 Environmental Engineering Geophysics
 570 Water Chemistry for Engineers
 572 Biosystems in Sanitary Engineering
 573 Theory of Water Purification and Treatment
 579 Soil Behavior
 580 Consolidation, Seepage, and Clay Mineralogy
 581 Experimental Geomechanics
 583 Advanced Foundation Engineering
 587 Groundwater Flow and Seepage Pressures
 588 Groundwater Hydrology
 672 Water Pollution Control and Treatment of Wastewater
 677 Stream and Estuarine Analysis
- Community Planning (CPL)**
 300 Introduction to Global Issues in Sustainable Development
 434 Introduction to Environmental Law
 483 Land Development Seminar
 485 Planning and Natural Environmental Systems
 487 International Development Internships
 495 International Development Seminar
 538 Site Planning
 539 Environmental Law
 549 Seminar in Ecological Planning
- Entomology (ENT)**
 390 Wildlife and Human Disease
 411, 511 Pesticides and the Environment
 529 Systems Science for Ecologists
 544 Insect Pest Management
 561 Aquatic Entomology
- Environmental Economics (EEC)**
 105 Introduction to Resource Economics
 205 Resource Management and Conservation
 310 Economics for Environmental Resource Management and Policy
 345 Sustainable Development, Trade and the Environment
 410 Fish and Wildlife Economics
 432 Environmental Economics and Policy
 435 Aquacultural Economics
 440 Benefit-Cost Analysis
- 441 Markets, Trade, and Natural Resources
 501 Graduate Seminar in Natural Resources Economics
 502 Research Methodology in Environmental and Natural Resource Economics
 514 Economics of Marine Resources
 524 Quantitative Techniques in Natural Resources Research
 528 Microeconomic Theory
 529 Game Theory
 534 Economics of Natural Resources
 535 Environmental Economics
 543 Economic Structure of the Fishing Industry
 576 Econometrics
 602 Research Methodology
 624 Dynamic Economic Models
 628 Advanced Microeconomic Theory I
 630 Resource Analysis
 634 Economics of Resource Development
 676 Advanced Econometrics
 677 Econometric Applications in Resource Economics
- Environmental Sciences (EVS)**
 366 Communicating Environmental Research and Outreach
 610 Multidisciplinary Problem Solving in Coastal Ecosystems
 612 Leadership and Communication in Coastal Ecosystem and Management
 614 White Papers in Integrated Coastal Science
 616 Field Practicum in Coastal Science
 618 Internship in Coastal Management
- Geosciences (GEO)**
 100 Environmental Geology
 103 Understanding the Earth
 113 Natural Disasters
 210 Landforms: Origin and Evolution
 277 Coastal Geologic Environments
 305 Global Warming
 450 Introduction to Sedimentary Geology
 482 Innovative Subsurface Remediation Technologies
 483 Hydrogeology
 484 Environmental Hydrogeology
 485 Environmental Engineering Geophysics
 515 Glacial Geology
 550 Sedimentary Processes and Environments
 568 Isotopes in Hydrogeology
 577 Coastal Geologic Hazards
 582 Innovative Subsurface Remediation Technologies
 583 Groundwater Modeling
 584 Environmental Hydrogeology
- History (HIS)**
 389 Exploration, Commerce, and Conflict in the Atlantic World, 1415–1815
 390 The Atlantic World in the Age of Iron, Steam and Steel
 396 Maritime History/Underwater Archaeology Field School
 490 Underwater Historical Archaeology

Landscape Architecture (LAR)

- 101 Freshman Inquiry into Landscape Architecture
 343, 344 Landscape Architecture Studio I, II
 444 Landscape Architecture Studio III: Sustainable Design
 443 Planting Design
 445 Landscape Architecture Studio IV

Marine Affairs (MAF)

- 100 Human Use and Management of the Marine Environment
 120 New England and the Sea
 220 Introduction to Marine and Coastal Law
 312 The Politics of the Ocean
 320 Shipping and Ports
 330 World Fishing
 410 Senior Seminar in Marine Affairs
 413 Peoples of the Sea
 415, 515 Marine Pollution Policy
 461 Coastal Zone Management
 465 Island Ecosystem Management
 472 Marine Recreation and Tourism Management Seminar
 475 Human Responses to Coastal Hazards and Disasters
 482 Quantitative Methods in Marine Affairs
 484 Environmental Analysis and Policy in Coastal Management
 494 Cases in Marine Policy
 490 Field Experience in Marine Affairs
 502 Research Methods in Marine Affairs
 511 Ocean Uses and Marine Sciences
 512 Marine Science and Policy Analysis
 516 Seminar on the Urban Waterfront
 521 Coastal Zone Law
 523 Fisheries Law and Management
 526 Management of Marine Protected Areas
 527 Marine Protected Areas: An Interdisciplinary Analysis
 530 International and Domestic Coastal Area Management Seminar
 551 Seminar in Marine Ecology
 563 Maritime Transportation
 564 Port Operations and Policy
 565 Cruise Ship Operations, Marketing, and Ports
 577 International Ocean Law
 578 International Ocean Organizations
 582 Coastal Ecosystem Governance
 586 Environmental Impact Assessment and Analysis
 602 Federal Ocean Policy and Organization
 651, 652 Marine Affairs Seminar

Mechanical Engineering and Applied Mechanics (MCE)

- 354 Fluid Mechanics
 415 Experimentation in Fluid Mechanics and Thermal Science
 551 Fluid Mechanics I

Microbiology (MIC)

- 102 Exploring the Microbial World
 201 Introductory Medical Microbiology
 211 Introductory Microbiology
 306 Eukaryotic Microbiology/Protistology

413–16 Advanced Microbiology

Natural Resources Science (NRS)

- 100 Natural Resource Conservation
 101 Freshman Inquiry into Natural Resources
 186 Analysis and Presentation of Environmental Data
 200 Seminar in Natural Resources
 212 Introduction to Soil Science
 301 Introduction to Forest Science
 302 Fundamentals of Forest Management
 304 Field Ornithology
 305 Principles of Wildlife Ecology and Management
 309 Wildlife Management Techniques Laboratory
 324 Biology of Mammals
 351 Soil Morphology Practicum
 361 Watershed Hydrology and Management
 395 Research Apprenticeship in Natural Resources Science
 397 Natural Resources Internship
 401 Foundations of Restoration Ecology
 402 Wildlife Biometrics
 403 Wildlife Biometrics Field Investigations
 406 Wetland Wildlife
 407 Nongame and Endangered Species Management
 408 Environmental Education: Theory and Experiential Learning
 409 Concepts in GIS and Remote Sensing
 410 Fundamentals of GIS
 411 Population and Environmental Change
 412 Soil-Water Chemistry
 414 Climate Change Science and Policy
 415 Remote Sensing of the Environment
 423 Wetland Ecology
 424 Wetlands and Land Use
 425, 525 Wetland Field Investigations
 426 Soil Microbiology
 440 Ecosystem Processes in Land and Water Management
 441 Methods in Ecosystem Analysis
 445 Invasive Species Research, Management and Policy
 450 Soil Conservation and Land Use Investigations
 452 Soil, Water, and Land Investigations
 471 Soil Morphology and Mapping
 495 Advanced Natural Resources Apprenticeship
 497 Natural Resources Cooperative Internship
 498 Teaching Practicum in Natural Resources Science
 499 Senior Thesis in Natural Resources Science
 503 Wildlife Biometrics Field Investigations
 505 Biology and Management of Migratory Birds
 509 Concepts of GIS and Remote Sensing in Environmental Science
 510 Soil-Water Relations
 511 Population and Environmental Change
 514 Climate Change Science and Policy
 516 Advanced Remote Sensing
 520 Quantitative Techniques in Natural Resource Research
 522 Advanced GIS Analysis of Environmental Data

- 524 Application of Advanced Spatial Analysis
 526 Microbial Ecology of Soils and Sediments
 527 Marine Protected Areas: An Interdisciplinary Analysis
 532 Conservation Biology and Resource Economics
 533 Landscape Pattern and Change
 534 Ecology of Fragmented Landscapes
 538 Physiological Ecology of Wild Terrestrial Vertebrates
 545 Invasive Species Research, Management and Policy
 551 Seminar in Marine Ecology
 555 Applied Coastal Ecology
 567 Soil Genesis and Classification
 568 Recent Advances in Natural Resources Science
 600 Graduate Seminar in Natural Resources

Ocean Engineering (OCE)

- 101 Introduction to Ocean Engineering
 205 Ocean Engineering Design Tools
 206 Ocean Instrumentation
 215, 216 Ocean Engineering Design I, II
 301 Fundamentals of Ocean Mechanics
 307 Introduction to Engineering Wave Mechanics and Littoral Processes
 310 Basic Ocean Measurement
 311 Coastal Measurements and Applications
 360 Robotic Ocean Instrumentation Design
 416 Ocean Engineering Professional Practice
 421 Marine Structure Design
 422 Offshore Structure and Foundation
 425 Coastal Experiments
 471 Underwater Acoustics
 472 Sonar Systems Design
 495, 496 Ocean Systems Design Project I, II
 506 Numerical Models and Data Analysis in Ocean Sciences
 510 Engineering Ocean Mechanics
 514 Engineering Wave Mechanics and Nearshore Processes
 515 Marine and Vehicle Hydrodynamics
 522 Dynamics of Waves and Structures
 550 Ocean Systems Engineering
 560 Introduction to Data Collection Systems
 561 Introduction to the Analysis of Oceanographic Data
 565 Ocean Laboratory I
 571, 672 Underwater Acoustics I, II
 572 Underwater Acoustic Transducers
 575 Marine Bioacoustics
 582 Seabed Geotechnics
 605, 606 Ocean Engineering Seminar
 661 Analysis of Oceanographic Data Systems
 673 Advanced Course in Underwater Acoustic Propagation

Oceanography (OCG)

- 110 The Ocean Planet
 123 Oceans, Atmospheres, and Global Change
 131 Volcanoes and the Environment
 401 General Oceanography
 451 Oceanographic Science
 480 Introduction to Marine Pollution

491 Ocean Studies
 501 Physical Oceanography
 505 Marine Analytical Chemistry
 506 Numerical Models and Data Analysis in Ocean Sciences
 510 Descriptive Physical Oceanography
 517 Foundations in Earth System Dynamics
 521 Chemical Oceanography
 523 Organic Geochemistry of Natural Waters
 531 Synoptic and Dynamic Meteorology
 533 Graduate Writing in Marine and Environmental Sciences
 535 Climate, Radiation, Gases, and Aerosols
 540 Geological Oceanography
 561 Biological Oceanography
 576 Marine Microbial Ecology
 580 Introduction to Marine Pollution
 605 Dynamical Oceanography
 610, 611 Geophysical Fluid Dynamics I, II
 613 Waves
 614 Tides
 620 Chemical Distributions
 623 Physical Chemistry of Seawater
 625 Organic Geochemistry of Sediments
 628 High-Temperature Geochemistry
 631 Seminar in Marine and Atmospheric Chemistry
 643 Subduction Zones
 645 Petrology of the Ocean Crust
 652 Marine Geophysics
 664 Phytoplankton Ecology
 665 Marine Bio-Optics and Remote Sensing
 668 Productivity of Ocean Margins
 669 Marine Fish Ecology and Production
 670 Fish Population Dynamics
 689 Coastal Marine Ecosystems
 695 Seminar in Oceanography
Philosophy (PHL)
 454 Philosophy of the Natural Environment
Physics (PHY)
 425 Acoustics
 483, 484 Laboratory and Research Problems in Physics
Plant Sciences (PLS)
 150 Plant Biology for Gardeners
 200 Introduction to Plant Protection
 205, 305 Population, Environment, and Plant Biology I, II
 222 Ecology of the Home Landscape
 306 Landscape Management and Arboriculture
 361 Weed Science
 401, 402 Plant Sciences Seminar
 405 Propagation of Plant Materials
 407 Environmental Education: Theory/Experiential Learning
 436 Floriculture and Greenhouse Crop Production
 440 Diseases of Turfgrasses, Trees, Shrubs, and Ornamental Shrubs
 441 Plant Disease Laboratory
 442 Advanced Turf Management
 415 Plant Plagues: Causes and Consequences
 475 Plant Nutrition and Soil Fertility

476 Environmental Plant Physiology
 501, 502 Graduate Seminar in Plant Sciences
 512 Plant Growth and Development
 572 Plant Biochemistry
 576 Environmental Plant Physiology
Political Science (PSC)
 402 Environmental Policy and Politics
Statistics (STA)
 413 Data Analysis
 550 Ecological Statistics

Special Problems, Directed Study, Independent Study, Workshop, and/or Internships are also offered by most marine and environmental departments.

Master of Science in Accounting (MAC)

Director: Professor Schwarzbach

501 Current Accounting Theory (3)

Critical examination of accounting theory and practice to develop research techniques with emphasis on financial accounting. (Lec. 3) Pre: graduate standing in accounting or permission of M.S. in accounting director.

502 Current Accounting Theory (3)

Critical examination of accounting theory and practice with respect to cost and managerial accounting. (Lec. 3) Pre: graduate standing in accounting or permission of M.S. in accounting director.

503 Taxation of Corporations and Shareholders (3)

Examination of the tax laws affecting corporations and shareholders. Includes law governing corporate formation, liquidating and non-liquidating distributions, reorganizations, taxes on corporation accumulations, and planning of transactions for tax compliance and minimization. (Lec. 3) Pre: BUS 403 or permission of instructor.

504 Financial Statement Analysis and Reporting (3)

Development of accounting policy with respect to analysis of financial statements and the use of evaluation techniques, managerial planning and control. Emphasis on analytical evaluation of cases with major research project. (Lec. 3) Pre: graduate standing in accounting or permission of M.S. in accounting director.

505 Advanced Problems in Accounting (3)

Integrative and specialized accounting problems. (Lec. 3). Graduate standing in accounting or permission of M.S. in accounting director.

506 Seminar in Tax Research, Policy, and Planning (3)

Examination of the methodology of tax research, the principles and procedures involved in tax planning, and the procedures involved in dealing with the IRS. (Seminar) Pre: BUS 403 or MAC 510 or equivalent.

507 International Accounting (3)

Covers interpretation of international financial statements, focusing on foreign currency exchange, comparative accounting principles and disclosures, and audit reports. Uses actual financial statements in case analysis. (Lec. 3) Pre: MBA 503 or permission of instructor.

508 Advanced Auditing (3)

Statements on auditing standards, auditing electronic systems, auditors' reports, statistical sampling in auditing, regulations of SEC, and cases in auditing. (Lec. 3) Pre: BUS 404.

509 Taxation of Flow Through Entities (3)

Examines the federal income tax laws applicable to the flow through entities of partnerships and S corporations. (Lec. 3) Pre: BUS 403.

510 Federal Taxes and Business Decisions (3)

The course focuses on tax law and its effect on business decisions. Cases are employed and primary emphasis is on income tax planning, although estate and gift taxes are explored. (Lec. 3) Pre: MBA 503.

515 (BUS) Law and Accounting (3)

Introduction to C.P.A. law exam, question and answer techniques, coverage of most accounting-legal subjects currently included on the C.P.A. exam. (Lec. 3) Pre: MBA 530 or BUS 315 or BUS 317 or permission of dean.

518, 519 Directed Study in Accounting (1-3 each)

Advanced work under the supervision of a faculty member and arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

520 Internship in Accounting (3)

Participation in management and/or problem solving under the supervision and guidance of a sponsoring agency with evaluation by the College of Business Administration. (Practicum) Pre: proposal acceptance by the College of Business Administration, no previous internship credit, graduate standing. S/U credit.

Master's in Business Administration (MBA)

Associate Deans: Professors Chen and Rosen

500 Statistical Methods for Management (3)

Introductory statistical methods applied to business problems. Topics include descriptive statistics, probability, distributions, inference, regression analysis, chi-square analysis, and introduction to time series. (Lec. 3) Graduate credit for students matriculated in the M.B.A. and M.S. in accounting programs only.

501 Computing for Management (2-3)

Computer concepts and programming using spreadsheet, database, presentation, communication, and other software packages. Emphasis on PC computing as an administrative and analytic tool for applications in management. (Lec. 2-3)

502 Organizational Behavior (3)

Examination of the theory, research, and practice of organizational behavior in work settings, focusing on individual differences, communications, group dynamics, motivation, and leadership in the workplace. (Lec. 3)

503 Financial Accounting (3)

Covers basic accounting principles, accounting systems design, and financial reporting issues. Focusing on financial statement analysis techniques necessary to accurately assess a company's financial position and results of operations. (Lec. 3) Pre: 500

504 Financial Management (3)

Functions and responsibilities of financial managers. Examination of financial statement analysis, cost of capital, capital structure, valuation, markets, capital budgeting, working capital, mergers, bankruptcy, multinational finance. (Lec. 3) Pre: 500, 503, ECN 590.

505 Managerial Marketing (3)

Analysis of marketing problems and determination of marketing policies in product development, promotion, pricing, channel selection, legal aspects. (Lec. 3) Pre: 500 or permission of instructor.

506 Mathematical Methods for Management (3)

Fundamental mathematical methods applied to the understanding and solution of managerial problems. Topics include the solution of systems of linear equations, differential calculus, and related areas. (Lec. 3) Graduate credit for students matriculated in the M.B.A. and M.S. in accounting programs only.

510 Managerial Accounting (3)

Determination of accounting information for the purposes of decision making, control, and evaluation with emphasis on decision models using accounting information. (Lec. 3) Pre: 500, 503.

520 Quantitative Methods for Management (3)

Survey of principal operations research/management science models. Linear programming, network, and other mathematical programming models; simulation, decision analysis, and other probabilistic models. (Lec. 3) Pre: 500 or waiver examinations.

530 Legal Environment of Business (3)

Coverage includes both substantive and procedural rules of law in the civil and administrative law field with emphasis on business, regulation, societal, and ethical issues. (Lec. 3) Pre: graduate standing.

540 Organizational Decision Making and Design (3)

Theory and skills development in strategic thinking and organizational design; use of critical analysis in the diagnosis of organizational and management problems. (Lec. 3) Pre: graduate standing.

550 Managing with Information Resources (3)

Concepts of information technologies and systems as they relate to the information-age organization. Ma-

nor focus is on how the various information resources can be managed to facilitate organizational effectiveness. Topics include information and communication technologies, decision support and information systems, technology-enabled process re-engineering, and information architecture. (Lec. 3) Pre: permission of instructor.

555 Managerial Economics (3)

The applications of economic theory and methodology to business problems. (Lec. 3) Pre: 504, 520, 550, and 560 or permission of instructor.

560 Operations and Supply Chain Management (3)

The management of manufacturing and service operations. Topics include flow processes, inventories, scheduling, capacity, and operations strategy. (Lec. 3) Pre: 500 and 520.

562 Global Supply Chain Management (3)

Examines the factors that impact the design and management of Global Supply Chains through strategic relationships and tactical activities. (Lec. 3) Pre: 560.

565 Strategic Management (3)

Case studies of management problems and evaluation of alternative solutions by integrating functional areas of business. Discussion of ethical, social, and regulatory environments in domestic and multinational firms. Includes the M.B.A. written comprehensive examination. (Lec. 3) Service learning. Pre: all MBA 500 first level courses or equivalent and a minimum of 21 MBA credits, which must include 502, 503, 504, and 505, or permission of instructor.

566 Security and Investment Analysis (3)

Analysis of the problems of investing funds and managing investments. Use of the latest investment theories and their implementation via quantitative techniques will be explored. (Lec. 3) Pre: 504 or equivalent.

567 Advanced Portfolio Theory and Security Analysis (3)

An examination of advanced theories and practices in portfolio building and maintenance. Issues related to security price behavior are also examined. (Seminar) Pre: 504 or equivalent.

568 Advanced Financial Theory (3)

Analysis of the theoretical framework for corporate decision making related to financial planning, capital budgeting decisions, dividend policy, and capital structure decisions. Emphasis on current research developments. (Seminar) Pre: 504 or equivalent.

569 Advanced International Financial Management (3)

Analysis of issues relevant to the international financial manager. The financial operations of multinational enterprises are examined through both the

theoretical and the case approach. (Seminar) Pre: 504 or equivalent.

571 Labor Relations and Human Resources

See Labor Relations 500.

572 Human Resource Strategy

See Labor Relations 551

574 Consulting and Management Practice (3)

Review of the theory and practice of effective consulting and development of consultation skills. (Practicum) Pre: 502 or permission of instructor.

575 Seminar in Management (3)

Class discussion of typical cases, original research work in the field of management with discussion of data collected and analyzed by individual students. (Seminar) Pre: permission of dean.

576 Advanced Topics in Management (3)

Integrated approach to problems in major areas of business management with emphasis on administrative and executive viewpoint. (Seminar) Pre: permission of dean.

577 Compensation Administration (3)

Compensation and performance appraisal systems. Theory and techniques used to determine job worth. Special issues in compensation management, such as relating pay to performance through appraisal techniques and pay compression. (Lec. 3) Pre: MBA 502 or permission of instructor.

578 Human Resource Development (3)

Techniques used in procurement and development of human resource. Planning through recruitment, selection, and placement to training and development. Integration of HRD process with organizational strategic plans. (Lec. 3) Pre: 502 or permission of instructor.

579 International Business Management (3)

Examines the problems and characteristics of international management by focusing on the role of the multinational corporation in a cross-cultural setting. (Lec. 3) Pre: 502 or permission of instructor.

580 Management Systems Analysis and Design (3)

An overview of systems analysis and design, and its role in the development of information systems. Major focus is on the methodologies, techniques, and tools used to create successful information systems. (Lec. 3) Pre: 550 or permission of instructor.

581 Database Management Systems (3)

Design and analysis of complex multi-user databases used in real time business transaction processing. The class will contain discussion and examination of databases for strategic and tactical purposes. (Lec. 3)

582 Applied Time Series Methods and Business Forecasting (3)

Study of time series methods. Construction and use of autoregressive integrated moving averages

(ARIMA) forecasting models. Applications to strategic decision actions. (Lec. 3) Pre: 500 or permission of instructor.

583 Seminar in Operations and Supply Chain Management (3)

Preparation and presentation of papers on selected topics in operations management and supply chain issues. (Seminar) Pre: 560.

584 Buyer Behavior (3)

Analysis of major factors influencing the behavior and demand of consumers. Emphasis on using these factors to identify and segment target markets and to assess the effects of these factors on markets. (Lec. 3) Pre: 505 or permission of instructor.

585 Marketing Research (3)

Marketing information needs and appropriate means of providing the requisite information are analyzed. Several major marketing decision areas and their research implications are examined in depth. (Lec. 3) Pre: 500, 505, 506, ECN 590, or permission of instructor.

586 International Marketing Management (3)

Marketing policy making for the multinational firm; organizing for international marketing; its opportunities, pricing, channels, promotion, and research. (Lec. 3) Pre: 505 or permission of instructor.

587 Product Management (3)

Development of product policies and strategies. Emphasis on organizing the marketing function to deal with various product-related activities including new product development, life cycle strategies, and product deletion. (Lec. 3) Pre: 505 or permission of instructor.

591, 592 Directed Study in Business (1–3 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

593, 594 Internship in Business Administration (3)

Participation in business administration under the field supervision of a sponsoring organization with evaluation by the College of Business Administration. (Independent Study) Pre: proposal approved by the College of Business Administration. S/U credit.

Mathematics (MTH)

Chairperson: Professor Eaton

010 Basic Math (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.

099 Basic Algebra and Trigonometry (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) 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. S/U only.

106 Mathematics of Social Choice and Finance (3)

Voting methods, apportionment problems, and mathematics of everyday finance. Emphasis on development of reasoning ability as well as manipulative techniques. Not open to students with credit in 108 or 109 and not for major credit in mathematics.

107 Introduction to Finite Mathematics (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. (MQ)

108 Topics in Mathematics (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/Online) Pre: passing a placement test. Not open to students with credit in 106 or 109 and not for major credit in mathematics. (MQ)

109 Politics and Mathematics (3)

Elementary mathematical treatments of voting systems and voting paradoxes; models of escalation, conflict, and deterrence, measures of political power, etc. (Lec. 3) Not open to students with credit in 106 or 108 and not for major credit in mathematics. (MQ)

110 Mathematical Foundations for Business Analysis (3)

Equations of first and second degree. Inequalities. Exponential and logarithmic functions. Emphasis on business applications. Introduction to linear algebra and matrices. Introduction to spreadsheets. Designed for students who want to strengthen their background in math before BAC 120. (Lec. 3). Not for credit for mathematics majors and not for general education credit.

111 Precalculus (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 be-

low calculus. (Lec. 3) Pre: passing a placement test. Not for credit for mathematics majors. (MQ)

131 Applied Calculus I (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. (MQ)

132 Applied Calculus 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.

141 Introductory Calculus with Analytic Geometry (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. 3, Rec. 1) Completion of four units of high school mathematics, including trigonometry, recommended. Pre: passing a placement test. Not open to students with credit or concurrent enrollment in 131. (MQ)

142 Intermediate Calculus with Analytic Geometry (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. 3, Rec. 1) Pre: 141 or permission of chairperson. Not open to students with credit or concurrent enrollment in 132.

208 Mathematics for Elementary School Teachers (3)

Conceptual understanding supporting mathematical ideas presented in current, standards-based elementary mathematics education. An in-depth look at problem solving, number systems, functions, relations, and geometry. (Lec. 3) Not open to mathematics majors or mathematics education majors.

215 Introduction to Linear Algebra (3)

Detailed study of finite dimensional vector spaces, linear transformations, matrices, determinants, and systems of linear equations. (Lec. 3) Pre: 131, 141, or equivalent.

243 Calculus for Functions of Several Variables (3)

Topics include coordinates for space, vector geometry, partial derivatives, directional derivatives, extrema, Lagrange multipliers, and multiple integrals. (Lec. 3) Pre: 142.

244 Differential Equations (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.

307 Introduction to Mathematical Rigor (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: 142.

316 Algebra (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.

322 Concepts of Geometry (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: 215 or permission of instructor. Offered fall semesters.

362 Advanced Engineering Mathematics I (3)

Algebra of complex numbers, matrices, determinants, quadratic forms. Linear differential equations with constant coefficients. Partial differential equations. (Lec. 3) Pre: 142. Not for major credit in mathematics.

381 History of Mathematics (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. Offered spring semesters.

382 Number Theory (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. Offered spring semesters.

391 Special Problems (1–3)

Advanced work under the supervision of a faculty member and arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

393 Undergraduate Seminar (1)

Preparation and presentation of selected topics in oral and written form. (Seminar) Pre: permission of chairperson.

418 Matrix Analysis (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. Offered fall semesters.

420 Re-examining Mathematical Foundations for Teachers (3)

Connects ideas covered in upper level math courses to topics taught in secondary school. Designed for teachers. (Lec. 3) Pre: 316 or permission.

425 Topology (3)

Abstract topological spaces and continuous functions. Generalizations of some classical theorems of analysis. (Lec. 3) Pre: 243 and 307, or permission of instructor or chairperson. Offered alternate fall semesters.

435 Introduction to Mathematical Analysis I (3)

Sets and functions, real topology, continuity and uniform continuity, derivatives, the Riemann integral, improper integrals. Detailed proofs emphasized. (Lec. 3) Pre: 243; 307 is strongly recommended. Offered fall semesters.

436 Introduction to Mathematical Analysis 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. Offered spring semesters.

437, 438 Advanced Calculus and Application I, 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: (for 437) 243 and credit or concurrent enrollment in 215 or 362. Pre: (for 438) 437.

441 Introduction to Partial Differential Equations (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 442. Offered alternate fall semesters.

442 Introduction to Difference Equations (3)

Introduction to linear and nonlinear difference equations; basic theory, z-transforms, stability analysis, and applications. (Lec. 3) Pre: 243. Offered spring semesters.

447 (or CSC 447) Discrete Mathematical Structures (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.

451 Introduction to Probability and Statistics (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.

452 Mathematical Statistics (3)

Continuation of 451 in the direction of statistics. Basic principles of statistical testing and estimation, linear regression and correlation. (Lec. 3) Pre: 451. Offered spring semesters.

455 (445) Introduction to Chaotic Dynamical Systems (3)

Introduction to nonlinear dynamical systems on the real line and/or the plane. (Lec. 3) Pre: 243 or permission of instructor. Offered alternate spring semesters.

456 Introduction to Random Processes (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.

462 Functions of a Complex Variable (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. Offered alternate fall semesters.

471 Introduction to Numerical Analysis (3)

Computer arithmetic, interpolation, numerical approximation of derivatives, integral numerical ODE, and other topics. (Lec. 3). Pre: 243 or permission of instructor. Offered alternate fall semesters.

*** Numerical Linear Algebra (3)**

Systems of linear equations, least squares, approximation, eigenvalue problems. (Lec. 3) Pre: 243 and 215 or permission of instructor. Offered alternate fall semesters.

492 Special Problems (1–3)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

513 Linear Algebra (3)

Linear spaces and transformations, linear functionals, adjoints, projections, diagonalization, Jordan form of matrices, inner products; positive, normal, self-adjoint, and unitary operators; spectral theorem, bilinear and quadratic forms. (Lec. 3) Offered spring semesters.

515, 516 Algebra I, II (3 each)

Groups, rings, modules, commutative algebra. (Lec. 3) Pre: 316 for 515; 515 for 516. In alternate years.

*** Please see "Addendum to 2009–2010 URI Catalog" for an addition or correction to this information.**

525 Topology (3)

Topological spaces, separation properties, connectedness, compactness, uniformities. Function spaces, spaces of continuous functions, and complete spaces. (Lec. 3) Pre: 435. In alternate years.

535, 536 Measure Theory and Integration (3 each)

Elements of topology and linear analysis. Lebesgue measure and integration in \mathbb{R} , in \mathbb{R}^n , and in abstract spaces. Convergence theorems. Bounded variation, absolute continuity, and differentiation. Lebesgue-Stieltjes integral. Fubini and Tonelli theorems. The classical Banach spaces. (Lec. 3) Pre: 435 for 535; 535 for 536.

542, 543 Global Character of Difference Equations I, II (3 each)

Global character, periodic behavior, and asymptotic nature of solutions of difference equations and systems of difference equations with applications. Recent topics on rational equations and rational systems in higher dimensions. (Lec. 3) Pre: 435 and 436.

545, 546 Ordinary Differential Equations I, II (3 each)

Existence and uniqueness theorems. Continuous dependence on parameters and initial conditions. Singularities of the first and second kinds, self-adjoint eigenvalue problems on a finite interval. Oscillation and comparison theorems. Introduction to delay and difference equations. Elements of stability theory of Lyapunov's second method. (Lec. 3) Pre: 435 for 545; 545 for 546. In alternate years.

547 (or CSC 547) Combinatorics (3)

Enumeration: generation functions, recurrence relations, classical counting numbers, inclusion-exclusion, finite set systems and designs. Polya theory, coding theory, and Ramsey theory. Finite fields and algebraic methods. (Lec. 3) Pre: 316. Offered alternate fall semesters.

548 (or CSC 548) Graph Theory (3)

Basic concepts and techniques of graph theory as well as some of their applications. Topics include: connectivity, matchings, colorings, extremal problems, Ramsey theory, planar graphs, algebraic techniques. (Lec. 3) Pre: 316. Offered alternate fall semesters.

550 Probability and Stochastic Processes (3)

Review of probability theory. Generating functions, renewal theory, Markov chains and processes, Brownian motions, stationary processes. (Lec. 3) Pre: (435 or 437) and 451. Offered alternate fall semesters.

551 Mathematical Statistics (3)

Theory of estimation and hypothesis testing. Large sample methods. Regression and analysis of variance. (Lec. 3) Pre: 550. Offered alternate spring semesters.

562 Complex Function Theory (3)

Rigorous development of theory of functions. Topology of plane, complex integration, singularities, conformal mapping. (Lec. 3) Pre: (435 and 436) or (437 and 438). Offered alternate spring semesters.

571 Numerical Analysis (3)

Computer arithmetic, interpolation, numerical approximation of derivatives and integrals, numerical ODE, and other topics. (Lec. 3) Pre: 243. Offered alternate fall semesters.

572 Numerical Partial Differential Equations (3)

Further numerical methods of solution of simultaneous equations, partial differential equations, integral equations. Error analysis. (Lec. 3) Offered alternate spring semesters.

575 Approximation Theory and Applications to Signal Processing

See Electrical Engineering 575.

591, 592 Special Problems (1–3 each)

Advanced work under the supervision of a member of the department arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

629, 630 Functional Analysis I, II (3 each)

Banach and Hilbert spaces, basic theory. Bounded linear operators, spectral theory. Applications to analysis. Application to a special topic such as differential operators, semigroups and abstract differential equations, theory of distributions, or ergodic theory. (Lec. 3) Pre: 536 for 629; 629 for 630. Offered in alternate years.

641 Partial Differential Equations I (3)

First order systems. The Cauchy-Kowalewsky theorem. The Cauchy problem. Classification of partial differential equations. Hyperbolic equations. Mainly the theory of the subject. Students interested in techniques for the solution of standard equations should take 441. (Lec. 3) Pre: 215, 435, and 462. In alternate years.

642 Partial Differential Equations II (3)

Elements of potential theory. Elliptic equations. Green's function. Parabolic equations. Introduction to the theory of distributions. (Lec. 3) Pre: 641. In alternate years.

691, 692 Special Topics I, II (3 each)

Advanced topics of current research in mathematics will be presented with a view to expose the students to the frontiers of the subject. (Independent Study) Pre: permission of chairperson.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

930 Workshop in Mathematics Topics for Teachers (0–3)

Especially designed for teachers of mathematics. Basic topics of mathematics from an advanced or pedagogical perspective. (Workshop) Pre: teacher certification. Not for degree credit.

Mechanical Engineering and Applied Mechanics (MCE)

Chairperson: Professor Taggart

201 Engineering Graphics (3)

Introduction to the principles of graphic representation in engineering design, with emphasis on computer-aided drafting, orthographic projection, isometric and auxiliary views, sections, dimensioning, and rapid prototyping. (Lec. 2, Lab. 3)

262 Statics (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 are developed. (Lec. 3) Pre: MTH 141 and credit or concurrent enrollment in EGR 106 or permission of instructor.

263 Dynamics (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: 262.

301 Application of Mechanics in Design (3)

Concepts of engineering design, material selection, failure theories, fracture and fatigue, and finite-element analysis. Application to the design of mechanical components such as shafts, bolts, welded joints, and springs. (Lec. 3) Pre: CVE 220.

302 Design of Machinery (3)

Analysis and design of mechanisms and machine elements including linkages, gear trains, cam-follower systems, bearings, brakes and clutches, flexible mechanical elements, and intermittent and other devices. Graphical, analytical, and computer-aided synthesis techniques. (Lec. 3) Pre: 201 and 263 and 301.

313 Introduction to Mechanical Engineering Experimentation (3)

Report writing, computer-assisted data acquisition and control, statistical and other measures of data uncertainty, propagation of uncertainty, curve fitting. Introduces basic instrumentation for measuring

pressure, temperature, velocity, and strain. (Lec. 2, Lab. 3) Pre: CVE 220 and concurrent registration in 341 and 354.

341 Fundamentals of Thermodynamics (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. First and Second Law application to engineering systems; power and refrigeration cycles. (Lec. 3) Pre: 263, MTH 243, and credit or concurrent enrollment in PHY 205.

354 Fluid Mechanics (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 and MTH 243 or permission of instructor.

366 System Dynamics (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: 263 and MTH 244.

372 Engineering Analysis I (3)

Application of advanced mathematical methods and computer software to solution of mechanical engineering problems with emphasis on the techniques of engineering analysis. (Lec. 3) Pre: EGR 106, MTH 244, and junior standing or permission of instructor.

401 Mechanical Engineering Capstone Design I (3)

Application of engineering skills using a team-based approach. Design process methodology and communication of solutions to real-world engineering problems. First of a two-course sequence. (Lec. 2, Lab. 3) Pre: 302 and 366 and 448 and concurrent registration in CHE 333 or permission of instructor. Must be taken in the semester prior to 402. Not for graduate credit.

402 Mechanical Engineering Capstone Design II (3)

Application of engineering skills using a team-based approach. Design process methodology and communication of solutions to real-world engineering problems. Second of a two course sequence. (Lec. 2, Lab. 3) Pre: 401. Must be taken in the semester following 401. Not for graduate credit.

414 Mechanical Engineering Experimentation (3)

Course aims to build on foundation from 313 and to apply experimental tools to topics from the two main emphasis areas in the undergraduate curriculum, mechanical systems and thermal systems. (Lec.

2, Lab. 3) Pre: 313 and concurrent registration in 448. Not for graduate credit.

426 Advanced Mechanics of Materials (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. (Lec. 3) Pre: 301 or permission of instructor.

431 Computer Control of Mechanical Systems (3)

Use of computers to control mechanical systems. Advanced control algorithms. Computer-aided design methods. Digital control algorithms and software implementation. Interfacing and digital controller hardware. (Lec. 3) Pre: 366 or permission of instructor.

433 Mechatronics (3)

Design of microprocessor-controlled electro-mechanical systems. Topics covered include: real-time programming, motion control elements, interfacing of sensors and actuators, basic electronics, and microprocessor architecture. Pre: 366 and ELE 220 or permission of instructor.

434 Heating, Ventilation, and Air Conditioning (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: 341 or permission of instructor.

437 Turbomachinery Design (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 or permission of instructor.

438 Internal Combustion Engines (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: 341 or permission of instructor.

440 Mechanics of Composite Materials (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: CVE 220 or permission of instructor.

446 Metal Deformation Processes

See Industrial and Systems Engineering 446.

448 Heat and Mass Transfer (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 354 and 372, or permission of instructor. Not for graduate credit.

449 Product Design for Manufacture

See Industrial and Systems Engineering 449.

454 Tribology (3)

Introductory course on the basic principles of tribology (friction, wear, lubrication); fundamentals of surface contact; friction theories; wear mechanisms; temperature considerations in sliding contacts; lubrication regimes; materials selection; design of bearings; advanced applications; experimental analysis. (Lec. 3) Pre: CVE 220 and MCE 354 or permission of instructor.

455 Advanced Fluid Mechanics (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 or permission of instructor.

464 Vibrations (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.

466 Introduction to Finite Element Method (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. (Lec. 3) Pre: 301 and 372 or permission of instructor.

471 (or CHE 471) Nuclear Reactor Engineering (3)

Energy production from nuclear reactions, cross sections, number density, and binding energy. Fission process, neutron life cycle, criticality, neutron diffusion, reactor design, reactor kinetics and control, reactivity feedback, nuclear system design. (Lec. 3) Pre: MTH 244 and MCE 341 or CHE 313, or permission of instructor. Not for graduate credit.

472 Power Plant System Design and Safety Analysis (3)

Energy production, power systems, energy conversion system design, safety engineering and design, phenomenological modeling and analysis, probabilistic risk assessment, risk-informed design, advanced power plant systems design. (Lec. 3) Pre: Thermodynamics (MCE 341 or CHE 313) or permission of instructor. Not for graduate credit.

491, 492 Special Problems (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission

of chairperson. May be repeated for a maximum of 12 credits. Not for graduate credit.

501, 502 Graduate Seminar (1 each)

Seminars and discussions presented by faculty members of academia and industry. Attendance is required of all students in graduate residence. (Seminar) S/U credit.

503 Linear Control Systems

See Electrical Engineering 503.

504 Optimal Control Theory

See Electrical Engineering 504.

523 Advanced Kinematics I (3)

Analytical kinematic and dynamic analysis of planar mechanisms, graph theory, topological synthesis, topological analysis, Burmester theory, mechanism design software. (Lec. 3) Pre: 302 or equivalent.

530 Real-Time Monitoring and Control (3)

Fundamentals of the development of real-time software for monitoring and control. Mechanical systems computer interfacing, timing, cooperative and preemptive scheduling, distributed control, RTOS, and embedded control. Laboratory exercises. (Lec. 3) Pre: graduate standing or permission of instructor.

532 Precision Machine Design (3)

Fundamentals of design and the integration of precision mechanical components and machines. Quasi-static and dynamic errors, sensors, contact and noncontact bearings, power generation devices, and system integration. (Lec. 3) Pre: 401 or graduate standing.

538 Mechanical Engineering Systems (3)

Modeling and simulation of typical mechanical, thermal, fluid and electromechanical elements found in mechanical engineering systems. Feedback control concepts. Control software structures, and software implementation of control systems. (Lec. 3) Pre: graduate standing or permission of instructor.

541 Advanced Thermodynamics I (3)

Advanced study of classical thermodynamics with emphasis on basic concepts, laws, and thermodynamic relationships. Selected topics of current interest including areas of irreversible thermodynamics, statistical mechanics, and the thermodynamics of solids. (Lec. 3) Pre: 341 or permission of instructor.

545 Heat Transfer (3)

Conduction in two and three dimensions and conducting systems with radiation and fluid motion. Solutions obtained by mathematics, computer-numerical methods, and analog devices. (Lec. 3) Pre: 448.

546 Convection Heat Transfer (3)

Relationship between heat transfer and fluid flow with emphasis on the solution of governing equa-

tions by exact methods, integral methods, and similarity techniques. (Lec. 3) Pre: 448.

549 Advanced Product Design for Manufacture

See Industrial and Systems Engineering 549.

550 Theory of Continuous Media (3)

Foundations for advanced studies in mechanical and thermal behavior of solids and fluids. Cartesian and general tensors, small and large deformation theory, Cauchy and Piola-Kirchhoff stress, conservation principles, constitutive laws with applications to materials of engineering interest. (Lec. 3) Pre: CVE 220, MCE 354, 372 or equivalent.

551 Fluid Mechanics I (3)

Basic treatment of real fluid flows using the continuum mechanics approach. Exact solutions of the governing equations. Laminar shear flows and boundary layer theory, turbulent transition. (Lec. 3) Pre: 354 or equivalent.

552 Advanced Experimental Methods (3)

Theory and application of various experimental techniques used in fluid mechanics, solid mechanics, and tribology. Emphasis on mechanical and chemical methods of wear detection, and strain and optical techniques of stress evaluation. (Lec. 2, Lab. 3) Pre: MCE 354 and CVE 220 or permission of instructor.

561 Computational Methods in Solid Mechanics (3)

Finite and boundary element methods based on variational and weighted residual concepts implementation to static and dynamic field problems in elasticity, plasticity, and heat conduction. Pre: 466 and 571 or permission of instructor.

562 Computational Methods in Fluid Flow and Heat Transfer (3)

Computational techniques and applications for practical problems concerning multidimensional fluid flow, heat and mass transfer, and chemical reactions. (Lec. 3) Pre: undergraduate work in fluid mechanics and heat transfer or permission of instructor.

563 Advanced Dynamics (3)

Newtonian mechanics, motion in rotating coordinate systems, Lagrangian Mechanics, Hamilton's principle. Variational methods, nonconservative and nonholonomic systems; matrix-tensor specifications of rigid body motions, normal coordinates. Hamilton's equation of motion, canonical transformation, Hamilton-Jacobi theory. (Lec. 3) Pre: 366 and 372 or equivalent.

564 Advanced Vibrations (3)

Theory of vibration of lumped-parameter multi-degree-of-freedom systems; distributed-parameter systems; exact and approximate solutions; nonlinear and random vibrations. Experimental methods and design procedures. (Lec. 3) Pre: 366 or 464 or equivalent.

565 Wave Motion and Vibration of Continuous Media (3)

Wave motion and vibrations of strings, rods, beams, plates, and membranes; dynamic elasticity theory; Rayleigh surface waves; solutions using separation of variables and integral transforms. (Lec. 3) Pre: CVE 220, MCE 372, 464, or equivalent.

566 The Mechanics of Robot Manipulators (3)

Detailed analysis of the kinematics, dynamics, and control of industrial-type robot manipulator systems. (Lec. 3) Pre: 302, 366, or permission of instructor.

567 Experimental Nonlinear Dynamics (3)

Fundamentals of the experimental analysis of nonlinear dynamical systems; mathematical concepts and algorithmic tools to characterize, analyze, model and predict dynamics of nonlinear systems. (Lec. 3) Pre: 366 or 464 or equivalent.

568 Theory of Plates

See Civil Engineering 568.

571 Theory of Elasticity I (3)

Development of the basic field equations; general concepts of stress and strain; generalized Hooke's law; plane problems; stress functions; Saint Venant torsion and flexure; introduction to three-dimensional problems. (Lec. 3) Pre: CVE 220, MCE 372 or equivalent.

576 Fracture Mechanics (3)

Fundamentals of linear and nonlinear materials behavior, linear elastic fracture mechanics, stress analysis and energy viewpoints, two- and three-dimensional problems, elastic-plastic considerations, dynamic and time-dependent fracture, fatigue crack growth, micro-mechanics of fracture processes, experimental techniques, application to design. (Lec. 3) Pre: 426 or 571 or permission of instructor.

577, 578 Seminar in Sensors and Surface Technology (1)

Students, faculty, and invited outside speakers present and discuss selected topics related to research interests of the Sensors and Surface Technology Partnership. (Seminar) Pre: permission of instructor. May be repeated. S/U credit.

580 Micro/Nanoscale Energy Transport (3)

Fundamentals and applications of energy transport at micro/nanoscale, including equilibrium statistics, Boltzmann transport equation, and nano/microscale heat conduction and radiation, with applications in contemporary technologies. (Lec. 3) Pre: 448 or equivalent, or permission of instructor.

591, 592 Special Problems (1-6)

Advanced work under the supervision of a faculty member arranged to suit individual requirements of the student. May be repeated for a maximum of 6 credits. Pre: permission of instructor.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

653 Fluid Mechanics II (3)

Continuation of 551, including turbulent modeling, turbulent shear flows and boundary layers, incompressible irrotational flows, and selected topics such as an introduction to non-Newtonian fluid behavior, geophysical flows, or numerical methods. (Lec. 3) Pre: 551.

663 Nonlinear Dynamics (3)

Nonlinear dynamics theory and its applications to mechanical, chemical, electromagnetic or biological oscillators; stability, phase analysis, limit cycles, bifurcations, perturbation methods, chaos, fractals, strange attractors, and other advanced topics. (Lec. 3) Pre: 563 or 546 or permission of instructor.

671 Theory of Elasticity II (3)

Continuation of 571; advanced topics selected from complex variable methods; anisotropic solutions; thermoelasticity; displacement potentials and stress functions for three-dimensional problems; micro-mechanics modeling; variational, approximate, and numerical methods. (Lec. 3) Pre: 571 or equivalent.

678 Micromechanics (3)

Mechanics of material behavior from the micro structural viewpoint; physical mechanisms of deformation and fracture; continuum mechanics and thermodynamics; rheological classification of solids; thermodynamics and viscoelasticity; plasticity and viscoplasticity; damage mechanisms; applications to metals, ceramics, and composites. (Lec. 3) Pre: 571, CHE 333 or equivalent.

679 Theory of Plasticity (3)

Uniaxial behavior of plasticity; perfect plasticity, plastic potential; work-hardening materials, loading surface and loading rules, flow rules; stress-strain relationships; nonlinear kinematic hardening models; foundation of state-variable approaches, viscoplasticity; applications to engineering materials. (Lec. 3) Pre: 571 or permission of instructor.

680 Advanced Topics in Solid Mechanics (3)

Advanced studies in the mechanics of solids with specific topics determined by current department interests. Designed for students with at least one year of previous graduate studies. (Lec. 3) Pre: permission of instructor. May not be repeated.

691, 692 Special Problems (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 6 credits.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Medical Technology (MTC)

Director: Clinical Professor Paquette

102 Introduction to Clinical Laboratory Science (1)

An introduction to the health care and medical laboratory fields including specialty areas of medical laboratory science, professional organizations, credentialing, and the health care team approach. (Lec. 1)

195 Biotechnology Manufacturing Methods (5)

Introduction to biotechnology manufacturing methods including cell culture separation, purification. (Lec. 3, Lab. 4) Pre: enrollment in biotechnology manufacturing option.

199 Biotechnology Manufacturing Internship (1–12)

Professional field experience in biotechnology manufacturing. The experience will be defined by a job description and learning contract arranged by the internship coordinator, student intern, and relevant agency. (Practicum) Pre: enrollment in the biotechnology manufacturing option. May be repeated for a maximum of 12 credits.

The clinical courses in medical technology (MTC 405–416) require senior standing and are open only to students who have been accepted into an affiliated hospital school of medical technology.

405 Molecular Pathology (2)

An introduction to pathology. The correlation among pathological processes and clinical symptoms and the course of disease is studied. (Practicum)

406 Clinical Immunology (2)

Formation, structure, and action of antigens and antibodies. Methods of immunization. The laboratory emphasizes serological procedures in the diagnosis of disease. (Practicum)

409 Clinical Microbiology I (4)

The relationship of bacteria and bacterial diseases of humans, with emphasis on the application of procedures to medical diagnosis. Fungi, viruses, the rickettsias, and human parasites are also studied. (Practicum)

410 Clinical Microbiology II (4)

Continuation of 409. (Practicum)

411 Clinical Chemistry I (4)

The chemistry of body constituents and their relationship to diagnosis of human disease. Principles and methods of analysis are emphasized. (Practicum)

412 Clinical Chemistry II (4)

Continuation of 411. (Practicum)

413 Immunohematology I (2)

Instruction in drawing and processing blood and in ascertaining compatibility. Donor-recipient blood and tissue reactions are studied in detail. (Practicum)

414 Immunohematology II (2)

Continuation of 413. (Practicum)

415 Hematology I (3)

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. (Practicum)

416 Hematology II (3)

Continuation of 415. (Practicum)

451 Professional Topics in Clinical Laboratory Science (2)

Professional topics in the medical laboratory sciences, including research methods, education, management, occupational health, public health, regulatory affairs professionalism and ethics. (Practicum)

483 Introductory Diagnostic Microbiology

See Microbiology 483.

501 (or MIC 501) Advanced Clinical Microbiology I (3)

Current methodology employed in the processing of clinical microbiology specimens, isolation and identification of pathogenic microorganisms, and determination of antimicrobial susceptibility. (Lec. 3) Pre: 409 or MIC 432 or equivalent.

502 Advanced Clinical Chemistry I (3)

The pathophysiologic mechanisms as they correlate to clinical chemistry data. Topics include mechanisms of pathology and analytical techniques. (Lec. 3) Pre: 411 or equivalent.

510 Clinical Laboratory Management (3)

Supervisory management principles applicable to the clinical laboratory. Includes the processes of supervision, decision making, job performance and evaluation, communications, organizational behavior, and labor relations in the modern laboratory. (Lec. 3) Pre: 400-level medical technology internship or equivalent.

512 Special Problems in Clinical Laboratory Science (3)

Assigned research on an advanced level. Students required to outline problem, conduct the necessary research or experimental work, and present observations and conclusions in a written and oral report. (Independent Study) Pre: 400-level medical technology internship or equivalent.

513 (or MIC 513) Advanced Clinical Immunology (3)

Theory, application, and techniques used in clinical immunology: immunochemistry, serology, immuno-

hematology, immunopathology. (Lec. 3) Pre: 406 or MIC 533 or equivalent.

520 Advanced Hematology (3)

Special problems, advanced techniques, and methodology in hematology; laboratory approach emphasized. (Lec. 3) Pre: 415 or equivalent.

530 Recent Advances in Blood Banking and Transfusion Medicine (3)

Immunohematology, blood banking, and transfusion medicine with emphasis on recent advances. Techniques used for tissue typing and organ transplantation. (Lec. 3) Pre: 413 or equivalent.

541 Advanced Clinical Microbiology II (3)

Current research and clinical methodology in clinical mycology, parasitology, mycobacteriology, epidemiology, and infectious disease serology. (Lec. 3) Pre: 409 or MIC 432 or equivalent.

543 Advanced Clinical Chemistry II (3)

A comprehensive study of pathophysiologic mechanisms as they relate to clinical chemistry. Topics include immunochemistry, automation, enzymology, pharmacology, and endocrinology. (Lec. 3) Pre: 411 or equivalent.

551 Topics in Biochemistry for the Clinical Scientist

See Biochemistry 551.

The clinical courses in cytopathology (MTC 561–566) require graduate standing and are open only to students who have been accepted into the Rhode Island School of Cytotechnology.

561 Introduction to Cytotechnology (3)

A review of cell and tissue structure, principles of microscopy, and cytological staining methods; overview of organization and management of cytology labs. (Practicum)

562 Special Topics in Cytotechnology (3)

Special projects in cytology, cytopathology, or cytotechnology. Students will investigate or review a topic and present a written and oral report. (Practicum)

563 Cytopathology (3)

Cytopathology and clinical aspects of cervical dysplasia, carcinoma in situ, and invasive squamous cell carcinoma. Endometrial and endocervical carcinoma and other genital tract cancers will be considered. (Practicum)

564 Medical Cytology (3)

Benign and malignant cytology of the gastrointestinal, respiratory, and urinary tracts; study of exfoliative cells in urine, serious effusions, cerebrospinal fluid, and breast secretions. (Practicum)

565 Cytology Practicum I (6)

Microscopic evaluation and screening of benign cytological smears from cervical dysplasia, carcinoma

in situ, and invasive malignant tumors of the female genital tract. (Practicum)

566 Cytology Practicum II (6)

Microscopic evaluation and screening of cytological smears from the gastrointestinal, urinary, respiratory, and central nervous systems and from other body fluids. (Practicum)

571 (or BPS 536) Biotechnology Product Evaluation and Development (3)

The process through which candidate products produced using recombinant DNA technology are evaluated for safety and efficacy, including conductance of clinical trials, economic issues, and regulatory affairs. (Lec. 3) Pre: graduate standing and permission of chairperson.

590 Special Problems in Clinical Chemistry (1–6)

Intensive tutorial work, research, and readings in clinical chemistry. (Independent Study) Pre: graduate standing and permission of chairperson.

591 (or MIC 591) Special Problems in Clinical Microbiology (1–6)

Intensive tutorial work, research, and readings in clinical microbiology. (Independent Study) Pre: graduate standing and permission of chairperson.

592 Special Problems in Hematology (1–6)

Intensive tutorial work, research, and readings in hematology. (Independent Study) Pre: graduate standing or permission of chairperson.

593 Special Problems in Immunohematology (1–6)

Intensive tutorial work, research, and readings in immunohematology. (Independent Study) Pre: graduate standing and permission of chairperson.

594 Special Problems in Biotechnology (1–3)

Intensive tutorial work, research, and readings in biotechnology. (Independent Study) Pre: graduate standing and permission of chairperson.

Microbiology (MIC)

Chairperson: Professor Sperry (Cell and Molecular Biology)

102 Exploring the Microbial World (3)

A guided tour of aquatic and disease-causing microorganisms, emphasizing their impact on humans. The role of microorganisms in evolution, environmental and human health, biotechnology, and natural product prospecting. (Lec. 3)

190 Issues in Biotechnology (3)

See Aquaculture and Fisheries Science 190. (N)

201 Introductory Medical Microbiology (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.

211 Introductory Microbiology (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.

306 Eukaryotic Microbiology/Protistology (3)

Free-living and disease-causing eukaryotic microorganisms are examined in depth, with a focus on those causing human and animal diseases, inhabiting coastal/marine habitats, or used in research. (Lec. 3) Pre: two semesters of biology.

333 Immunology and Serology (3)

Introduction to the immune response; host resistance to infection; immunopathology; antibodies, antigens, and use of serological techniques. (Lec. 3) Pre: 201 or 211.

334 Virology (3)

An introduction to the basic aspects of virus structure, classification, and replication as these relate to viruses as agents of infectious disease. (Lec. 3) Pre: 201 or 211.

409 Marine Micrograzers (2)

Practical experience with collection, cultivation, and identification of diverse marine and coastal heterotrophic protists of the phylum Ciliophora, using phase, fluorescence, and electron microscopy, digital still photography, videomicroscopy, genetic fingerprinting. (Lab. 4) Pre: two semesters of biology laboratory courses.

413 Advanced Microbiology Lecture I (3)

The physiology, genetics, developmental and molecular biology of microorganisms. (Lec. 3) Pre: 211, credit or concurrent enrollment in BCH 311 and BIO 352, or permission of instructor.

414 Advanced Microbiology Lecture 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 BCH 311, or permission of instructor.

415 Advanced Microbiology Laboratory 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.

416 Advanced Microbiology Laboratory 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.

422 Biotechnology of Industrial Microorganisms (3)

Application of microorganisms to industrial processes. Culture handling and strain development. Regulation and control of fermentation products. (Lec. 3) Pre: BCH 311 and an advanced course in microbiology, or permission of instructor.

432 Pathogenic Bacteriology (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.

447 Experimental Cell Biology (2)

Use of eukaryotic microorganisms as humane experimental models to analyze cell physiological processes such as endocytosis, motility, and secretion, using immunocytochemistry, biological assays, fluorescent probes, digital still, and video imaging. (Lab. 4) Pre: two semesters of biology laboratory courses.

451 Laboratory in Cell Biology

See Biochemistry 451.

453 Cell Biology

See Biological Sciences 453.

483 (or MTC 483) Introductory Diagnostic Microbiology (3)

Diagnosis of infectious diseases by use of microbiology, immunology, and hemotologic and clinical chemical methods; organisms covered include viruses, bacteria, fungi, and parasites. (Lec. 2, Lab. 2) Pre: 201 or 211. Open only to clinical laboratory science or microbiology majors or permission of instructor.

491, 492 Research in Microbiology (1–6 each)

Special problems in microbiology. Student required to outline a problem, carry on experimental work, and present conclusions in a report. (Independent Study) Open only to seniors in microbiology. A maximum of 6 credits can be taken for major credit.

495 Seminar in Microbiology (1)

Preparation and presentation of papers on selected subject in microbiology. (Seminar) S/U credit.

499 Biotechnology Internship (3–12)

Professional field experience in biotechnology. The experience will be defined by a job description and learning contract arranged by the MIC internship coordinator, student intern, and relevant agency. (Practicum) Pre: junior or senior standing and approval by the MIC internship coordinator and department chairperson. A maximum of 12 credits can be taken as major credit. Not for graduate credit.

501 Advanced Clinical Microbiology I

See Medical Technology 501.

502 (or BCH 502) Techniques of Molecular Biology (2)

Basic techniques of molecular biology used in the study of gene structure and function including DNA/RNA and plasmid isolation, northern and southern blotting, PCR and gene cloning, among others. (Lab. 6) Pre: BIO 437 or permission of instructor.

506 Biology of Eukaryotic Microorganisms/Protists (3)

The biology of free-living and parasitic eukaryotic microorganisms is explored, with an emphasis on systematics, evolution, cell physiology, development, reproduction, and molecular biology of those species most commonly used in research at the present time. (Lec. 3) Pre: two semesters of biology.

508 Seminar in Biological Literature

See Biological Sciences 508.

513 Advanced Clinical Immunology

See Medical Technology 513.

521 (or BIO 521) Recent Advances in Cell and Molecular Biology (2)

Reading and discussion of current literature (original research papers and review articles) in the area of molecular cell biology, and presentation of oral reports. Final written report or exam. Emphasis on eukaryotic cells. (Lec. 2) Pre: at least one of the following courses or an equivalent course emphasizing cell structure and function – MIC 453; BCH 437, 453, 481; BIO 437, 453 or permission of instructor. May be repeated for a maximum of 4 credits.

522 Bioinformatics I

See Biomedical and Pharmaceutical Science 542.

533 Immunology (3)

Introduction to the cellular, molecular, and genetic basis of the immune system, and the role of the immune system in immunity to infection, tumor and transplantation immunobiology, and immunopathology. (Lec. 3) Pre: 201 or 211.

534 Animal Virology

See Aquaculture and Fisheries Science 534.

536 Virology Laboratory

See Aquaculture and Fisheries Science 536.

538 (or AFS 538 or AVS 538) Epidemiology of Infectious Diseases (3)

Principles of epidemiology, interrelationships of host, environment, and agent in infectious diseases. (Lec. 3)

552 (or BCH 552) Microbial Genetics (3)

Recent research on the mechanism of mutation, genetic recombination, the genetic code, transposons, regulations, genetic engineering, and regulation of

DNA, RNA, and protein synthesis in microbial systems. (Lec. 3) Pre: 201, BIO 352, and BCH 311.

561 Recent Advances in Molecular Cloning (1)

Reports of readings concerning the latest developments in techniques of molecular cloning and their applications in the study of various biological systems. (Lec. 1) Pre: 552 or permission of instructor. May be repeated.

571 Insect Microbiology

See Entomology 571.

576 Marine Microbiology

See Oceanography 576.

591 Special Problems in Clinical Microbiology

See Medical Technology 591.

593, 594 The Literature of Bacteriology (1 each)

Thorough study of original literature of some phase of bacteriology. Written abstracts or papers on assigned topics are discussed in weekly conferences with instructor. (Independent Study)

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

654 Advances in Immunology (2)

Reports on assigned readings concerning latest developments in the field of cellular and humoral immunity presented and discussed by students. Research paper and critical review of a scientific paper required. (Lec. 2) Pre: 533, BCH 311, or permission of instructor. May be repeated for a maximum of 4 credits. In alternate years. Next offered 2010.

656 Mechanisms of Bacterial Pathogenesis (3)

Study of recent research on the molecular mechanisms of pathogenesis. Students expected to participate in roundtable discussions of recent pertinent literature. (Lec. 3) Pre: 432, 552, and BCH 311. In alternate years. Next offered spring 2011.

691, 692 Special Problems in Microbiology (3 each)

Assigned research on an advanced level. Student required to outline problem, conduct the necessary literature and experimental work, and present observations and conclusions in a report. (Independent Study) Pre: graduate standing.

695, 696 (or BCH 695, 696) Graduate Research Seminar (1 each)

Reports of research in progress or completed. (Seminar) Required of all graduate students in microbiology. S/U credit.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

930 Workshop in Microbiology Topics for Teachers (0–3 each)

Especially designed for teachers of biology. Basic topics of microbiology from an advanced or pedagogical perspective. (Workshop)

Note: For virology, see aquaculture and fisheries science (AFS) and also plant sciences (PLS). For mycology, see biological sciences (BIO).

Military Science and Leadership (MSL)

Chairperson: Professor Wilson

101 Introduction to Leadership I (1)

Introduction to leadership dimensions while presenting a big picture understanding of a leadership development program. Students may participate in events including rappelling and land navigation. No military obligation is associated with this course. Open to all levels. (Lec. 1)

102 Introduction to Leadership II (1)

Overview of leadership fundamentals such as problem solving, public speaking, providing feedback, and using effective writing skills. Topics include skills such as first aid, marksmanship, survival, and orienteering. No military obligation is associated with this course. Open to all levels. (Lec. 1)

201 Leadership and Military History (3)

Study of innovative leadership styles and Army tactics by examining key battles throughout history. Case studies provide context for learning ethical decision making and Warrior Ethos as they apply in the contemporary operating environment. Open to all levels. (Lec. 3)

202 Leadership and Team Building (3)

Examines the challenges of leading teams in the complex contemporary operating environment (COE). Highlights dimensions of terrain analysis, patrolling, and operation orders in the context of military operations. Open to all levels. (Lec. 3)

300 Leadership Training Internship (6)

Four-week paid summer internship held at Fort Knox, KY. Upon completion, the student will receive 6 credits and meet the requirements of the 100- and 200-level studies and qualify for continued studies in leadership development. (Practicum) Pre: permission of department.

301 Advanced Leadership Management (3)

Integrates the principles and practices of leadership and personal development to prepare students for the U.S. Army's Leadership Development and Assessment program. (Lec.3) Pre: permission of department.

302 Advanced Leadership Management II (3)

Builds on the foundation of 301. Focuses on developing students' situational leadership abilities to

enable them to succeed in demanding, realistic, and stressful practical exercises requiring mental and physical agility. (Lec. 3) Pre: permission of department.

401 Adaptive Leadership (3)

Students experience opportunities in planning and leading student operations to develop as adaptive leaders. Classroom and situational leadership experiences designed to prepare for first workplace experience. Pre: 301 and 302 or permission of department. Not for graduate credit.

402 Adaptive Leadership in a Complex World (3)

Explores the dynamics of leading in complex situations. Study differences in cultural customs and courtesies, law of land warfare, and rules of engagement in the face of international terrorism. (Lec. 3) Pre: 301 and 302 and 401 or permission of department. Not for graduate credit.

403 Army Topics – Military History (3)

Development of an approved project under faculty supervision. (Independent Study/Online) Pre: permission of chairperson. Not for graduate credit.

Music (MUS)

Chairperson: Professor R. Lee

Note: Applied music courses with an asterisk—MUS 110, 210, 310, 410, and 510 (except Composition)—require a supplementary fee: \$105 for 1 credit; \$200 for 2, 3, 4, or 6 credits.

101 Introduction to Music (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/Online) (A) [D]

106 History of Jazz (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) (A) [D]

109 Basics of Singing (1)

Basic singing technique, tone production, interpretation, and introduction to song literature for those not enrolled in 110–510 Applied Music. (Lab. 2) Pre: must not be registered for 110, 210, 310, 410, or 510.

***110 Applied Music (1–3)**

Private instruction in performance at the freshman level. One credit equals a half-hour lesson per week. Two or three credits equal an hour lesson per week and require additional preparation time, higher levels of performance, and recital performances. Music convocation performance is encouraged but not required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

A Voice	I Flute	Q Euphonium/ Baritone
B Piano	J Oboe	R Tuba
C Organ	K Clarinet	S Percussion
D Harpsichord	L Bassoon	T Guitar
E Violin	M Saxophone	U Harp
F Viola	N Trumpet	V Composition
G Violoncello	O French Horn	W Jazz
H Contra Bass	P Trombone	

111 Basic Musicianship (3)

Use of folk, classical, and popular music to learn essentials of music reading and music theory. (Lec. 3/Online) (A)

119 Introduction to the Music Profession (1)

Overview of the music profession. Development of an individualized plan for music study including articulation of learning and career goals. Introduction to skill areas including research and writing about music, basic musicianship, and appreciation of music literature. (Lec. 1) For music majors and minors. May be substituted for URI 101. Service learning.

120 Basic Music Theory (2)

Development of basic music theory concepts as well as basic sight-singing, rhythmic, and ear training skills. (Lec. 2) Pre: taken concurrently with 119. Permission of instructor or chairperson required if not taken concurrently with 119. For music majors and minors.

121 Music Theory I (2)

Rhythmic, melodic, and harmonic elements of music. Scales, modes, intervals, rhythmic notation, and triads. Part writing, analysis, and keyboard work involving primary triads. (Lec. 1.5, Lab. 1) Pre: 119 and 120 or permission of instructor. Concurrent or previous keyboard experience.

122 Ear Training and Sight-singing I (2)

Sight-singing in major and minor keys, including outlines of tonic and dominant harmonies. Rhythmic reading, aural recognition, with notation of material of 121. (Lec. 1.5, Lab. 1) Pre: 121. May be taken concurrently.

169 Percussion Class (1–2)

Basic principles in performance and pedagogy of percussion instruments. (Lab. 2) Open to music majors and other students who demonstrate ability to read music. Next offered spring 2011.

170 Guitar Class (1–2)

Basic principles in performance and pedagogy of the guitar. (Lab. 2) Open to music majors and other students who demonstrate ability to read music. Next offered spring 2011.

171 Piano Class I (1)

Development of basic techniques and musicianship for effective use of the piano. This course will emphasize proficiency I. (Lab. 2) Pre: credit or concurrent enrollment in 121 and 122.

172 Piano Class II (1)

Further development of basic techniques and musicianship for effective use of the piano. Basic keyboard skills in transposition, sight-reading accompaniments, and melody harmonization with improvised accompaniment. This course will emphasize proficiencies 2 and 3. (Lab. 2) Pre: 171 or equivalent.

173 Voice Class (1–2)

Basic principles and pedagogy of singing, physiology, breathing, tone production, diction. (Lab. 2) Open to music majors and other students who demonstrate ability to read music. Next offered fall 2010.

175 String Class (1–2)

Basic principles in performance and pedagogy of string instruments. (Lab. 2) Open to music majors and other students who demonstrate ability to read music. Next offered spring 2011.

177 Woodwind Class (1–2)

Basic principles in performance and pedagogy of woodwind instruments. (Lab. 2) Open to music majors and other students who demonstrate ability to read music. Next offered fall 2010.

179 Brass Class (1–2)

Basic principles in performance and pedagogy of brass instruments. (Lab. 2) Open to music majors and other students who demonstrate ability to read music. Next offered fall 2010.

***210 Applied Music (1–3)**

Private instruction in performance at the sophomore level. One credit equals a half-hour lesson per week. Two or three credits equal an hour lesson per week and require additional preparation time, higher levels of performance, and music convocation performance. (Studio) Pre: 110 or equivalent. See 110 for areas of study (A-W). May be repeated for credit.

221 History of Music I (1–3)

Historical development of classical and popular music in European and non-European cultures: world music, Medieval, and Renaissance eras. (Lec. 1–3) Pre: 121 or equivalent competency. May be taken for 1 or 2 credits only with permission of instructor prior to registration.

222 History of Music II (1–3)

Continuation of 221: Baroque, Classical, and Romantic eras. (Lec. 1–3) Pre: 225 or equivalent competency and 221 or consent of instructor. May be taken for 1 or 2 credits only with permission of instructor prior to registration.

225 Music Theory II (2)

Continuation of 121, covering all diatonic triads, dominant and supertonic seventh chords, and modulation to closely related keys. (Lec. 1.5, Lab. 1) Pre: 121 and 122.

226 Ear Training and Sight-singing II (2)

Continuation of 122. Covering all diatonic triads, dominant and supertonic seventh chords, and mod-

ulation to closely related keys. (Lec. 1.5, Lab. 1) Pre: 122 and 225; 225 may be taken concurrently.

227 Music Theory III (2)

Advanced rhythmic, melodic, and harmonic practice approached through analysis, keyboard, and part writing, including original work. Covers seventh, ninth, eleventh, and thirteenth chords, chromatic alteration, chromatic progression, and foreign modulation. (Lec. 1.5, Lab. 1) Pre: 225 or equivalent.

228 Ear Training and Sight-singing III (2)

Advanced rhythmic, melodic, and harmonic practice approached through sight-singing and dictation including computer-aided instruction. (Lec. 1.5, Lab. 1) Pre: 226 or equivalent.

235 Introduction to Music Teaching (2)

Overview of music teaching in schools and studios. History, philosophy, curriculum, learning theory, and current topics in music teaching as they relate to the broader field of education. (Lec. 2) Pre: 110 or 119 or permission of instructor.

238 General Music Methods and Materials (3)

Teaching methods, instructional materials, and evaluation procedures for general music, grades K–12. Learner characteristics and development of children and adolescents. (Lec. 3) Pre: sophomore standing in music.

271 Piano Class III (1)

Further development of basic keyboard performance skills in sight-reading and harmonization. This course will emphasize proficiencies 4 and 5. (Lab. 2) Pre: 172 or equivalent. Open only to music majors.

272 Piano Class IV (1)

Continuation of 271. Further development of keyboard performance skills in sight-reading and harmonization. This course will emphasize proficiencies 6 and 7. (Lab. 2) Pre: 271 or equivalent. Open to music majors only.

280 Mid-Program Portfolio in Music (0)

Individual accomplishment of activities and experiences, demonstrating interest and competency in music at the midpoint in the student's program of studies as a music major. (Portfolio) Pre: sophomore standing in music.

283 Vocal Diction (3)

Basic phonetics (International Phonetic Alphabet). Enunciation in the foreign languages most frequently encountered in vocal and choral literature (Italian, French, German, and Latin). English diction in singing. (Lec. 3) In alternate years. Next offered spring 2011.

290 University Pep Band (0–1)

Rehearsal and performance of a wide variety of rock, jazz, rhythm and blues, marches, popular and other contemporary music for home and away URI basketball games. (Rehearsal 2) May be repeated for credit. Pre: audition and permission of instructor.

291 University Marching Band (0–2)

Rehearsal and performance of music, drill, and shows for URI football games. (Rehearsal 8) May be repeated for credit.

292 Concert Band (0–1)

Study and performance of concert band music. Open to all students. (Rehearsal 3) May be repeated for a total of 3 credits for general education (A) [D]. S/U only for 0 credit.

293 University Chorus (0–1)

(Rehearsal 3) May be repeated for a total of 3 credits for general education (A) [D]. S/U only for 0 credit.

300 Music Convocation (0–1)

Study of repertory and techniques of concert presentation through attendance of student recitals and presentations by faculty and visiting artists. (Lab.) Attendance at 75 percent of events required. May be repeated.

***310 Applied Music (2–4)**

Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: 210 or equivalent. See 110 for areas of study (A-W). May be repeated for credit.

311 Basic Conducting (2)

A course in elementary conducting techniques including baton techniques and score study as well as the organization of instrumental and choral rehearsals. Pre: credit or concurrent enrollment in 225 and 226.

312 Advanced Conducting (3)

A study of problems and approaches to instrumental and choral conducting based on advanced baton techniques. Principles of interpretation and the art of communication through practical experience with departmental organizations. Pre: 311.

322 History of Music III (1–3)

Continuation of 221 and 222: European, African-American, Hispanic, and other contributions to the classical and popular music of the 20th century. (Lec.1–3) Pre: 121 or equivalent competency and 221 or consent of instructor. May be taken for 1 or 2 credits only with permission of instructor prior to registration.

329 (or EDC 329) Music for the Elementary School Teacher (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.

339 Choral Methods and Materials (3)

Organization and administration of choral music programs in elementary and secondary schools, focus-

ing on materials, procedures, policies, and teaching methods. (Lec. 3) Pre: EDC 250 or the equivalent.

340 Instrumental Methods and Materials (3)

Organization and administration of the instrumental music program in elementary and secondary schools, focusing on materials, procedures, policies, and teaching methods. (Lec. 3) Pre: EDC 250.

341 Field Experiences in Music Education (1)

Supervised field experience and seminar for students to observe music teaching practices in music-teaching settings and apply methodology. (Lab. 2) Pre: 235 and junior standing or permission of instructor.

350 Junior Recital (0-1)

Performance of a public program at least 20 minutes in duration after faculty examination. (Studio) Pre: concurrent enrollment in 310.

371 Piano Accompanying (1)

Development of sight-reading skills. Preparation and performance of accompaniments. (Lec. 1) Pre: permission of piano faculty. May be repeated.

391 Jazz Studio Laboratory (1)

Studies in jazz performance practices, pedagogy, and literature. Historical perspectives, stylistic concepts, and repertoire from 1917 to the present developed in the ensemble setting. (Lab. 3) Pre: 121, 122, 171.

394 Symphonic Wind Ensemble (0-1)

(Rehearsal 3) Pre: audition and permission of instructor. May be repeated for credit. S/U only for 0 credit.

395 Concert Chorus (0-1)

(Rehearsal 3) Pre: audition and permission of instructor. May be repeated for credit. S/U only for 0 credit.

396 Jazz Studio Ensemble (0-1)

Performance and study of jazz and studio music as related to professional experience. (Rehearsal 3) Pre: audition and permission of instructor. S/U only for 0 credit.

397 University Symphony Orchestra (0-1)

Study and performance of standard and modern repertoire for the orchestra. (Rehearsal 3) Pre: audition and permission of instructor. May be repeated for credit. S/U only for 0 credit.

398 Chamber Music Ensembles (0-1)

Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

407 The Symphony (3)

Study of the development of orchestration and of formal procedures such as the sonata, rondo, and variations. Includes works by composers such as Haydn, Beethoven, Brahms, and Tchaikovsky. (Lec. 3)

Pre: 222. Offered every seventh semester. Next offered fall 2010.

408 The Opera (3)

History of opera from its beginnings in Italy in the 17th century to the present, including works by composers such as Monteverdi, Purcell, Mozart, Wagner, Verdi, and Puccini. Pre: credit or concurrent enrollment in 222 or the ability to read music. Offered every seventh semester. Next offered spring 2012.

*410 Applied Music (2-4)

Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: 310 or equivalent. See 110 for areas of study (A-W). May be repeated for credit. Not for graduate credit, except 410V (Composition).

416 Form and Analysis (3)

Critical study of the structure of tonal music. Works of various composers are analyzed with reference to motive and phrase as generative elements in design. (Lec. 3) Pre: 227 or equivalent. In alternate years. Next offered fall 2010.

417 Instrumentation and Choral Arranging (3)

Range, timbre, transpositions, and other characteristics of instruments, singly and in combination. Elements of choral arranging. Exercises with attention to part writing, harmony, and form. Setting of a small piece of music for orchestra, band, or chorus required. Pre: credit or concurrent enrollment in 227 or equivalent. In alternate years. Next offered fall 2009.

420 Eighteenth-Century Counterpoint (3)

Tonal polyphony in the style of J.S. Bach. Includes creative exercises in writing counterpoint in Baroque style and the study of representative compositions such as the inventions and fugues of Bach. (Lec. 3) Pre: 227 and 228. In alternate years. Next offered spring 2010.

421 Aesthetics of Electro-Acoustic Music Composition (3)

Study and application of electronic music composition, and exploration of aesthetic goals since 1945 through analysis of compositional and technological procedures, culminating in a major composition electro-acoustic project. (Lec. 2, Lab. 2) Pre: 235 or equivalent. In alternate years. Next offered spring 2011.

424 Jazz Theory and Improvisation (3)

An intensive study and practice of the formal elements of jazz improvisation. (Lec. 1, Lab. 4) Pre: 225, 226 and acceptance into 210. In alternate years. Next offered spring 2010.

430 The Renaissance Era (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 or the ability to read music. Offered every seventh semester. Next offered spring 2010.

431 The Baroque Era (3)

Music of 1600-1750, from the rise in Italy of opera, oratorio, idiomatic instrumental music, the sonata, and the concerto, through the works of German masters Bach and Handel. (Lec. 3) Pre: 222 or the ability to read music. Offered every seventh semester. Next offered spring 2011.

432 The Classic Era (3)

Music of 1750-1825, beginning with the founders of the Classical style, including D. Scarlatti, Gluck, and the sons of Bach, and culminating in the works of Haydn, Mozart, and Beethoven. (Lec. 3) Pre: 222. Offered every seventh semester. Next offered fall 2011.

433 The Romantic Era (3)

Music of 1825-1900, with emphasis on topics central to the era, including program music, nationalism, piano virtuosity, opera, lieder, the cyclic symphony, and turn-of-the century Viennese post-Romanticism. (Lec. 3) Pre: 222 or the ability to read music. Offered every seventh semester. Next offered fall 2012.

434 The Modern Era (3)

Music of the modern era, with emphasis on changing aesthetics as revealed through the analysis of selected compositions. (Lec. 3) Pre: 227 or the ability to read music. Offered every seventh semester. Next offered fall 2009.

442 Directed Study in Applied Music Pedagogy (2)

Research in materials and approaches for studio teaching. Pre: 4 credits in 210. In alternate years. Next offered fall 2010.

450 Senior Recital (0-1)

Performance of a public program at least 20 minutes in duration after faculty examination. Pre: concurrent enrollment in 410. Not for graduate credit.

470 Special Topics in Music (1-3)

Exploration of advanced topics not covered by the standard curriculum but of interest to faculty and students in a particular semester. Topics in performance, music history, music theory or composition, music education. May be repeated for credit with a different topic.

480 Graduation Portfolio (0-2)

Seminar covering topics and the development of a graduation portfolio appropriate to the student's degree program. The portfolio shows accomplishments

from throughout the degree program and achievement of competencies indicating potential success as a graduate. (Portfolio) Pre: 280 or permission of chairperson and senior standing in music. For music education majors, concurrent enrollment in EDC 484 required. To be taken during the last semester of coursework in the major. May be repeated. Not for graduate credit.

485 Opera Workshop (0–1)

Coordination of music and drama. Singing, performing, and acting techniques on stage. Possible experience in conducting, coaching, directing, and stage management. Development of professional standards and attitudes. Preparation and presentation of scenes from various operas. Primarily for students in voice. (Rehearsal 2) Pre: audition and/or permission of instructor. May be repeated for credit.

490 Independent Study (1–3)

Preparation of a project under the guidance of a member of the appropriate faculty. (Independent Study) Pre: acceptance by faculty member who will be the project advisor and approval of chairperson. May be repeated for credit.

*510 Applied Music (2, 3, 4, or 6)

Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. See 110 for areas of study (A–W), in addition to:

- Y Choral Conducting
- Z Instrumental Conducting

There is no fee for choral or instrumental conducting. May be repeated.

540 Foundations of Music Education (3)

Examination of the broad influences upon music education. Historical, philosophical, sociological, psychological, and curricular foundations. (Lec. 3) Pre: graduate standing in music. Offered every third semester. Next offered fall 2010.

545 Musical Learning, Evaluation, and Assessment (3)

A study of cognitive, psychomotor, and affective learning in music. The ways in which musical learning may be evaluated and assessed. The needs of special populations will be included. (Lec. 3) Pre: graduate standing in music. Offered every third semester. Next offered spring 2011.

548 Research in Music (3)

Study of research techniques as applied to the art of music. Major project procedures and data collection and examination in the following research categories: historical, philosophical, and empirical. (Lec. 3) Pre: graduate standing in music. Offered every third semester. Next offered spring 2010.

550 Graduate Performance Recital (0–1)

Performance of advanced repertoire of various styles in a public program at least 55 minutes in duration for the M.M. in performance and 45 minutes in duration for the M.M. in music education after faculty acceptance. (Studio) Pre: concurrent enrollment in 510 and 6 or more credits in 510 for the M.M. in performance or 4 or more credits in 510 for the M.M. in music education.

552 Graduate Composition Recital (0–1)

A juried recital of at least 40 minutes of original compositions prepared by the composer. (Studio) Pre: concurrent enrollment in 510V and 3 or more credits in 510V.

567 Seminar in Performance and Pedagogy (2)

Study of performance literature, practice, and pedagogy. Research projects and supervised teaching experience appropriate to the major performance area. (Lec. 2) Pre: concurrent enrollment in 550. In alternate years. Next offered fall 2010.

570 Graduate Project (3)

Independent study resulting in a major essay, composition, or orchestration. (Independent Study) Pre: 548 and permission of chairperson.

571 Special Topics in Music (1–3)

Exploration of advanced topics not covered by the standard graduate curriculum but of interest to faculty and students in a particular semester. Possible topics include performance, music history, music theory, composition, and music education. (Lec. 1–3) May be repeated for credit with a different topic.

579 Experiential Learning in Music (2)

Developing competence through an individual and/or collaborative experiential activity involving music research, performance, service, and/or teaching in university and community settings. May include professional music studio or computer lab work. Student will work with his or her major professor or with the director of graduate studies. (Practicum) Pre: graduate standing and previous or concurrent enrollment in 580.

580 Master of Music Portfolio I (0)

Planning individual activities and experiences demonstrating competence in music at the graduate level. Should be taken in the first semester of matriculation. Student will work with his or her major professor or with the director of graduate studies. (3 common Seminars) Pre: graduate standing in music. Not required for students whose bachelor's degree is from URI. S/U only.

581 Master of Music Portfolio II (1)

Individual accomplishment of activities and experiences demonstrating competence at the graduate level of music. Achievement of professional behaviors indicating significant growth in areas of specialization. Oral presentation required. Should be taken in

final semester of study. Student will work with his or her major professor or with the director of graduate studies. (3 common Seminars) Pre: graduate standing in music. S/U only.

583 Vocal Diction (3)

Phonetics (International Phonetic Alphabet). Enunciation in the foreign languages most encountered in vocal literature (French, Italian, and German). English diction in singing. (Lec. 3) In alternate years. Next offered spring 2011.

590 Piano Accompanying (1)

Development of sight-reading skills. Preparation and performance of accompaniments of major works. (Studio 1) Pre: permission of piano faculty. May be repeated for a maximum of 3 credits.

593 University Chorus (0–1)

(Rehearsal 3) Pre: audition at graduate level of performance. May be repeated.

594 Symphonic Wind Ensemble (0–1)

(Rehearsal 3) Pre: audition at graduate level of performance.

595 Concert Choir (0–1)

(Rehearsal 3) Pre: audition at graduate level of performance.

596 Jazz and Studio Ensemble (0–1)

Study and performance of jazz and studio music, with leadership roles in improvisation and performance. (Rehearsal 3) Pre: audition at graduate level of performance.

597 University Symphony (0–1)

(Rehearsal 3) Pre: audition at graduate level of performance. May be repeated.

598 Chamber Music Ensembles (0–1)

Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: 548. May be repeated. S/U credit.

Natural Resources Science (NRS)

Chairperson: Professor Paton

100 Natural Resource Conservation (3)

Introduction to humans' 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)

101 Freshman Inquiry into Natural Resources Science (1)

Introduction for freshmen to the opportunities, careers, research activities, applied outreach, and educational programs in the Department of Natural Resources Science. Interact weekly with faculty. Explore hands-on modules. (Lec. 1) S/U credit.

190 Issues in Biotechnology (3)

See Aquaculture and Fisheries Science 190. (N)

200 Seminar in Natural Resources (1)

Review and discussion of research, management, and other topics in natural resources. Speakers expose students to issues that natural resources professionals are concerned with and the work that they do. Pre: 100.

212 Introduction to Soil Science (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/Online)

223 Conservation of Populations and Ecosystems (3)

Conservation of biological diversity in a world dominated by humans. Conservation biology theory, application; ecosystem conservation; landscape ecology principles. (Lec. 3) Pre: 100, BIO 101 or 102.

300 Introduction to Global Issues in Sustainable Development

See Community Planning 300.

301 Introduction to Forest Science (3)

Development and importance of forestry; forest regions; tree characteristics and identification with emphasis on Northeastern species; forest environment; tree growth and site productivity. (Lec. 2, Lab. 2) Pre: BIO 102.

302 Fundamentals of Forest Management (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.

304 Field Ornithology (3)

Identification, field study techniques, habitats, and basic biology of birds. Emphasis on field identification of local species. (Lec. 2, Lab. 3) Pre: BIO 101 and permission of instructor.

305 Principles of Wildlife Ecology and Management (3)

Application of ecological knowledge to the management of wild vertebrate populations and the habitat upon which they depend. (Lec. 3) Pre: 223 and BIO 101 and 102, and 262.

309 Wildlife Management Techniques Laboratory (3)

Application of practical field techniques for quantification and evaluation of wildlife and habitats. Methods of field identification, sampling, and data analysis. (Lab. 4, Project 3) Service learning. Pre: 223 and 305.

324 Biology of Mammals (3)

Classification, distribution, field study techniques, and basic biology of mammals. Emphasis on New England species. (Lec. 2, Lab. 3) Pre: BIO 101 and permission of instructor. In alternate years. Next offered spring 2011.

351 Soil Morphology Practicum (2)

Seven 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. (Practicum) Pre: 212 or permission of instructor. May be repeated for credit with permission of chairperson.

361 Watershed Hydrology and Management (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 HPR 109 and permission of instructor.

395 Research Apprenticeship in Natural Resources Science (1-3)

Supervised experience for qualified undergraduates who assist NRS faculty and graduate students in departmental research projects. Tasks may include literature review, research design, installation of sampling plots and equipment, laboratory analyses, data collection, and data analysis. (Practicum) Pre: sophomore to senior standing and permission of instructor. Limited to NRS majors. May be repeated for a maximum of 6 credits. S/U credit.

397 Natural Resources Internship (1-6)

Supervised work experience in forestry, wildlife management, soil science, water resources, environmental education, or related areas of natural resources management. (Practicum) Pre: 100, 212, and approval of chairperson. Open only to NRS majors. May be repeated for a maximum of 6 credits. S/U credit.

401 Foundations of Restoration Ecology (3)

Overview of factors involved with implementing an ecological restoration. Will synthesize the physical, biological and human factors that determine restoration success. (Lec. 3) Pre: BIO 262 or permission of instructor. Not for graduate credit.

402 Wildlife Biometrics (3)

Presentation of statistical design and analysis of ecological field measurements. Emphasis on quantitative measurements and data analyses used in wildlife population research. Capstone. (Lec. 2, Lab. 3) Pre:

BIO 262, NRS 223, and STA 308 or 409 or permission of instructor. In alternate years. Next offered in spring 2010.

403 Wildlife Biometrics Field Investigations (1)

Independent field study of wildlife populations using modern quantitative measurements and data analyses. Emphasis on experimental design, data collection and recording, statistical analysis, data interpretation, and reporting. (Practicum) Capstone. Pre: concurrent enrollment in 402. Not for graduate credit.

406 Wetland Wildlife (3)

Introduction to management of wetland wildlife. Emphasis on management techniques used for major wetland types, waterfowl, furbearers, and nongame wildlife. (Lec. 2, Lab. 3) Pre: BIO 262 and NRS 223 and permission of instructor.

407 Nongame and Endangered Species Management (3)

Management programs for nonhunted species, basic conservation biology, and techniques used for management of endangered species. (Lec. 3) Pre: past or concurrent enrollment in 305.

409 Concepts in GIS and Remote Sensing (3)

Discussion of the unique properties of geospatial data, geospatial data structures, accessing existing spatial data, and applications of GIS and remote sensing in the environmental sciences. (Lec. 3) Pre: BIO 262 or permission of instructor. Not for graduate credit.

410 Fundamentals of GIS (3)

Emphasis on using a geographic information system (GIS) to create a geographically referenced spatial database, spatial topology, data visualization, computer-assisted map making, and spatial data query and analysis. (Lab. 6) Pre: past or concurrent enrollment in 409 or 509.

411 Population and Environmental Change (3)

Overview and analysis of the major scientific and policy issues concerning human population growth and environmental change. (Lec. 3) Recommended for upper level undergraduates. Not for graduate credit.

412 Soil-Water Chemistry (3)

Biogeochemistry of soil-water interactions. Soil composition, the exchange and sorption of elements, trace element behavior, redox reactions, and control of these factors on availability and loss. (Lec. 3) Pre: 212 and CHM 124 and 126 or permission of instructor. In alternate years. Next offered fall 2009.

414 Climate Change Science and Policy (3)

Overview and analysis of the science and policy issues concerning climate change and global warming. (Lec. 3) Pre: GEO 305 or permission of instructor. Not for graduate credit.

415 Remote Sensing of the Environment (3)

Introduction to fundamentals of airborne and spaceborne remote sensing. Emphasis on remote sensing applications in terrestrial environmental and natural resources studies. (Lec. 2, Lab. 2)

423 Wetland Ecology (4)

Formation, development, and distinguishing features of inland and coastal wetlands. Topics include classification, geology, hydrology, soils, plant ecology, vegetation dynamics. Primary emphasis on wetlands of the glaciated Northeast. Capstone. (Lec. 2, Lab. 4) Pre: BIO 262, GEO 103, NRS 233, concurrent enrollment in NRS 425 or 525 and permission of instructor.

424 Wetlands and Land Use (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. Capstone. (Lec. 2, Lab. 4) Pre: 423 or permission of instructor.

425 Wetland Field Investigations (1)

Independent field study of a diverse freshwater wetland ecosystem, with emphasis on aerial photo-interpretation, wetland classification, and in-depth examination of glacial geology, hydrology, plant ecology, and soils. (Practicum) Capstone. Pre: concurrent enrollment in 423. Not for graduate credit.

426 Soil Microbiology (3)

Occurrence, metabolism, and ecology of soil microorganisms, with emphasis on nutrient cycling, soil pathogens, transformation of organic and inorganic pollutants, and soil biotechnology. (Lec. 3) Pre: 212 or permission of instructor.

440 Ecosystem Processes in Land and Water Management (3)

Processes affecting the flows of energy, water, mass, and nutrients in terrestrial and aquatic ecosystems, with emphasis on linkages between ecosystems and management implications. (Lec. 3) Pre: 212 and BIO 262 and CHM 101 or 103 or permission of instructor.

445 Invasive Species Research, Management and Policy (3)

Overview of the major invasive alien species issues in the research, management and policy arenas. (Lec. 3) Pre: BIO 262 or permission of instructor. Not for graduate credit.

450 Soil Conservation and Land Use (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. Capstone. (Lec. 3) Pre: 212 or permission of instructor.

452 Soil, Water, and Land Use Investigations (1)

Independent field and laboratory study of soil and water topics related to land use issues. (Practicum) Capstone. Pre: concurrent enrollment in 450.

471 Soil Morphology and Mapping (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.

480 Senior Portfolio (1)

Student-directed projects for reflection on educational accomplishments, exploration of post-graduate opportunities, and formulation of long-term professional goals. Requires completion of four major projects. (Seminar) Pre: senior standing in NRS. Not for graduate credit.

482 Innovative Subsurface Remediation Technologies

See Geosciences 482.

484 Environmental Hydrogeology

See Geosciences 484.

487 International Development Internship

See Community Planning 487.

491, 492 Special Projects (1–3 each)

Special work to meet the needs of individual students in natural resources. (Independent Study) Pre: permission of chairperson.

495 Advanced Natural Resources Apprenticeship (3)

Collaboration with faculty and graduate students in departmental research, including supervision and mentoring of students enrolled in 395. Emphasis on independent decision making and leadership of undergraduate research teams. Limited to majors. May be repeated for a maximum of 6 credits. (Practicum) Pre: 395 and permission of instructor. S/U only. Not for graduate credit.

496 International Development Seminar

See Community Planning 495.

497 Natural Resources Cooperative Internship (6–12)

Supervised work experience with a governmental agency, nongovernmental organization, or private company in the environmental field. (Practicum) Capstone. Pre: senior standing and permission of department. Not for graduate credit.

498 Teaching Practicum in Natural Resources Science (1–3)

Teaching experience for qualified undergraduates through actual involvement in planning and assisting in NRS courses. May include supervised participation in a discussion group, assisting in a laboratory or field course, or tutoring. (Practicum) Pre: senior standing, previous enrollment in the course to be

taught, and permission of instructor. Limited to NRS majors. May be repeated for a maximum of 3 credits. Not for graduate credit. S/U only.

499 Senior Thesis in Natural Resources Science (6)

In-depth research or outreach effort reviewed by a faculty committee and culminating in a thesis written in scientific journal format. Oral presentation to the committee required. Capstone. (Independent Study) Pre: GPA of at least 3.25, successful completion of 491 or 492, and permission of department chairperson. Not for graduate credit.

503 Wildlife Biometrics Field Investigations (1)

Independent field study of wildlife populations using modern quantitative measurements and data analyses. Emphasis on experimental design, data collection and recording, statistical analysis, data interpretation, and reporting. (Practicum) Pre: concurrent enrollment in 402.

505 Biology and Management of Migratory Birds (2)

Current programs, problems, and techniques for managing migratory game and nongame birds. Emphasis on basic biology of the species, habitat management, and harvest management. (Seminar) Pre: 305 or permission of instructor. In alternate years. Next offered spring 2011.

508 Seminar in Biological Literature

See Biological Sciences 508.

509 Concepts of GIS and Remote Sensing in Environmental Science (3)

Unique properties of geospatial data, accessing existing GIS and remote sensing data, and applications of GIS and remote sensing in the environmental sciences. Uses in ecology, conservation, soil science, geohydrology, and conservation biology. (Lec. 3) Pre: BIO 262 or permission of instructor.

510 Soil-Water Relations (3)

Processes governing water flow and availability in unsaturated and saturated soil. Emphasis on soil-water-plant relationships with applications to watershed management and hydrology. (Lec. 2, Lab. 3) Pre: 212, 361, or permission of instructor.

511 Population and Environment Change (3)

Overview and analysis of the major scientific and policy issues concerning human population growth and environmental change. (Lec. 3).

514 Climate Change Science and Policy (3)

Overview and analysis of the science and policy issues concerning climate change and global warming. (Lec. 3) Pre: for graduate students, none; for undergraduates, GEO 305 or permission of instructor.

516 Remote Sensing in Natural Resources Mapping (3)

Digital remote sensing in environmental and natural resource studies. Emphasis on satellite remote sensing image rectification, georeferencing, classification,

and integration with GIS. (Lec. 2, Lab. 2) Pre: 415 or permission of instructor.

520 (or EEC 524) Quantitative Techniques in Natural Resource Research (3)

Research design, database management, and analysis and interpretation of natural resource data. Emphasis on hands-on experience of quantitative and computerized techniques commonly used by natural resource scientists. (Lec. 2, Lab. 2) Pre: STA 308 and permission of instructor.

522 Advanced GIS Analysis of Environmental Data (3)

Discussion and application of terrain modeling, spatial statistics, proximity analysis, remote sensing/GIS linkages, and environmental data integration. Emphasis on ecological data at watershed/landscape scales. (Lec. 1, Lab. 6) Capstone. Pre: 410 or permission of instructor.

524 Application of Advanced Spatial Analysis (1)

Independent application of spatial data analysis to derive solutions to environmental problems, with emphasis on GIS data integration, vector and raster modeling, and visualization of analytical and quantitative results. (Practicum) Pre: concurrent enrollment in 522. Capstone.

525 Wetland Field Investigations (1)

Independent field study of a diverse freshwater wetland ecosystem, with emphasis on aerial photo-interpretation, wetland classification, and in-depth examination of glacial geology, hydrology, plant ecology, and soils. (Practicum) Pre: concurrent enrollment in 423.

526 Microbial Ecology of Soils and Sediments (3)

Occurrence and activity of microorganisms in soils and sediments, including wetlands. Environmental physiology of microbes; habitat interactions; methods of study; importance of microbial processes to ecosystem productivity, pollutant degradation, and atmospheric chemistry. (Lec. 3) Pre: 212, MIC 211, or permission of instructor.

527 Marine Protected Areas: An Interdisciplinary Analysis

See Marine Affairs 527.

532 (or EEC 542) Conservation Biology and Resource Economics (2)

Examination of different components of conservation of biological diversity. Topics include minimum viable populations, ecology and economics of reserve design, reintroductions, causes of extinction, and the ecosystem conservation strategies. (Seminar) Pre: BIO 262, EEC (REN) 105 or permission of instructor. In alternate years. Next offered spring 2010.

533 Landscape Pattern and Change (3)

Remote sensing perspective of landscape characterization; landscape dynamics; spatiotemporal land-use and land-cover change; modeling and analysis

of landscape by integration of remote sensing, GIS, GPS, and in situ data. (Lec. 2, Lab. 2) Pre: 415 or permission of instructor.

534 Ecology of Fragmented Landscapes (2)

Presentation of the concepts of landscape ecology with emphasis on populations of plants and animals in fragmented habitats. Topics discussed include habitat corridors, fluxes of energy and species along habitat edges, shape analysis, and stability of populations in habitat patches. (Lec. 2) Pre: BIO 262 or permission of instructor. In alternate years. Next offered spring 2011.

538 Physiological Ecology of Wild Terrestrial Vertebrates (3)

Relationships between animal physiology and the ecology and dynamics of wild vertebrate populations, including birds, mammals, reptiles, and amphibians. (Lec. 3) Pre: 305 or permission of instructor.

545 Invasive Species Research, Management and Policy (3)

Overview of the major invasive alien species issues in the research, management and policy arenas. (Lec. 3) Pre: BIO 262 or permission of instructor.

551 Seminar in Marine Ecology (1)

See Biological Sciences 551.

555 Applied Coastal Ecology (2)

Resource management problems in coastal national parks. Topics include air and water pollution, barrier island erosion, deer overpopulation, Lyme disease, and ecosystem restoration. Examples of conflicting land-management mandates and research needs discussed. Optional field trips. (Lec. 2) Pre: advanced course work or experience in topical fields or permission of instructor. Offered in fall of even-numbered years.

563 Biology and Ecology of Fishes

See Biological Sciences 563.

567 Soil Genesis and Classification (3)

Development of soils as influenced by physical, chemical, biological, and climatic factors. Processes of soil formation presented relative to soil taxonomy and geographic distribution. (Lec. 3) Pre: 471 or permission of instructor. Next offered spring 2011.

568 Recent Advances in Natural Resources Science (3)

Critical analysis and presentation of technical reports on recent advances in natural resources science. Topics will vary according to instructor and background of students. (Lec. 3) Pre: graduate standing or permission of instructor.

583 Innovative Subsurface Remediation Technologies

See Geosciences 582.

584 Environmental Hydrogeology

See Geosciences 584.

591, 592 Special Problems (1–3 each)

Advanced independent research projects supervised by members of the research staff and unrelated to Master's or Doctoral research. Projects developed to meet individual needs (Independent Study) Pre: permission of chairperson.

600 Graduate Seminar in Natural Resources (1)

Presentation of proposed, ongoing, or completed research by NRS graduate students. Discussion among graduate students, faculty, and staff, with emphasis on research design, methods, and interpretation of results. (Seminar) Pre: graduate standing in NRS. All graduate students must enroll at least twice; full-time students are expected to enroll each spring. S/U credit.

New England Studies (NES)

Coordinator: Professor Oronato (Art and Art History)

400 Special Topics in New England Studies (1–3)

Specialized topics in the study of New England offered by specialists in the field. (Seminar) May be repeated for credit with different topics.

Nonviolence and Peace Studies (NVP)

Coordinator: Professor Collyer (Psychology)

200 Nonviolence and Peace Studies Colloquium (1)

A series of speakers introduce a range of issues in nonviolence and peace studies. (Lec. 1)

Nursing (NUR)

Dean: Professor Joseph

Associate Dean: Associate Professor Lauzon Clabo

103 Professional Practice in Health and Illness (3)

Introduction to the concept of professional helping including problem management, communication, the teaching process, and critical decision making. Analysis of ecosystem influences and cultural variability in health, illness, and health care. (Lec. 3/Online) Pre: NUR code or WNUR code or permission of instructor.

150 Human Sexuality (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. (Lec. 3/Online) (S) [D]

203 Comprehensive Health Assessment (3)

Introduces the techniques of history taking and systematic health assessment of individuals across the life span. Recognition of normal findings is emphasized. (Lec. 2, Lab. 3) Pre: BIO 242 and 244 and

NUR 103 and CHM 124 or MIC 201 and any WRT course (104, 105, 106, or higher if the student tests out) and PSY 113.

213 Pathophysiology (3)

Examination of basic concepts of pathophysiology and the related levels of prevention, etiology, pathogenesis, and clinical manifestations underlying alterations according to biological processes across the life span. (Lec. 3) Pre: MIC 201, NUR 203.

233 Foundations of Nursing Practice with Older Adults (3)

Foundational concepts of professional nursing practice emphasizing levels of prevention and nursing care focusing on the older adult in wellness and illness. (Lec. 3) Pre: 203, NFS 207, PSY 232, MIC 201 and credit or concurrent enrollment in NUR 213.

234 Practicum in Foundations of Nursing with Older Adults (3)

Practicum emphasizing foundational concepts of basic nursing and levels of prevention focusing on the older adult client in wellness and illness. (Lab. 9) Pre: previous or concurrent enrollment in 233.

246 Conceptual Bases of Professional Nursing (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. (Lec. 3) For R.N. students only.

253 Nursing Research (3)

Introduction to principles of scientific inquiry and analytical thinking common to problem solving in nursing. Research process and implications to know ledge development, utilization, and evidence-based practice are explored. (Lec. 3) Pre: 203 and STA 220 or PSY 300 or permission of instructor.

323 Medical-Surgical Nursing (6)

Concepts of medical-surgical nursing with emphasis on nursing strategies and utilizing levels of prevention in management of adults with acute and chronic illness, including the impact of illness on their families. (Lec. 6) Pre: 213 and 234 and 253.

324 Medical-Surgical Nursing Practicum (3)

Application of clinical practice strategies in the management of adults with acute and chronic illness and the impact on their families. (Lab. 9) Service learning. Pre: credit or concurrent enrollment in 323.

333 Psychiatric Mental Health Nursing (3)

Nursing strategies to support and care for persons with limitations in psychosocial functioning in the context of family and community; psychiatric and/or mental health. (Lec. 3) Pre: 324 and BPS 333.

334 Practicum in Psychiatric Mental Health Nursing (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 psychiatric and/or mental health care. (Lab. 9) Service learning. Pre: credit or concurrent enrollment in 333.

343 Nursing in Childbearing and Reproductive Health (3)

Emphasis on the nursing management of childbearing families and reproductive health issues across the life span. (Lec. 3) Pre: BPS 333 and credit or concurrent enrollment in NUR 334.

344 Practicum in Childbearing and Reproductive Health Nursing (3)

Application of the nursing process in the care of individuals and families with childbearing and reproductive experiences. (Lab. 9) Service learning. Pre: credit or concurrent enrollment in 343.

346 Practicum in Nursing Management of Clients (3)

Practicum in development of leadership and management strategies for registered nurses in selected clinical settings. Emphasis on role development and analysis of issues related to client care and nursing practice. (Practicum) Service learning. Pre: 246 and 253.

360 (or THN 360) Impact of Death on Behavior (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) (L) [D]

390 (or THN 390) Directed Study (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. (Independent Study) Pre: admission to the College of Nursing and prior faculty approval. S/U credit.

433 Nursing of Children (3)

Examines theories and strategies that promote or restore health and prevent or manage illness in infants, children, and adolescents; includes family-centered concepts and supportive management during end-of-life care. (Lec. 3) Pre: 334 and 344.

434 Practicum in Nursing of Children (3)

Synthesis of pediatric knowledge and the application of the nursing process in the care of children and their families. (Lab. 9) Pre: credit or concurrent enrollment in 433. Service learning.

443 Community Health Nursing (3)

Analysis of concepts related to public health and nursing care of clients in the home and the community with emphasis on vulnerable and high-risk populations. (Lec. 3) Pre: credit or concurrent enrollment in 434 (246 and 253 for R.N. students).

444 Practicum in Community Health Nursing (3)

Application of the nursing process in the home and community with emphasis on vulnerable and high-risk populations. In-depth analysis of a selected population, including utilization of epidemiological and public health principles. (Lab. 9) Pre: credit or concurrent enrollment in 434 and 443 (246 and 253 for R.N. students). Service learning.

446 Directed Study for Registered Nurse Students (1-4)

Clinical advanced study or individual scholarly project related to the nursing major. Faculty guidance in problem delineation and in development, implementation, and evaluation of the project. (Independent Study) Pre: 246 and 253. Not for graduate credit.

459 Perspectives on Male and Female Sexuality (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.

463 Advanced Medical-Surgical Nursing (3)

Study of nursing care problems and nursing management of adults with acute and chronic complex illnesses, including the impact on their families. (Lec. 3) Pre: 444.

464 Practicum in Advanced Medical-Surgical Nursing (3)

Application of the nursing process to adults across the life span with acute and chronic complex illnesses including the impact on their families in selected clinical situations. (Lab. 9) Pre: credit or concurrent enrollment in 463.

467 Independent Study in Human Sexuality (2-6)

A specifically designed learning experience for the theoretical study of human sexuality and related practice strategies. (Independent Study) Pre: 150 or equivalent; permission of instructor.

468 Practicum in Theories of Human Sexuality (2-6)

A specifically designed practicum involving the application of theory and development of practice strategies in specific areas within the field of human sexuality. (Practicum) Pre: 150 and 467 or equivalent; permission of instructor.

474 Leadership in Contemporary Nursing Practice (3)

Examination of theories, issues, and concepts related to contemporary nursing practice. Emphasis on the application of principles of leadership and professionalism in a clinical experience. (Lec. 1, Lab. 6) Pre: credit or concurrent enrollment in 464.

500 General Study of Nursing Knowledge for Nursing Practice (4)

Introduction to the essential features of nursing knowledge and its development in relation to nursing practice. Study of approaches to nursing knowledge development, and major conceptual/theoretical knowledge in nursing. (Lec. 3, Lab. 2) Pre: graduate standing.

503 Advanced Adult Physical Assessment (3)

Expansion of basic nursing health assessment skills, including: comprehensive health history, physical examination and psychological and social assessment. Pre: Admission to the graduate nursing program and permission of the instructor.

504 Advanced Pediatric Physical Assessment (1)

Application of advanced physical and health assessment skills to children. Includes assessment of growth and development, psychosocial, cognitive and physical well being of children of all age groups. Pre: Admission to the family nurse practitioner program, previous or concurrent enrollment in 503, and permission of instructor.

505 Nursing Research (3)

An overview and analysis of current research in nursing with special focus on patient care. Students will design a research project. (Seminar) Pre: a course in statistics, credit or concurrent enrollment in 500, or permission of instructor.

506 (or THN 506) Independent Study (2-6)

Intensive study of a specific area of interest, a problem or issue in nursing under guidance of the faculty. (Independent Study) Pre: permission of graduate faculty.

507 Theories of Practice for Nursing (3)

Analysis of general theories of practice for nursing and their applicability to various areas of clinical practice. (Seminar) Pre: 500 or permission of instructor.

508 Physical Assessment of Older Adults (1)

Applying a developmental framework, expands and refines history taking and physical exam techniques learned in 503 and utilizes additional assessment tools to conduct a comprehensive evaluation of older adult clients. (Lec. 1) Pre: concurrent or prior completion of 503 and permission of instructor.

510 Nursing Leadership in the Health Policy Process (3)

Study of nurses' participation in the health policy process. Focus on theories for the development of nursing leaders. Analysis and application of creative nursing strategies for the enhancement of health care. (Seminar) Pre: enrollment in the M.S. program in nursing.

511 Advanced Mental Health Nursing I (3)

Investigation of theories of healthy and psychopathological patterns of individual behavior from a

mental health perspective. (Seminar) Pre: 500 and credit or concurrent enrollment in 512.

512 Practicum in Advanced Mental Health Nursing I (3)

Field experience to develop competence in the practice of advanced mental health nursing. Emphasis on application of relevant theories in solving individuals' mental health problems. (Practicum) Pre: 500 and concurrent enrollment in 511.

515 Practicum in Advanced Psychiatric Mental Health Nursing (3)

Field experience to further develop clinical competence in the practice of mental health nursing. Emphasis is placed on the utilization of intervention strategies based on knowledge of psychiatric illness. (Practicum) Pre: 511, 512.

516 Advanced Mental Health Nursing II (3)

Theoretical analysis of current modes of advanced mental health intervention in order to explain strategies for solution of family, group, and community problems. (Seminar) Pre: 511, 512, and concurrent enrollment in 514.

517 Practicum in Advanced Psychiatric Mental Health Nursing III (3)

Field experience to develop clinical competence in the practice of advanced mental health nursing in providing client care, consultation, education, and research. (Practicum) Pre: 515.

519 Psychopharmacotherapeutics for Advanced Practice Nursing (3)

Integration of psychopharmacotherapeutics and decision making with human pathophysiology utilizing case management approach to prescription of medications. Discussion of legal, ethical, and professional issues related to advanced practice role. (Seminar) Pre: graduate standing in nursing or permission of instructor.

520 Graduate Study Seminar (1)

A seminar designed to facilitate the synthesis and examination of information learned in the master's program about nursing knowledge development, advancement of nursing practice, and leadership role development. (Seminar) Pre: completion of 30 graduate program credits and concurrent enrollment in the final sequence of concentration courses. S/U credit.

523 (or THN 523) Contemporary Thanatology (3)

Interdisciplinary approach to trends, problems, theories, and strategies in thanatology. Explores effects of professional's personal beliefs and attitudes on care provided to dying clients across the life span and their families. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

524 (or THN 524) Exploring Loss Through Creative Arts Therapy (3)

Exploration and assessment of the merits of incorporating creative arts processes (imagery, story, metaphor, music, and movement) with individuals who are experiencing loss, grief, and dying. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

525 (or THN 525) Spirituality of Loss and Death for the Helping Professions (3)

Examination of major belief systems and spirituality during loss, death, and grief. Emphasis on spiritual issues and ethnicity, culture, gender, and developmental stage. Role of professional dealing with spiritual concerns. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

526 (or THN 526) Loss Across the Life Span (3)

Content provides a basis both for personal development and professional growth. Personal experience, selected readings, and personal reflections will provide direction for examining the multidimensional aspects of loss. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

527 Symptom Management in End-of-Life Care (3)

Principles of nursing care at the end-of-life. Strategies for assessing and managing symptoms along with complementary therapies across age groups. (Lec. 3) Pre: senior standing in nursing or registered nurse (others by permission of instructor).

529 (or THN 529) Special Topics in Nursing (1-3)

Selected areas of study pertinent to loss, dying, and grief. Instruction may be offered in class seminar or clinical settings according to specific needs and purposes. May be repeated for credit with a change in topic. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

531 Primary Health Care Nursing I (3)

Theoretical knowledge and skills for the development of nursing strategies in analyzing, managing, and preventing health-related problems common to primary health care clients. (Seminar) Pre: 500, 503, and 504.

532 Practicum in Primary Health Care Nursing I (3)

Clinical application of theoretical knowledge and skills as presented in 531. Service learning. (Practicum) Pre: concurrent enrollment in 531.

533 Primary Health Care Nursing II (3)

Theoretical study for the development of increased nursing competency in primary care practice. Emphasis on health care strategies to assist individuals and families in coping with health-related problems. (Seminar) Pre: 531, 532, and concurrent enrollment in 534.

534 Practicum in Primary Health Care Nursing II (6)

Application of theoretical knowledge and skills for the development of nursing strategies for health promotion and management of health-related problems common to families. (Practicum) Service learning. Pre: 531, 532, and concurrent enrollment in 533.

535 (or PHT 535) Advanced Pathophysiology (3)

An in-depth study of pathophysiological phenomena across the life span from the biological life processes perspective. Clinical decision making based on the synthesis of this knowledge and current research findings will be explored. (Lec. 3) Pre for nursing students: admission to graduate program in nursing or permission of instructor; PHT 500 and 1st year standing in the D.P.T. program for physical therapy students.

538 Learning Theories and Strategies for Health Professionals (3)

The study of selected learning theories and strategies and their application in health professions. Emphasis will be on expanding the scope of teaching as professionals. (Lec. 3) Pre: 500 or permission of instructor.

539 Application of Learning Theories in Professional Practice (3)

Field project in the application of learning theories and strategies in professional practice. Emphasis on gaining knowledge of the application of strategies and outcome evaluation in practice and educational settings. (Practicum) Pre: credit or concurrent enrollment in 538 or permission of instructor.

541 Advanced Study of Teaching in Nursing Education and Practice (3)

Advanced study of educational theories and strategies having application in nursing education and practice. Emphasis will be on role development, instructional design, methods, and evaluation. (Lec. 3) Pre: 507, 539, or permission of instructor. In alternate years. Next offered 2009–10.

542 Practicum in Nursing Education and Practice (6)

A field experience designed to develop competence in teaching. Emphasis is placed on the instructional design component and the utilization of strategies based on theoretical knowledge. (Practicum) Pre: permission of instructor or credit or concurrent enrollment in 541. In alternate years. Next offered 2009–10.

549 Evidence-Based Strategies in Health Care Program Evaluation (3)

Analysis and application of evidenced-based methods, translation of research into practice, and evaluation of practice to improve health care outcomes. (Lec. 3)

550 Theoretical Study of the Clinical Nurse Leader Role (3)

In-depth study of concepts of leadership central to hospital-based, unit level practice of the CNL: advanced organizational communication, horizontal leadership, lateral integration of care, role analysis and implementation. (Seminar) Pre: 505, 507, 510 or permission of instructor.

551 Theoretical Study of Nursing Administration/Leadership (3)

Study of concepts, theories and strategies underpinning planning, decision-making and quality improvement activities in health care administration/leadership. Emphasis on theories, concepts, and issues that explain and advance strategies in nursing administration. (Seminar) Pre: 505, 507, two restricted electives, or permission of instructor. In alternate years. Next offered 2009–10.

552 Practicum in Nursing Administration (6)

Field experience in nursing administration. Emphasis on role development and the examination, development, and implementation of strategies in nursing administration. (Practicum) Pre: credit or concurrent enrollment in 551. In alternate years. Next offered 2009–10.

555 Advanced Gerontological Nursing I (3)

Study of the theories of aging, age-related changes, and health needs of healthy older adults and those with minimal functional limitations using problem-strategy-theory approaches to nursing knowledge. (Seminar) Pre: 500 or permission of instructor. In alternate years. Next offered 2009–10.

556 Practicum in Advanced Gerontological Nursing I (3)

Study of major problems and issues in advanced gerontological nursing through provision of nursing care to healthy older adults and those with minimal functional limitations. (Practicum) Pre: credit or concurrent enrollment in 555. In alternate years. Next offered 2009–10.

557 Advanced Gerontological Nursing II (3)

Analysis of theoretical and empirical knowledge necessary for care of frail older adults and those with complex health problems and functional limitations within acute and long-term care settings. (Seminar) Pre: 505, 507, 556. In alternate years. Next offered 2010–11.

558 Practicum in Advanced Gerontological Nursing II (6)

Development, evaluation, and revision of theory-based strategies for selected nursing problems through provision of nursing care to older adults with multiple chronic and acute illnesses and functional limitations. (Practicum) Pre: previous or concurrent enrollment in 557. In alternate years. Next offered 2010–11

560 Ethical Theories, Nursing Practice, and Health Care (3)

Analysis of philosophical positions, ethical theories, and moral principles important to professional nurses in their clinical, educative, and administrative practice. (Seminar) Pre: B.S. or B.A. in a health-related field, one course in philosophy and ethics, or permission of instructor.

561 Gerontological Nurse Practitioner I (3)

Theories of aging, age-related changes, and health problems of older adults focusing on assessment, diagnosis, therapeutic and preventive strategies with healthy older adults and those with minimal functional limitations. (Lec. 3) Pre: 500, 508, and permission of instructor.

562 Gerontological Nurse Practitioner I Practicum (3)

Application of theoretical knowledge and skills for development of gerontological nurse practitioner strategies emphasizing health promotion and illness management of healthy older adults, those with minimal functional limitations, and families. (Practicum). Pre: credit or concurrent enrollment in 561 or permission of instructor.

563 Gerontological Nurse Practitioner II (3)

Theoretical knowledge and skills for development of strategies for care of older adults with complex health problems and functional limitations, at the individual, family, group, organization, and community level. (Lec. 3) Pre: 562.

564 Gerontological Nurse Practitioner II Practicum (6)

Development of gerontological nurse practitioner competency in care of older adults with complex health problems and functional limitations focusing on strategies at the individual, family, group, organization, and community level. (Practicum) Pre: previous or concurrent enrollment in 563.

571 Theoretical Study of Well Women's Health Care (3)

A study of major theories, client issues, and nurse-midwifery strategies used in the care of well women seeking gynecological health care. (Seminar) Pre: 500.

572 Practicum: Theoretical Study of Well Women's Health Care (3)

Clinical application of the theoretical knowledge and interventions in the care of well women in ambulatory health care settings. (Practicum) Pre: credit or concurrent enrollment in 571.

573 Theoretical Study of the Childbearing Woman and Her Family (3)

Within a systems perspective, theories are utilized to examine client issues related to the normal childbirth experience. Knowledge and skills relevant to nurse-

midwifery strategies of normal childbirth are emphasized. (Seminar) Pre: credit or concurrent enrollment in 571, 572; concurrent enrollment in 574.

574 Practicum: Theoretical Study of the Child-bearing Woman and Her Family (3)

Theoretical application of nurse-midwifery strategies during the normal childbirth experience. Knowledge and skills relevant to patient care are emphasized. (Practicum) Pre: concurrent enrollment in 573.

575 Advanced Practice: Collaborative Nurse-Midwifery (3)

Within a systems perspective, theories are utilized to examine client issues of the at-risk childbirth experience. Expanded nurse-midwifery strategies related to collaborative practice within the community are emphasized. (Seminar) Pre: concurrent enrollment in 576.

576 Advanced Practice: Collaborative Nurse-Midwifery Practicum (6)

Field study of the clinical application of theoretical knowledge and skills in the at-risk childbirth experience. Use of collaborative practice and the management process within communities is emphasized. (Practicum) Pre: concurrent enrollment in 575.

577 Practice and Integration of Nurse-Midwifery (5)

Comprehensive and practical application of clinical skills and theoretical knowledge in nurse-midwifery. Complete integration of the nurse-midwifery role with the client, family, and community. (Practicum) Pre: 575 and 576.

582 Pharmacotherapeutics in Advanced Practice Nursing (3)

Integration of pharmacotherapeutic and decision-making theories with human pathophysiology. Case management approach to the prescription of medications in primary health care across the life span. (Lec. 3) Pre: matriculation into master's program in nursing or permission of instructor.

584 Psychopharmacotherapeutics for Child-/Adolescent APRNs (3)

Integration of psychopharmacotherapeutics and decision-making theories with human pathophysiology utilizing case management approach to prescription of medications. Discussion of ethical, legal, professional issues related to APRN role. (Lec. 3) Pre: graduate standing or permission of instructor.

585 Advanced Child/Adolescent Psychiatric Mental Health Nursing I (3)

Theoretical knowledge and skills for assessing, preventing, and diagnosing common clinical problems emergent in the practice of child and adolescent advanced psychiatric mental health nursing. (Lec. 3) Pre: 500 and 584; 586 must be taken concurrently.

586 Practicum in Advanced Child/Adolescent Psychiatric Mental Health Nursing I (3)

Clinical practicum to develop competence in the assessment and diagnosis of children and adolescents with psychiatric mental health problems. (Lab. 9) 585 must be taken concurrently.

587 Advanced Child/Adolescent Psychiatric Mental Health Nursing II (3)

Analysis and evaluation of theories and concepts that serve as the basis for psychiatric mental health nursing strategies for children and adolescents who present with complex psychiatric mental health problems. (Lec. 3) Pre: 586; 588 must be taken concurrently.

588 Practicum in Advanced Child/Adolescent Psychiatric Mental Health Nursing II (3)

A clinical practicum to develop competence in the treatment of children and adolescents with complex psychiatric mental health problems. (Lab. 9) 587 must be taken concurrently.

590 Directed Study and Practice in Advanced Clinical Nursing (3)

In-depth and supervised clinical practice in a specialized area of nursing. (Independent Study) Service learning. Pre: graduate standing and permission of graduate faculty.

601 Foundations of Nursing Science (3)

Analysis of the nature of nursing knowledge from the historical and epistemological perspectives. Focus on examination of theoretical, ethical, and methodological foundations of the development of nursing science and nursing practice. (Seminar) Pre: enrollment in Ph.D. or D.N.P. program in nursing.

602 Construction of Nursing Theory I: Inductive Process (4)

Study of inductive approaches to generating theory relevant to nursing science. Examination of multidisciplinary strategies for generation of theory from field data. (Seminar) Pre: enrollment in the Ph.D. program in nursing, 601, or permission of instructor.

603 Construction of Nursing Theory II: Deductive Process (3)

Study of deductive theory-building as applied to nursing science. Focus on the nature of deductive theories and the application of deductive process to nursing theory construction. (Seminar) Pre: enrollment in the Ph.D. program in nursing, 601, or permission of instructor.

621 Nursing Theory and Research in the Client Domain (3)

In-depth, comparative analysis of existing nursing theories and research relevant to the client domain. Development of a research proposal for validation of a selected nursing theory. (Seminar) Pre: doctoral standing in nursing and completion of core courses in nursing.

631 Nursing Theory and Research in the Client-Nurse Domain (3)

Study of theoretical and research work in the client-nurse domain. Formulation and testing of hypotheses dealing with client-nurse phenomena. (Seminar) Pre: doctoral standing in nursing and completion of core courses in nursing.

641 Nursing Theory and Research in the Practice Domain (3)

In-depth analysis of theoretical and research work in the nursing domain of practice. The expansion and refinement of knowledge for nurse-system phenomena of the practice domain. (Seminar) Pre: doctoral standing in nursing and completion of core courses in nursing.

651 Advanced Methods in Nursing Research I (3)

In-depth study of approaches used in qualitative research including philosophical underpinnings and research design, and their potential application to knowledge development in nursing practice. (Seminar) Pre: enrollment in Ph.D. or D.N.P. program in nursing, advanced statistics course, or permission of instructor.

652 Advanced Methods in Nursing Research II (3)

In-depth study of application of theories and methods in sampling, research design, data collection, and data analysis for quantitative and evaluative research in nursing. (Seminar) Pre: enrollment in Ph.D. or D.N.P. program in nursing, 651, or permission of instructor.

653 Measurement and Instrument Development in Nursing Research (3)

In-depth study of theories and methods relevant to measurement and instrument development for nursing and health sciences. Emphasis on measurement as an ongoing process of successive approximation, refinement, and validation. (Seminar) Pre: completion of 652 or permission of instructor.

660 Philosophical Foundations for Health Care Research (3)

Presentation of the historical and philosophical basis of contemporary health care research. (Seminar) Pre: enrollment in Ph.D. or D.N.P. program in nursing, or permission of instructor.

671 Role Development in Nursing Research (3)

In-depth examination of the role of the nurse researcher as a member of a multidisciplinary team and in academia. Emphasis on theories and issues related to researcher role development. (Seminar) Pre: doctoral standing in nursing, 601, 602 or 603, and 660.

680 Informatics in Health Care Settings (3)

Theory and application of nursing science, computer science and information science for decision making, practice management and communication in health care settings. (Lec. 3) Pre: D.N.P. enrollment or permission of instructor.

686 Doctor of Nursing Practice Role Development (1–6)

Implement the role of the doctorally prepared advanced practice nurse in selected clinical settings. Practicum experiences will be related to research, informatics, leadership, evidence-based practice, and health care policy. Pre: Enrollment in D.N.P. program and concurrent enrollment in NUR 651, NUR 680, NUR 652, NUR 549, HDF 527 or NUR 688, or permission of instructor. May be repeated with a different focus for a maximum of 6 credits.

688 D.N.P. Capstone Practicum and Project (7)

A synthesis of prior practicums in the student's area of interest, applying theoretical knowledge and research findings at the individual, professional, organizational, and societal levels culminating in a final written and defendable capstone project. Pre: MBA 540, HDF 527, and 5 credits of NUR 686; concurrent enrollment in NUR 686.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

995 Reading and Research in Nursing (1–6)

Advanced work by individual student on a selected issue in nursing under the direction of a faculty member. (Independent Study) Pre: graduate standing. S/U credit.

Nutrition and Food Sciences (NFS)

Chairperson: Professor English

110 Introduction to Nutrition and Dietetics (1)

Description of the educational and experiential requirements of a registered dietitian and a nutritionist. Career opportunities discussed. Designed for students entering the nutrition and dietetics major. (Lec. 1)

207 General Nutrition (3)

Fundamental concepts of the science of nutrition with application to the individual, community, and world. Proficiency test available. (Lec. 3) (N)

227 Scientific Principles of Food I (3)

Chemical, physical, sensory, and nutritional properties of food related to processes used in food preparation. Emphasis on water, carbohydrates, lipids, and the sensory evaluation of food. (Lec. 2, Lab. 3) Pre: 207, CHM 124.

236 Computer Applications in Nutrition and Food Science (1)

Basic computer operation and the use and comparison of microcomputer software programs in food science and nutrition. (Lab. 2) Pre: 207.

276 Food, Nutrition, and People (3)

Practical applications of nutrition policy. Current issues in the socioeconomic, cultural, and psychological influences on food and nutrition behavior. (Lec. 3) Pre: 207.

337 Scientific Principles of Food II (3)

Chemical, physical, sensory, and nutritional properties of food related to processes used in food preparation. Emphasis on proteins, scientific principles of baked goods, and research applications. (Lec. 2, Lab. 3) Pre: 227.

360 Nutrition in Exercise and Sport (3)

Relationships among diet, physical activity, health, and performance. Metabolism and requirements of nutrients in physically active individuals. Applications to energy balance, body composition, various population groups, fitness levels, and conditions. (Lec. 3) Pre: 207, KIN 275 and/or BIO 242.

375 Food-Service Management I (3)

Administrative responsibilities in planning, organizing, staffing, leading, and evaluating food-service systems. Emphasis on menu planning, purchasing, and food cost control. (Lec. 3) Pre: 207, 227 or permission of instructor.

376 Food-Service Management II (4)

Administrative responsibilities in planning, organizing, staffing, leading, and evaluating food-service systems. Emphasis on food production and labor cost control. Experience in a food-service facility. (Lec. 3, Lab. 2) Pre: 375.

394 Nutrition in the Life Cycle I (3)

Current issues in maternal, child, and adolescent nutrition with emphasis on nutrient requirements and food habit development; delivery of cost-effective nutrition services and the application of the principles of menu planning. (Lec. 3) Pre: 276. Service learning.

395 Nutrition in the Life Cycle II (3)

Current issues in nutrition for the adult and older adult with emphasis on nutrient requirements related to physiological changes; screening initiatives; program development to reduce risk of nutrition-related diseases. (Lec.3) Pre: 276, 394. Service learning.

410 Professional Issues in Nutrition and Dietetics (1)

Professional issues in the field of nutrition and dietetics. Topics include career choices; evaluation of journal articles; and registration, licensing, and certification. (Lec. 1) Pre: 395 and senior standing. Not for graduate credit.

431 Chemistry of Food and Nutraceuticals (3)

Chemical and functional properties of major food components, changes in nutritional properties during processing and storage, and nutraceuticals and functional foods. (Lec. 3) Pre: CHM 124 and 227 or permission of instructor.

434 (or AFS 434) Aquatic Food Quality and Processing (4)

Physicochemical and nutritional characteristics of aquatic fish and shellfish; quality assessment and control; principles and applications in handling and processing fish from harvesting to production; and discussion of current issues. (Lec. 3, Lab. 3) Pre: 342 or permission of instructor.

440 Macronutrient Metabolism (3)

Chemistry and metabolism of carbohydrate, protein, and fat. Advanced study of the impact of macronutrients on human metabolism, health, and disease. Pre: 207, BIO 242, BCH 311, or permission of instructor.

441 Advanced Human Nutrition (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, BIO 242, BCH 311, or permission of instructor.

443 Nutrition Assessment (3)

Evaluation of nutritional status by dietary assessment, anthropometric measures, and nutrition-related health indicators. Practice in body composition assessment, interpreting dietary and laboratory data, and nutrition counseling. (Lec. 2, Lab. 2) Pre: 207, 394, 395 or permission of instructor.

444 Nutrition and Disease (3)

Effects of disease on metabolism and nutritional requirements; implications for dietary change, and factors affecting acceptance of such change. (Lec. 3) Pre: 441, 443 or enrollment in Pharm.D. program.

451, 452 Field Experience in Nutrition and Food Science (1–3 each)

Individual supervised field experience and seminar in community, educational, government, health--oriented, and commercial activities and services related to food science and nutrition. (Practicum) Pre: 394, 395 or permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit in food science and nutrition.

458 Nutrition Education (3)

Principles and practices of teaching individuals and groups to translate nutrition knowledge into action. Emphasis on research in and evaluation of nutrition education. (Lec. 3) Pre: 395, 441, or permission of instructor.

491, 492 Special Projects (1–3 each)

Advanced work under supervision of a staff member. Arranged to suit individual requirements of student. (Independent Study) Pre: senior standing and permission of chairperson.

502 Physical Chemistry and Properties of Food (3)

Principles of physical chemistry and properties of food material. Analysis of changes in physical prop-

erties and interaction of food components during physical processing. Application of underlying principles in food formulation and processing. (Lec. 2, Lab. 2) Pre: 431 or permission of instructor.

504 (or AVS 504) Food Systems, Sustainability and Health (3)

Scientific analysis of animal and human health and nutrition in various food systems. Interdisciplinary discussion on food systems and sustainability. (Lec. 3) Pre: graduate student in good standing or permission of instructor.

505 Methods in Nutrition Research (3)

Theory and laboratory experience in research methodology related to nutrition. Critical review of articles, completion of laboratory projects, and preparation of a research proposal. (Lec. 2, Lab. 2) Pre: 444 and STA 308 or permission of instructor.

506 Nutrition in the Community (3)

Exploration of the role of the nutrition professional in community needs assessment, intervention development and evaluation, and in forming domestic nutrition policy. (Lec. 3) Pre: graduate standing or permission of instructor.

507 Applied Nutrition I (1)

Selected topics in applied nutrition with an emphasis on medical nutrition therapy. (Lec. 1) Pre: 444 or permission of instructor.

508 Applied Nutrition II (1)

Selected topics in applied nutrition with an emphasis on community nutrition and food service management. (Lec. 1) Pre: 506 or permission of instructor.

511 Seminar in Nutrition and Food Science I (1)

Reports and discussions of current topics in food science and nutrition, as well as oral reports of theses and dissertation research topics in progress. (Seminar) Pre: graduate standing or permission of chairperson.

512 Seminar in Nutrition and Food Science II (1)

Critical review of oral presentations given in 511. Provides student with experience in communicative skills necessary to evaluate and critique scientific presentations. Attendance is required of all graduate students in residence when not enrolled in 511. (Seminar) Pre: graduate standing. S/U credit.

528 Lipoprotein Metabolism in Health and Disease (3)

Chemistry and metabolism of sterols and lipoproteins in health and disease including heart disease and inborn errors of metabolism; dietary and drug treatments on cholesterol and lipoprotein metabolism. (Lec. 3) Pre: graduate standing in Nutrition and Food Science, or permission of instructor.

551 Macronutrients in Human Nutrition (3)

Digestion, absorption, and metabolic role of macronutrients and their interrelationships. Influence of environmental and physiological factors on nutrient

use and energy balance. Critical review of the literature. (Lec. 3) Pre: 441, BIO 242, and BCH 311, or permission of instructor.

552 Micronutrients in Human Nutrition (3)

Absorption, metabolism, and role of micronutrients and their interrelationships. Critical review of the literature and implications for public policy. (Lec. 3) Pre: 441, BIO 242, and BCH 311, or permission of instructor.

580 Experiential Learning in Nutrition and Food Sciences (1–6)

Supervised learning in a nutrition-related setting. (Practicum 1–6) Pre: acceptance into the M.S. nutrition program.

581 Internship in General Medical Nutrition Therapy (1–3)

Supervised practice in medical nutrition therapy in a hospital setting. (Practicum) Pre: acceptance into the dietetic internship option.

582 Internship in Advanced Medical Nutrition Therapy (1–3)

Supervised advanced practice in medical nutrition therapy in a hospital setting. (Practicum) Pre: acceptance into the dietetic internship option.

583 Internship in Food Service Management (1–3)

Supervised practice in food service management in a hospital setting. (Practicum) Pre: acceptance into the dietetic internship option.

584 Internship in Community Nutrition (1–3)

Supervised practice in community nutrition in a variety of community settings. (Practicum) Pre: acceptance into the dietetic internship option.

585 Internship in Specialty Dietetic Practice (1–3)

Supervised practice in specialty areas of dietetic practice in a variety of settings. (Practicum) Pre: acceptance into the dietetic internship option.

591, 592 Research Problems (1–4 each)

Advanced work under supervision of a staff member. Arranged to suit individual requirements of students. (Independent Study) Pre: permission of chairperson.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

691, 692 Research in Nutrition and Food Sciences (1–3 each)

Assigned research on an advanced level. Students are required to outline the problem, conduct the necessary literature survey and experimental work, and present their observations and conclusions in a report. (Independent Study)

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Ocean Engineering (OCE)

Chairperson: Professor Miller

101 Introduction to Ocean Engineering (1)

Overview of ocean engineering topics pointing out the common areas with other engineering branches but emphasizing specific ocean applications. (Seminar) S/U only.

205 Ocean Engineering Design Tools (4)

An introduction to design and analysis tools for ocean engineering including computer-aided design (CAD) in two- and three-dimensions, circuit layout and analysis, hydrodynamic modeling, mathematical computation, visualization, and algorithm development. (Lec. 3) Pre: EGR 106 and concurrent enrollment in OCE 215 or permission of instructor

206 Ocean Instrumentation (3)

Introductory course in ocean instrumentation covering theory, design, and implementation of basic circuits through electronic subsystems used in robotic ocean instruments and autonomous underwater vehicles (AUVs). (Lec. 3) Pre: 205 and concurrent enrollment in 216 or permission of instructor

215 Ocean Engineering Design I (1)

Introduction to the design of systems in ocean engineering featuring team-based, hands-on projects. Integrated approach includes socioeconomic, environmental, operational, and professional development aspects. (Lec. 1, Lab. 1) Pre: concurrent enrollment in 205.

216 Ocean Engineering Design II (1)

Continuation of 215 with increased project complexity and team independence. (Lec. 1, Lab. 1) Pre: 215 and concurrent enrollment in 206.

301 Fundamentals of Ocean Mechanics (4)

Mathematical methods for the analysis of ocean phenomena; Fourier analysis; partial differential equations for modeling water wave and underwater acoustics; vector calculus in wave mechanics; fundamental probability theory and applied statistics. (Lec. 3) Pre: MTH 244 and OCE 205 or permission of instructor.

310 Basic Ocean Measurement (3)

Basic ocean measurement and instrumentation exercises using boats and laboratories. Includes cruise design, navigation and mapping systems, sonar systems, water quality sensors, wave spectra, computer data acquisition, and signal processing. (Lec. 1, Lab. 2) Pre: 206 or permission of instructor.

311 Coastal Measurements and Applications (4)

Exercises in basic coastal measurement from vessels, in situ, and in the laboratory. Experiments in measuring currents, surface elevation, wave and wave forces, geotechnical properties and applications, and acoustic propagation. (Lec. 2, Lab. 4) Pre: 310 or permission of instructor.

360 Robotic Ocean Instrumentation Design (3)

Design of robotic ocean instrumentation systems featuring team-based, hands-on projects. Includes power, sensor, communication, propulsion, and control system design for remotely operated and autonomous ocean instruments and underwater vehicles. (Lec. 2, Lab. 3) Pre: 216 or permission of instructor.

408 (307) Introduction to Engineering Wave Mechanics & Littoral Processes (4)

Sediment transport and beach dynamics. Coastal protection methods. Coastal engineering problem solving with Matlab. Linear wave theory and applications. (Lec. 4) Pre: MCE 354 and OCE 301, or permission of instructor of coastal area.

416 Ocean Engineering Professional Practice (2)

Introduction to professional practice in ocean engineering, including contemporary issues in the field, career planning and placement, lifelong learning strategies, professional licensure process, publication and presentation, and project management. (Lec. 2)

421 Marine Structure Design (3)

Review of wave mechanics; design breaker; probability and random variables; probabilistic wave elevation height models; short-term and long-term wave statistics; probability distribution models for extreme events; selection of design waves and water levels; wave run-up and overtopping; design of rubble mound structures; design of vertical breakwaters/seawalls; wave forces on vertical piles. (Lec. 3) Pre: 408 or permission of instructor.

422 (or CVE 422) Offshore Structure Design (3)

Introduction to offshore structures, structural modeling, structural dynamic analysis, structural design for storms, structural design against fatigue failure. (Lec. 3) Pre: 421. Not for graduate credit.

425 Coastal Experiments (4)

Basic coastal measurement techniques for coastal management. Experimental (field and laboratory) measurements of physical and geological parameters. Major student-designed, operated, and reported experiment addressing a practical problem. (Lec. 2, Lab. 4) Not for credit in ocean engineering. Pre: MTH 107 or 108 or equivalent.

471 Underwater Acoustics (3)

Vibrations, the acoustic wave equation, duct acoustics, and sound pressure levels and spectra. Underwater acoustics including transducers, arrays, surface and bottom scattering, and ray propagation. (Lec. 3) Pre: 301. Not for graduate credit.

472 Sonar Systems Design (3)

Fundamentals of design of sonar systems. Effects of sound propagation in deep and shallow oceans, noise, scattering on system performance. Array, transducer, and signal design. Passive and active sonar applications. (Lec. 3) Pre: 471.

483 Foundation Engineering

See Civil and Environmental Engineering 483.

491, 492 Special Problems I, II (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. Not for graduate credit.

495 Ocean Systems Design Project I (3)

Capstone design of an ocean system under the direction of a faculty advisor. Project must include engineering, economic, environmental, safety, and societal considerations. This is first of a two-course ocean engineering design sequence. Pre: senior standing and OCE 307 and 471. Not for graduate credit.

496 Ocean Systems Design Project II (3)

Capstone design of an ocean system under the direction of a faculty advisor. Project must include engineering, economic, environmental, safety, and societal considerations. This is second of a two-course ocean engineering design sequence. Pre: 495. Not for graduate credit.

506 Numerical Models and Data Analysis in Ocean Sciences

See Oceanography 506.

510 Engineering Ocean Mechanics (3)

Fundamental equations of estuarine and coastal hydrodynamics. Scaling of governing equations. Long period waves including seiches, tides, storm surges, and tsunamis. Wind- and estuarine-induced circulation. Pollutant and sediment transport. (Lec. 3) Pre: MCE 354 or equivalent.

514 Engineering Wave Mechanics and Nearshore Processes (3)

Linear water wave boundary value problem. Engineering wave properties. Nonlinear waves (long waves, Stokes waves, stream function waves). Nearshore hydrodynamics and wave breaking. Fully nonlinear transient waves. (Lec. 3) Pre: MCE 455 or equivalent.

515 Marine and Vehicle Hydrodynamics (3)

Hydrodynamics of fixed and floating ocean structures (vehicles). Viscous, inviscid, and ideal fluid flows; and linear water waves involving bodies in unbounded fluid, floating bodies (in still water and in waves); ship waves; lifting surfaces. (Lec. 3) Pre: MCE 354 or equivalent or OCE 510 or 514; 307, 514 or equivalent.

522 Dynamics of Waves and Structures (3)

Deterministic analysis for SADOE structures; MDOF dynamic analysis; distributed-parameter systems; linear and second-order Stokes wave theories; wave forces on cylinders; chaotic vibration of marine structures. (Lec. 3) Pre: MCE 464 or permission of instructor.

534 Corrosion and Corrosion Control

See Chemical Engineering 534.

535 Advanced Course in Corrosion

See Chemical Engineering 535.

550 (or ELE 550) Ocean Systems Engineering (3)

Introduction to the design of systems for use in the ocean environment with emphasis on interaction of various subsystem disciplines to achieve total system performance characteristics. Introduction to detection, localization, classification, and time measurement strategies including global positioning system, underwater acoustics positioning and control, wireless acoustic and electromagnetic communication, and remote time transfer. Examples will include mobile, fixed, autonomous, distributed, and networked sensors. Pre: MTH 451 or equivalent.

560 Introduction to Data Collection Systems (3)

Practical problems of data collection. Probes and sensors, interfaces, signal conditioning, and storage. Examples found among the current research areas within ocean engineering will be emphasized. (Lec. 3) Pre: graduate standing in engineering or permission of instructor. In alternate years. Next offered fall 2009.

561 Introduction to the Analysis of Oceanographic Data (3)

Design of oceanic experiments to determine spatial and temporal sampling rate, precision, accuracy, signal-to-noise ratio, etc. Description of typical ocean data collection and analysis systems. Development of relevant techniques. (Lec. 3) Pre: ISE 411, MTH 451, or equivalent.

565 Ocean Laboratory I (3)

Measurements, experiments, operation of apparatus in the ocean and in the laboratory. Statistical theory, planning multivariable experiments, checking of data, etc. (Lec. 1, Lab. 6) Pre: graduate standing in engineering or oceanography, or permission of instructor.

571 (or ELE 571) Underwater Acoustics I (3)

Introduction to sound generation, transmission, and reception, including vibration of mechanical systems, acoustic waves in fluids, acoustic transducers and arrays, acoustic propagation in the ocean, and sonar systems. (Lec. 3)

572 Underwater Acoustic Transducers (3)

Theory, design, and calibration of electroacoustical transducers, including dynamical analogies and equivalent circuits, piezoelectric and magnetostrictive materials, transmitting and receiving responses, reciprocity and acoustic measurements. (Lec. 3) Pre: 471 or equivalent.

575 Marine Bioacoustics (3)

Introduction to marine mammal hearing, sound production, and the uses of sound for communication and echolocation; dolphin sonars; analysis and processing of marine mammal signals including passive tracking; the effects of noise on marine mammals. (Lec. 3) Pre: 471 or permission of instructor.

581 Experimental Geomechanics

See Civil and Environmental Engineering 581.

582 (or CVE 582) Seabed Geotechnics (3)

Geotechnical engineering principles as applied to submarine slope stability, bearing capacity, anchoring; emphasis on effective stress principle, compressibility, and shear strength of marine sediments. (Lec. 3) Pre: CVE 381 or equivalent or OCE 311, or permission of instructor.

583 Advanced Foundation Engineering

See Civil and Environmental Engineering 583.

591, 592 Special Problems (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

599 Master's Thesis Research (1–9)

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

605, 606 Ocean Engineering Seminar (1 each)

Seminar discussions including presentation of papers based on research or literature survey. (Seminar) Required of all resident graduate students. May be repeated for a maximum of 2 nonprogram credits. S/U credit.

661 Analysis of Oceanographic Data Systems (3)

Design of systems for deep-ocean and estuarine data collection and processing. Space-time sampling, multivariate analysis, and convergence of moments as applied to ocean data estimation and system design. Current topics in ocean data systems. (Lec. 3) Pre: 560 or ELE 506 or equivalent.

672 (or ELE 672) Underwater Acoustics II (3)

Sound transmission in ocean, transducers, active signal design for range and Doppler resolution, ambient and platform noise, classical and wave vector-frequency methods of beamforming, adaptive beamforming, characteristics of targets, and active/passive sonar systems. (Lec. 3) Pre: 571.

673 Advanced Course in Underwater Acoustic Propagation (3)

Analysis of propagation from a concentrated acoustic source in the ocean by methods such as advanced normal mode theory, numerical integration, and Fast Fourier Transforms. Applications to ocean features such as surface ducts, shadow zones, deep-sound channel, etc. (Lec. 3) Pre: 571 or equivalent.

676 Acoustic Radiation from Underwater Vibrators (3)

Fundamentals of acoustic radiation from submerged structures. Radiation from planar, cylindrical, and spherical surfaces. In-vacuo and in-fluid vibration of elastic bodies. Acoustic coincidence and fluid-loading

effects on radiation from elastic bodies. (Lec. 3) Pre: 571 or permission of instructor.

677 Statistical Sonar Signal Processing

See Electrical Engineering 677.

688 (or CVE 688) Marine Geomechanics (3)

Integrated study of marine geotechnics and marine geology. Topics include sedimentary processes, acoustic characteristics, slope stability, consolidation and stress history, engineering properties, and other subjects related to seabed utilization. (Lec. 3) Pre: CVE 381 or permission of instructor.

691, 692 Special Problems (1–6 each)

Advanced work under supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Oceanography (OCG)

Dean: Professor Farmer

110 (or GEO 110) The Ocean Planet (3)

Introduces the origin and structure of the solar system; interaction of earth's solid interior, oceans' atmosphere and biosphere with emphasis on earth science; energy resources and present environment on earth. (Lec. 3) (N)

123 Oceans, Atmospheres, and Global Change (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, Lab. 3) (N)

131 Volcanoes and the Environment (3)

General introduction to volcanic eruptions and their impact on the global environment and on human activity. Basic principles of the generation of magmas and their eruption at the earth's surface. (Lec. 3) (N)

401 General Oceanography (3)

General survey in the major disciplines including geological, physical, chemical, and biological ocean sciences integrated into a conceptual approach to the coastal ocean. (Lec. 3) Pre: at least one laboratory course in a physical or biological science and junior standing or above. Not for graduate credit.

420 Deep-Sea Biology (3)

Overview of the biology and ecology of the deep sea, including organisms and habitats, spatial and temporal patterns, physiology and adaptations, energetics, evolution, and hydrothermal vent ecology. (Lec. 3) Pre: one semester general biology (BIO 100,

101, 102, 103, 104, 130, 141) and one semester general chemistry (CHM 101, 103) required. One semester ecology or oceanography recommended (OCG 123, 401, 451, BIO 455).

451 Oceanographic Science (3)

Oceanography for undergraduate science majors. The approach used is to present and apply basic physical, chemical, geological, and biological principles to the integrated study of the world ocean system. (Lec. 3) Pre: two semesters of MTH 131 and 132 or 141 and 142, one semester of CHM 101 and 102 or 191, one semester of PHY 111 and 185 or 203 and 273 or 213 and 285. A second semester of CHM 112 and 114 or 192 is recommended. Not for graduate credit in oceanography.

480 Introduction to Marine Pollution (3)

An introductory course in marine pollution emphasizing geochemical aspects of the sources, transport, and fate of pollutants in the coastal marine environment. (Lec. 3) Pre: one semester of general chemistry (CHM 101 or 103). One semester of general geosciences (GEO 100 or 103) is recommended. Not for graduate credit.

483, 484 Laboratory and Research Problems in Physics

See Physics 483, 484.

491 Ocean Studies (15)

Full-time intensive work experience with Graduate School of Oceanography research at Narragansett Bay Campus. Student expected to participate in research program, seminars, and other activities of Bay Campus. (Independent Study) Pre: junior standing in natural sciences, natural resources, or engineering, and permission of supervising faculty member. Not for graduate credit in oceanography. S/U only.

493, 494 Special Problems and Independent Study in Oceanography (1–6 each)

Research in oceanography conducted as supervised individual study. (Independent Study) Pre: junior or senior standing in natural science, natural resources, or engineering, and permission of instructor. S/U only.

501 Physical Oceanography (3)

Basic course covering physical properties of seawater, heat budget, distribution of variables, dynamics, water masses and general circulation, waves and tides. (Lec. 3) Pre: PHY 203.

505 Marine Analytical Chemistry (3)

Application of analytical methods to marine problems with emphasis on understanding basic methods and instruments. Combines general principles with practical experience. Students conduct analytical projects in the laboratory. (Lec. 1, Lab. 2).

506 (or OCE 506) Numerical Models and Data Analysis in Ocean Sciences (3)

An introduction to numerical methods in all disciplines of oceanography and ocean engineering. Topics include model formulation, analysis, and simulation; data analysis and parameter estimation. Problem solving with Matlab and C in the weekly computer laboratory. (Lec. 2, Lab. 3)

507 Oceanography for Educators (3)

Survey of ocean science concepts. Investigation of marine issues that affect the environment. Ten hours in the field. Integration of national science education standards and inquiry-based pedagogy. (Lec. 3) Pre: CHM 100 and BIO 113 (or equivalent). A semester of general geology (GEO 100 or 103) and at least one college level math course are recommended.

508 Global Environmental Change Education (3)

Survey of global environmental change issues focusing on environmental systems, related ocean science topics, and local marine and coastal environments. Integration of national science education standards and inquiry-based pedagogy. (Lec. 3) Pre: CHM 100 and BIO 113 (or equivalent). A semester of general geology (GEO 100 or 103) is recommended.

510 Descriptive Physical Oceanography (3)

Observed distributions of temperature, salinity, currents; methods of deducing deep flow; physical properties of seawater; flow in estuaries; practical work in the analysis of oceanographic data; study of recent literature. (Lec. 3) Pre: 501.

517 Foundations of Earth System Dynamics (3)

Introduction to the fundamental principals underlying fluid dynamics as applied to the study of specific problems and processes in earth, marine, and environmental sciences. Basics of numerical modeling are covered. (Lec. 3) Pre: MTH 141 and 142, or equivalent.

521 Chemical Oceanography (3)

Processes regulating the composition of seawater and the distribution of chemical species. The interaction of marine chemistry with the ocean floor, atmosphere, and marine organisms. (Lec. 2, Lab. 2) Pre: CHM 101 and 112 and PHY 213.

523 Organic Geochemistry of Natural Waters (3)

Chemistry of organic matter in natural waters with emphasis on the marine environment. Topics include a consideration of the origin, nature, and biogeochemical reactions of organic matter in aquatic environments. (Lec. 3) Pre: CHM 228 or permission of instructor.

524 Atmospheric Pollution and the Upper Ocean (3)

Gas and aerosol chemistry and physics; land-air-sea transfer of N, S, C, halogen, and metal compounds; effects of air pollution on the marine atmosphere and upper ocean. (Lec. 3) Pre: BCH 435 or CHE 313

or CHM 431 or MCE 341 or PHY 420 or permission of instructor.

531 Synoptic and Dynamic Meteorology (3)

Observed structure of atmosphere; principles of balanced flows, waves, and disturbances. Observations and models of storm formation, semipermanent features, and general circulation. Relationship between weather and climate. (Lec. 3) Pre: PHY 203 or permission of instructor.

533 Graduate Writing in Marine and Environmental Sciences (3)

Graduate writing in marine and environmental sciences; writing and editing journal articles and abstracts; principles and practice in scientific writing. Pre: graduate standing and WRT 104, 105, or 106, or permission of instructor.

535 Climate, Radiation, Gases, and Aerosols (3)

Role of short- and long-wave radiation in climate. Occurrence and consequences of natural and enhanced concentrations of radiatively-active gases. Role of aerosols and associated forcings and feedbacks. (Lec. 3) Pre: PHY 205 or 214, CHM 192 or permission of instructor.

540 Geological Oceanography (3)

Origin and evolution of the ocean basin and its margin: morphology, structure, plate tectonics, volcanism, geochemistry, stratigraphy, sedimentation, and paleoceanography. (Lec. 2, Lab. 2) Pre: GEO 103 or permission of instructor.

545 Volcaniclastic Sedimentation (3)

Generation of volcanic particles by explosive volcanism, the processes by which they are dispersed on land and in the sea, and physical characteristics of their deposits in different volcanic environments. (Lec. 3) Pre: 540 or permission of instructor.

552 Marine Geophysics (3)

Survey of basic subdisciplines of marine geophysics including plate tectonics, gravity, magnetics, heat flow, reflection and refraction seismology. Basic theory and methods of data collection and interpretation emphasized. (Lec. 3) Pre: 540 or permission of instructor.

561 Biological Oceanography (4)

Dynamics of marine ecosystems; patterns of production and distribution of plankton, benthos, and nekton in relationship to their environment. (Lec. 3, Lab. 2) Pre: general ecology.

569 Oceanographic Processes (3)

Broad survey of general oceanography. The approach is to present and apply basic geological, physical, chemical, and biological principles to the integrated study of the world ocean system. (Lec. 3) Pre: permission of instructor.

576 (or MIC 576) Marine Microbial Ecology (4)

Examines role of microbes in the oceans and their impact on oceanographic processes and biogeo-

chemical cycles. Emphasis is on bacteria and their interactions with other marine organisms and the marine environment. Laboratory exercises make use of modern techniques to study metabolic rates and community structure. (Lec. 3, Lab. 3) Pre: permission of instructor.

580 Introduction to Marine Pollution (3)

An introductory course in marine pollution emphasizing geochemical aspects of the sources, transport and fate of pollutants in the coastal marine environment. Review papers or research proposals will be required. (Lec. 3) Pre: one semester of general chemistry (CHM 101 or 103). One semester of general geosciences (GEO 100 or 103) is recommended.

591, 592 Individual Study (1–6)

Individual study of assigned topics or special problems involving literature search and/or original investigation under one or more members of the faculty. (Independent Study)

593, 594 Special Studies (1–4 each)

Studies of specialized topics in the marine sciences. (Independent Study)

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor. (Independent Study) S/U credit.

605 Dynamical Oceanography (3)

Simple steady-state theories applied to ocean motion. Review of well-known force balances in oceanography, wind-driven circulation, thermohaline circulation, the thermocline, oceanic boundary layers, nearshore circulation, diffusion. (Lec. 3) Pre: 501.

610 Geophysical Fluid Dynamics I (3)

Natural world fluid dynamics emphasizing ocean circulation. Classical fluid dynamics; GFD fundamentals (rotation and stratification); Taylor-Proudman theorem; potential vorticity; planetary waves; geostrophic contours; shallow water quasi-geostrophic theory; frictional layers. (Lec. 3) Pre: 605 or permission of instructor.

611 Geophysical Fluid Dynamics II (3)

Continuously stratified quasi-geostrophic theory; classical and modern theories of the wind-driven ocean circulation; stability theory; oceanic convection; wave-mean flow interactions; ageostrophic dynamics; topographical effects. (Lec. 3) Pre: 610 or permission of instructor.

613 Waves (3)

Generation, propagation, and decay of surface waves, internal waves, and Rossby waves in the ocean. (Lec. 3) Pre: MCE 550 or permission of instructor.

614 Tides (2)

Generation, propagation, and dissipation of ocean tides. Earth tides. Relation between theory and observation. Tidal analysis. (Lec. 2) Pre: 501.

620 Chemical Distributions (3)

Interdisciplinary study of the processes responsible for oceanic chemical distributions with emphasis on conservative properties, biologically active constituents, and radionuclides. Includes projects involving data-processing analysis. (Lec. 3) Pre: 501, 521, 540, and 561 or permission of instructor.

623 Physical Chemistry of Seawater (3)

Characterization of dissociation, solubility, and redox equilibria in seawater. Partial molar volumes, conductivity, and diffusion of ions in seawater. Kinetic studies in seawater; effects of temperature, salinity, and pressure on physicochemical properties in seawater. (Lec. 3) Pre: 521 and CHM 432 or permission of instructor.

625 Organic Geochemistry of Sediments (3)

Chemistry of organic matter in recent to ancient sediments. Topics include the source, characterization, significance, and fate of sedimentary organic compounds with emphasis on the marine environment. (Lec. 3) Pre: 523 or permission of instructor.

628 High-Temperature Geochemistry (3)

Principles and factors governing the distribution of trace elements in volcanic processes. Applications to the study of rock genesis, mantle dynamics, oceanic crust formation, and hotspots. (Lec. 3) Pre: CHM 431 or equivalent, or permission of instructor.

631 Seminar in Marine and Atmospheric Chemistry (1)

Discussion of problems of current interest in marine chemistry. (Seminar) Pre: 521 or permission of instructor. S/U credit.

643 Subduction Zones (3)

Structure, petrology, and geochemistry of subduction zones, island arcs, and other magmatic arcs at convergent plate margins. Petrogenesis of andesites and related magmas. (Lec. 3) Pre: 540 or permission of instructor.

645 Petrology of the Oceanic Crust (3)

Nature and origin of igneous and metamorphic rocks of the oceanic crust of the earth; mineralogy, petrology, and petrogenesis of seafloor rocks; metamorphism of the ocean crust. (Lec. 3) Pre: graduate standing or permission of instructor.

649 Plankton Paleoecology (3)

Concepts of paleoecology. Interaction between planktonic marine organisms and their environment over evolutionary time scales. The use of fossil plankton in reconstructing paleoenvironmental conditions and paleoecological systems. Patterns, causal hypotheses, and geological consequences of temporal and geographic variation in Cretaceous and Cenozoic plankton assemblages. (Lec. 2, Lab. 2) Pre: permission of instructor.

651 Marine Stratigraphy (3)

Concepts and methods of biostratigraphy, lithostratigraphy, and chronostratigraphy. Stratigraphic nomenclature. Stratigraphic correlation and completeness. Special focus will be placed on the integration of multiple stratigraphic techniques and their application to the Cretaceous and Cenozoic marine record. Class discussion of advances and problems in recent research articles. (Seminar) Pre: permission of instructor.

664 (or BIO 664) Phytoplankton Ecology (3)

Biology and ecology of the pelagic marine microscopic algae with emphasis on their adaptations, physiological ecology, distribution, succession, production, and regional and seasonal dynamics. (Lec. 3) Pre: permission of instructor.

665 Marine Bio-Optics and Remote Sensing (3)

Bio-optical properties of ocean waters. Major focus is on basic principles of visible-band ocean remote sensing and its application to determining phytoplankton pigment and production at regional to global scales. (Lec. 2, Lab. 2) Pre: 561. Offered in odd-numbered years.

668 Productivity of Ocean Margins (3)

Processes affecting biological productivity of ocean margin waters. Major focus on dynamics of production in mid to outer shelf waters and adjacent boundary currents. (Lec. 3) Pre: 501, 561.

669 Marine Fish Ecology and Production (3)

Functioning of fishes in major world ecosystems is explored through comparison of feeding ecology, bioenergetics, and production rates. (Lec. 3) Pre: 561 or permission of instructor.

670 Fish Population Dynamics (3)

Methods for estimating vital statistics of fish populations, stock assessment theory and methods, analytical and empirical model development, and fisheries forecasting. (Lec. 3) Pre: graduate standing or permission of instructor.

673 Fisheries Oceanography (3)

Physical and biological processes acting at the egg, larval, juvenile, and adult stages of commercially important fish and shellfish. Topics include: growth, survival, and recruitment dynamics; larval dispersal and fish distributions; changes in long-term abundance in relation to climate. (Lec. 3) Pre: graduate standing or permission of instructor. 501, 561 recommended.

689 Coastal Marine Ecosystems (3)

Basic principles of estuarine and coastal ecology. Offered spring semester only. Two 1-hour lecture-discussion sessions per week. (Lec. 3) Pre: undergraduate or graduate science major, basic ecology course.

691, 692 Individual Study (1–6 each)

Individual study of assigned topics or special problems involving literature search and/or original inves-

tigation under one or more members of the faculty. (Independent Study)

693, 694 Special Studies (1–4 each)

Studies of specialized topics in the marine sciences. (Independent Study)

695 Seminar in Oceanography (1 each)

Students give seminar reports on problems and current research in various areas of oceanography. (Seminar) Attendance and registration are required of all graduate students in residence, but no more than 2 credits are allowed for a program of study. S/U credit.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or doctoral committee. (Independent Study) S/U credit.

930 Workshop in Oceanography Topics for Teachers (0–3)

Especially designed for teachers of physical sciences. Basic topics in oceanography from an advanced or pedagogical perspective. (Workshop) Pre: teacher certification.

Note: Graduate students in oceanography may choose from supporting courses in other departments in consultation with their major advisor.

Pharmacy (PHC)

Associate Dean: Professor Lausier

327 Interactive Learning Session II (1)

Small group active learning designed to reinforce progressively the basic science curriculum, promote communication and problem-solving skills, and enhance patient assessment and the delivery of pharmaceutical care. (Seminar) Pre: first-year Doctor of Pharmacy professional student or permission of instructor.

417 Interactive Learning Session III (1)

Small group active learning designed to reinforce progressively the basic science curriculum, promote communication and problem-solving skills, and enhance patient assessment and the delivery of pharmaceutical care. (Seminar) Pre: second-year Doctor of Pharmacy professional student or permission of instructor.

427 Interactive Learning Session IV (1)

Small group active learning designed to reinforce progressively the basic science curriculum, promote communication and problem-solving skills, and enhance patient assessment and the delivery of pharmaceutical care. (Seminar) Pre: second-year Doctor of Pharmacy professional student or permission of instructor.

502 Drug Development (3)

Scientific and regulatory aspects of drug development from discovery to market, exemplified by

URI research. (Lec. 3) Pre: graduate standing in pharmacy.

517 Interactive Learning Session V (1)

Small group active learning designed to reinforce progressively the basic science curriculum, promote problem-solving skills, and enhance patient assessment and the delivery of pharmaceutical care. (Seminar) Pre: third-year Doctor of Pharmacy professional student or permission of instructor.

527 Interactive Learning Session VI (1)

Small group active learning designed to reinforce progressively the basic science curriculum, promote communication and problem-solving skills, and enhance patient assessment and the delivery of pharmaceutical care. (Seminar) Pre: third-year Doctor of Pharmacy professional student or permission of instructor.

Pharmacy Practice (PHP)

Chairperson: Associate Professor Kogut

305 Drug Information and the Analysis of Literature (3)

Students will evaluate drug information questions using drug information sources and will explore study design and methodology of drug trials to interpret results in the care patients. (Lec. 3) Pre: first-year Doctor of Pharmacy professional student in good standing or permission of instructor.

310 (or BPS 310) Foundations of Human Disease: Renal and Cardiovascular Diseases (2)

The etiology, pathogenesis, epidemiology, and symptomatology, and diagnosis of renal and cardiovascular diseases. (Lec. 2) Pre: first-year Doctor of Pharmacy professional student in good standing or permission of instructor.

311 Foundations of Human Disease I: Immunoinflammatory Disease

See Biomedical and Pharmaceutical Sciences 311.

312 Foundations of Human Disease II: Central Nervous System Disease

See Biomedical and Pharmaceutical Sciences 312.

316 Pharmacy Law and Ethics (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. 2. Rec. 1) Pre: first-year Doctor of Pharmacy professional student or permission of instructor.

317 Pharmacy Practice in Contemporary Health Care (2)

Introduction to the role and responsibilities of pharmacists in contemporary health care. Provides the foundation necessary for early experiential learning in clinical practice settings. (Lec. 2) Pre: admission to

the first professional year of the Doctor of Pharmacy program; or permission of the instructor.

324 Pharmacotherapy of CNS and Musculoskeletal Disorders—Therapeutics I (2)

The appropriate use of medications in the treatment of human disease. Interpretation of data to design, monitor, and modify drug therapy in psychiatric, neurologic, and musculoskeletal diseases. (Lec. 2) Pre: Doctor of Pharmacy student in good standing or permission of instructor.

332 Pharmacotherapy of Renal and Cardiovascular Disorders (3)

The appropriate use of medications in the treatment of human disease. Interpretation of clinical data to design, monitor, and modify drug therapy in renal and cardiovascular disease. (Lec. 3) Pre: Doctor of Pharmacy professional student in good standing or permission of instructor.

340 IPPE I: A Health Care Service Learning Experience (1)

Structured practical experiences in a healthcare setting or community outreach program. Develops social responsibility and professionalism while providing needed assistance to the community. (Practicum) Pre: successful completion of the 1st professional year, including PHP 317. A valid and updated HIPAA certificate and RI intern license.

360 Hospital Pharmacy (3)

Introduction to practice of pharmacy in hospitals, including both professional and administrative activities. Field trips to representative hospital pharmacies. (Lec. 3) Pre: first year Doctor of Pharmacy professional student.

401 Pharmacy Resources for Practice (3)

Introduces pharmacy management skills to assist students in understanding the effective use of the human, technological, and fiscal resources to manage a positive work environment and maximize their patient interaction time. (Lec. 3) Pre: Doctor of Pharmacy professional student in good standing; or permission of the instructor.

409 Foundations of Human Disease III: Infectious and Pulmonary Processes

See Biomedical and Pharmaceutical Sciences 409.

410 (or BPS 410) Foundations for Human Disease V: GI, Endocrine (2)

The etiology, pathogenesis, symptomatology, and diagnosis of endocrine and gastrointestinal diseases. (Lec. 2) Pre: P3 standing in the Doctor of Pharmacy program.

411 Biostatistics II

See Statistics 411.

413 Pharmacotherapy of Infectious Diseases and Pulmonary Disorders (3)

The appropriate use of medications in the treatment of human infectious and pulmonary disorders. In-

terpretation of patient data to design, monitor, and modify drug therapy in infectious and pulmonary diseases. (Lec. 3) Pre: second year Doctor of Pharmacy student in good standing; or permission of the instructor.

414 Pharmacotherapy of Gastrointestinal and Endocrine Diseases (3)

The appropriate use of medications in the treatment of human disease. Interpretation of clinical data to design, monitor, and modify drug therapy in endocrine and gastrointestinal disease. (Lec. 3) Pre: fourth-year standing or permission of instructor.

418 (or BPS 418) Self-Care I (3)

An overview of alternative therapies and over the counter medicines with an emphasis on self-care and natural medicine. Basic information as well as case studies (Lec. 3) Pre: [P3 standing in the Doctor of Pharmacy Program](#) or permission of the instructor.

420 Biotechnology Products in Pharmacy

See Biomedical and Pharmaceutical Sciences 420.

430 Advanced Infectious Diseases and Pulmonary Pharmacotherapy (3)

Advanced topics in infectious diseases and pulmonary pharmacotherapy through literature review, data interpretation, and case scenarios. Content will be delivered through the perspective of clinical pharmacists. (Lec. 3) Pre: 413, Doctor of Pharmacy professional student or permission of instructor. Not for graduate credit.

440 Advanced Pediatric Pharmacotherapy (3)

Pharmacotherapeutic needs of infants, children, and adolescents with a focus on pharmacokinetic, pharmacodynamic, and other developmental-associated physiological changes. (Lec. 3) Pre: second year Doctor of Pharmacy professional student or permission of instructor.

450, 451 Introductory Practice Experience I and II (0)

Structured practical experience in institutional and community pharmacy settings. (Practicum) Pre: second year Doctor of Pharmacy professional student or permission of instructor. Not for graduate credit.

460 Palliative Care (3)

Principles of palliative care including control of pain and other symptoms, and psychological, social, and spiritual issues. (Lec.3) Pre: second or third year Doctor of Pharmacy professional student or permission of instructor. Not for graduate credit.

497, 498 Special Problems (1–3 each)

Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Independent Study) Pre: permission of chairperson.

503 Health Systems I (2)

Introduction to the principles of financial analysis, personal management, pharmaceutical marketing,

organizational behavior, inventory control, and health policy. Principles as they relate to health care delivery with an emphasis on planning systems. (Lec. 2) Pre: third year Doctor of Pharmacy professional student or permission of instructor.

504 Health Systems II (3)

Analysis and interpretation of the health care delivery system from the perspectives of organizational structure and program analysis. Emphasis on pharmacoeconomic aspects of quality of life issues, outcome measurements, reimbursement systems, and drug utilization evaluation. (Lec. 3) Pre: third year Doctor of Pharmacy professional student or permission of instructor.

505 Advanced Pharmacotherapy in Geriatrics (3)

Broad issues in pharmacotherapy for older persons including age-related physiologic changes, pharmacokinetics and pharmacodynamics, assessment, and the importance of interdisciplinary teams in the management of complex drug therapy. (Lec. 3) Pre: Doctor of Pharmacy professional student in good standing or permission of the instructor.

513 Pharmacotherapy of Oncology and Toxicology—Therapeutics IV (2)

The appropriate use of medications in the treatment of human disease. Interpretation of clinical data to design, monitor, and modify drug therapy in cancer, blood disorders, and overdose conditions. (Lec. 2) Pre: Doctor of Pharmacy student in good standing or permission of instructor.

515 Pharmacy Practice Laboratory I

See Biomedical and Pharmaceutical Sciences 515.

516 Pharmacy Practice Laboratory II

See Biomedical and Pharmaceutical Sciences 516.

519 (or BPS 519) Self-Care II (3)

Expansion of nonprescription and complementary medicine therapeutics. Explore the implementation of pharmaceutical care programs in community pharmacy practice. (Lec. 3) Pre: 418 (or BPS 418); third year Doctor of Pharmacy professional student.

520 Advanced Gastrointestinal and Endocrine Pharmacotherapy (3)

Provides students with an expanded knowledge base in the area of GI and endocrine pharmacotherapy, emphasizing active learning, literature evaluation, data interpretation. (Lec. 3) Pre: third year Doctor of Pharmacy professional student or permission of instructor. Not for graduate credit.

540 Principles, Methods, and Applications of Epidemiology (3)

An introduction to epidemiology, the study of health and disease in populations. Epidemiologic methods and research design for conducting and interpreting health research. (Lec. 3) Pre: STA 307 or permission of instructor.

542 Evaluation of Controversies in Drug Literature (3)

Through critical review of literature, controversies in drug therapy and drug-associated illness will be evaluated to improve students' knowledge and analytical skills. (Lec. 3) Pre: second or third year Doctor of Pharmacy professional student or permission of instructor.

550 Pharmacoepidemiology (3)

The application of epidemiologic principles to the study of drug effects in human populations. (Lec. 3) Pre: 540 or permission of instructor.

555 Advanced Neuropsychiatric Pharmacotherapy (3)

Comprehensive and advanced course on the pharmacotherapy of psychiatric and neurological diseases. Use of clinical case studies, evaluation of the primary literature, and other forms of interactive teaching will be emphasized. (Lec) Pre: 324, 312 or BPS 312, BPS 322 or permission of the instructor.

560 Advanced Cardiovascular and Renal Pharmacotherapy (3)

Advanced assessment and pharmacotherapeutic management of patients with cardiovascular and renal disease through the application of evidence-based medicine and critical evaluation of literature. (Lec. 3) Pre: third year Doctor of Pharmacy professional student or permission of instructor. Not for graduate credit.

570 Case Studies in Pharmacy Law (3)

Case studies and a detailed analysis of the FDC, Controlled Substances Act, and health insurance laws. (Lec. 3) Pre: 351.

580 Pharmacoeconomic Analysis (3)

Introduction to methodologic approaches utilized in economic evaluation of drug use and therapy in community and managed care settings, and clinical trials, including the FDA approval process and liability issues. (Lec. 3) Pre: STA 307 or equivalent, or permission of instructor. In alternate years.

591 Advanced Pharmacy Practice Experience: Community (6)

Students will develop and learn clinical skills to provide pharmaceutical care for patients in either the community or outpatient setting through direct patient contact, use of physical assessment findings, and the design and implementation of patient-specific pharmacotherapy. (Practicum) Pre: fourth year Doctor of Pharmacy professional student or permission of instructor and completion of all required courses.

592 Advanced Pharmacy Practice Experience: Inpatient (6)

Through collaboration with other health care professionals including the medical team, and application of evidence-based medicine, students will develop clinical skills to provide pharmaceutical care for

patients in the inpatient setting. (Practicum) Pre: fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program.

593 Advanced Pharmacy Practice Experience: Elective (6)

Experiential courses in a wide variety of settings in clinical, industry, and managed care sites. Students learn and practice the core concepts of pharmaceutical care through interaction with faculty, health care professionals, and patients. (Practicum) Pre: fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program.

594 Advanced Pharmacy Practice Experience: Institutional (6)

An advanced practice experience designed to integrate institutional pharmacy practice with innovative patient-oriented and distributive services in a variety of sites such as hospital pharmacies and other institutions. (Practicum) Pre: fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program.

595 Advanced Pharmacy Practice Experience: Ambulatory (6)

In collaboration with health care professionals, students will provide pharmaceutical care to individuals in ambulatory care sites using patient-specific information to modify, create, and monitor pharmacotherapy regimens. (Practicum) Pre: fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

640 Epidemiologic Methods for the Health Sciences (2)

A focus on quantitative methods used in epidemiologic and health-related research. Students will learn to analyze and interpret data from large-scale observational studies and will be exposed to problematic situations in research design and data analysis. (Lec. 3) Pre: 540, STA 412, or permission of instructor.

680 The Legal Environment in Health Administration (3)

Application of specialized statutory and regulatory provisions in federal and state law to the delivery of health care. (Lec. 3) Pre: graduate standing.

693, 694 Seminar (1 each)

Seminar discussions including presentation of papers on selected topics in pharmacy. (Seminar) Required of all graduate students, with a maximum of 1 credit allowed per year. May be repeated for a maximum

of 2 credits for M.S. candidates. May be repeated for a maximum of 5 credits for Ph.D. candidates.

697, 698 Research (1–3 each)

Literature survey, laboratory work, and a detailed research report on one or more assigned topics in pharmacy. (Independent Study)

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

900 Physical Assessment (0)

Provides students with an introduction to core patient assessment skills. Further develops students' patient interviewing and documentation skills. (Workshop) Pre: Doctor of Pharmacy professional student. S/U only.

Philosophy (PHL)

Chairperson: Professor Zeyl

101 Critical Thinking (3)

Identification, formulation, and evaluation of both inductive and deductive patterns of reasoning. Consideration of topics such as probability, reasoning about causes, fallacies, foundations of argument, and the issues in logical theory. (Lec. 3) (EC) or (L)

103 Introduction to Philosophy (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. (L)

204 Theories of Human Nature (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) (L)

205 Philosophical Topics (3)

An intensive study of one or more problems, issues, or topics of classical or current interest in philosophy. Emphasis on the analysis and construction of arguments relevant to the topic(s). Small class format. (Lec. 3)

210 Women and Moral Rights (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) (L) [D]

212 Ethics (3)

Evaluation of major ethical theories. Application of moral reasoning to topics such as virtues and vices, human dignity, conscience, responsibility, moral dilemmas, and reasons to be moral. (Lec. 3) (L) [D]

215 Science and Inquiry (3)

The objective is to survey both the influence of philosophy on science and the influence of science on philosophy, all from a Western historical perspective. (Lec. 3) (L)

217 Social Philosophy (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) (L) [D]

235 Modern Thought: Philosophy and Literature

See Comparative Literature Studies 235. (L)

314 Ethical Problems in Society and Medicine (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 PHL course or permission of instructor. (L)

316 Engineering Ethics

See Engineering 316. (L) [D]

318 Power/Justice: Contemporary Critical Philosophies (3)

Study of contemporary critical philosophies in the traditions of Marxism, existentialism, postmodernism, and feminism, with emphasis on philosophers such as Habermas and Foucault. (Lec. 3) Pre: 101 or 103 or one 200-level PHL course or permission of instructor.

321 Ancient Philosophy (3)

Survey of major thinkers and schools of thought in Ancient Greece, including selected pre-Socratics, Plato, and Aristotle. (Lec. 3) Pre: 101 or 103 or one 200-level PHL course or permission of instructor. (L)

322 Medieval Philosophy (3)

Survey of major thinkers and schools of thought in the Middle Ages, including Augustine, Anselm, Aquinas, and Ockham. (Lec. 3) (L)

323 Modern Philosophy: Descartes to Kant (3)

Survey of 17th- and 18th-century European philosophy. Includes, but is not limited to, empiricism, rationalism, and Kant's critical philosophy. (Lec. 3) Pre: 101 or 103 or one 200-level PHL course or permission of instructor. (L) [D]

324 Recent European Philosophy (3)

19th- and 20th-century British and European continental developments. Discussion of movements such as idealism, utilitarianism, existentialism, and phenomenology and of philosophers such as Hegel, Kierkegaard, Mill, Husserl, Sartre, and Heidegger. (Lec. 3) Pre: 101 or 103 or one 200-level PHL course or permission of instructor.

325 American Philosophy (3)

A study of American philosophy including such movements as puritanism, transcendentalism, pragmatism, naturalism, process-philosophy, realism, and philosophical analysis. (Lec. 3) Pre: 101 or 103 or one 200-level PHL course or permission of instructor. (L) [D]

328 The Philosophy of Religion (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. (Lec. 3) Pre: 101 or 103 or one 200-level PHL course or permission of instructor. (L) [D]

331 East Asian Thought (3)

A study of the important philosophical and religious systems of China, Korea, and Japan; emphasis on Chinese traditions. (Lec. 3) Pre: 101 or 103 or one 200-level PHL course or RLS 131 or permission of instructor. (FC) or (L) [D]

341 Introduction to Metaphysics (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 PHL course or permission of instructor.

342 Knowledge, Belief, and Truth (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 PHL course or permission of instructor.

346 Existential Problems in Human Life (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 PHL course or permission of instructor. (L)

355 Philosophy of Art (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 PHL course or permission of instructor. (L)

401, 402 Special Problems (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. (Independent Study) Pre: 3 credits in philosophy and permission of instructor. May be repeated for credit.

430 Philosophy of Law (3)

Critical evaluation of the basis of legal authority and legal decision making, covering topics in the areas of

analytic and ethical jurisprudence as well as professional ethics for lawyers. (Lec. 3) Pre: 101 or 103 or one 200-level PHL course, and one 300-level PHL course, or permission of instructor.

451 Symbolic Logic (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 higher or permission of instructor.

452 Philosophy of Science (3)

Analysis of the nature and structure of scientific thought. Consideration of issues such as structure and types of scientific explanation, verification and falsification, and unity of the sciences. (Seminar) Pre: 101, 215, or 451, one 300-level PHL course, and 6 credits of natural science; or permission of instructor.

453 Philosophy of the Social Sciences (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. (Seminar) Pre: 101 or 103 or 204 or permission of instructor.

454 Philosophy of the Natural Environment (3)

An exploration of our problematic relationship to the natural environment: nature's ontological status, the epistemological encounter with nature through science and art, and the ethical obligations emerging from these considerations. (Seminar) Pre: 101 or 103 or one 200-level and one 300-level course in philosophy, or permission of instructor.

490 Senior Seminar in Philosophy (3)

In-depth study of the major works of a significant Western philosopher or of a major philosophical topic. (Seminar) Pre: senior standing in philosophy or permission of instructor. May be repeated for credit.

499 Senior Thesis (3)

Independent research. Student works in close conjunction with a faculty member on a mutually agreeable topic. Written thesis required. (Independent Study) Pre: senior standing and permission of instructor. Not for graduate credit.

502, 503 Tutorial in Philosophy (3 each)

Discussion by the staff and advanced students of research problems in philosophy. Presentation and criticism of original papers. (Independent Study) Pre: graduate standing or permission of instructor. May be repeated for a maximum of 9 credits.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Physical Therapy (PHT)

Chairperson: Professor Marcoux

440 (or CMD 440) Advanced Head and Neck Anatomy (3)

Study of structure and function of human head and neck anatomy, supplemented by dissection laboratory. Emphasis on the musculoskeletal, visceral, nervous, and vascular systems related to dental hygiene and communicative disorders. (Lec. 2, Lab. 2) Pre: BIO 121 or equivalent.

500 Human Anatomy and Histology (5)

Structure and function of human anatomy as related to physical therapy. Emphasis on musculoskeletal, visceral, nervous, and vascular systems and tissue histology. Functional changes after injury also will be emphasized. (Lec. 4, Lab. 2) Pre: first-year standing or permission of chairperson.

501 Applied Human Anatomy Laboratory (3)

Surface anatomy, palpation, introduction to forces and torques, stretching and strengthening. (Lab. 6) Pre: Pre: 500 and first-year standing in D.P.T., or permission of chairperson.

505 Introduction to Physical Therapy (2)

Introduction to the profession of physical therapy including concepts related to disability, rehabilitation, evidence based practice, models of care and introduction to the Guide to Physical Therapist Practice. Characteristics and history of the profession and professional expectations for practitioners will be included. Pre: admission to the D.P.T. program.

508 Psychosocial Issues in Physical Therapy (2)

Behavioral and psychosocial issues relevant in physical therapy practice. Patient's perception of care and interactions in the health care environment. (Lec. 2) Pre: first-year standing or permission of chairperson.

510 Biomechanics and Pathokinesiology (5)

Principles, theories, and recent investigations of the biomechanics of human motion and posture are presented to develop analytical skills for normal and abnormal movement evaluation. (Lec. 5) Pre: 500 and first-year standing, or permission of chairperson.

511 Human Neuroscience and Neurology (5)

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. 4, Lab. 2) Pre: second-year standing in D.P.T. or permission of chairperson.

512 Physical Examination and Evaluation I (3)

Provides students with basic skills for physical examination and evaluation in the provision of physical therapy. Focus will be on strength testing, range of motion, and sensation. (Lec. 3). Pre: 500 and first-year standing in the D.P.T. program.

513 Directed Study in Physical Therapy (1-3)

Subject matter arranged to meet the individual needs of graduate students in physical therapy under the supervision of. (Independent Study) Pre: permission of instructor.

518 Communication and Education in Physical Therapy (3)

Topics include teaching in classroom and clinic, psychomotor skills and home exercise programs; increasing patient adherence; and community health. Communication development focuses on verbal/non-verbal, conflict management, assertiveness. (Lec. 3) Pre: second-year standing in D.P.T. or permission of chairperson.

519 Pathophysiology in Physical Therapy (1)

Physical Therapy cases will be used to facilitate the application of pathophysiological concepts in the examination, evaluation, and interventions in physical therapy. Pre: first-year standing in D.P.T.

520 Medical Management of Disease I (2)

Physiological systems, methods of diagnosis and rationale for physical therapists interventions. Topics include physiology of pain, inflammation, healing, impact of exercise and common conditions on the vascular, musculoskeletal, metabolic, and endocrine systems. (Lec. 2) Pre: 500 and first-year standing in D.P.T., or permission of chairperson.

521 Medical Management of Diseases II (2)

Pathophysiologic mechanisms, methods of diagnosis, and rationale for interventions which entry-level physical therapists need to understand. Common conditions of the gastrointestinal, genitourinary, integumentary and nervous systems discussed. Pre: 520 and second-year standing in D.P.T., or permission of chairperson.

522 Physical Examination and Evaluation II (4)

A continuum of 512, this course will cover posture, functional mobility, gait, balance, assistive devices, wheelchair fitting, and home evaluation. Practice of basic skills through course content using role modeling and patient cases. Pre: 512 and first-year standing in the D.P.T. program.

528 Ethical, Legal, and Professional Issues in Clinical Practice (3)

Practice standards, interdisciplinary issues, ethical considerations, and legal implications of physical therapy practice. Professional development, expert practice, doctoring professions, informed consent, patient rights, standards of practice, advanced directives, malpractice, domestic violence, child and elder abuse. (Lec. 3) Pre: second-year standing, or permission of chairperson.

532 Physical Agents I (2)

Theory, practice, and current research regarding application of physical agents. Diagnostic methods, interventions, and personnel supervision and admin-

istration of mechanical, thermal, and hydrotherapeutic agents. (Lec. 2) Pre: first-year standing in D.P.T. or permission of chairperson.

533 Physical Agents II (2)

Theory, practice, & current research on physical agents in PT. Electrotherapeutic agents including ultraviolet, primary forms of electrical stimulation, laser and others. Pre: 532 and first-year standing in D.P.T., or permission of chairperson.

535 Advanced Pathophysiology

See Nursing 535.

538 Management and Administration in Physical Therapy (4)

Practical managerial and supervisory techniques and theory in physical therapy settings. Third party reimbursement, state regulations, health policy formulation, roles of government and politics in health care. (Lec. 4) Pre: second-year standing in D.P.T. or permission of chairperson.

544 Health Promotion in Physical Therapy (2 or 4)

Presents physical therapists' role in wellness and health promotion across gender, systems, and the lifespan. (Lec. 2 or 4) Pre: third-year standing or permission of chairperson. Offered for 4 credits beginning summer 2011.

550 Musculoskeletal Therapeutics I: The Extremities (5)

Physical therapy management of individuals with, and the prevention of, impaired joint mobility, motor function, muscle performance, range of motion, and reflex integrity associated with musculoskeletal dysfunction in the extremities. (Lec. 5) Pre: 510 and second-year standing, or permission of chairperson.

552 Musculoskeletal Therapeutics II: The Spine (5)

Physical therapy management of individuals with, and the prevention of, impaired joint mobility, motor function, muscle performance, range of motion, and reflex integrity associated with musculoskeletal dysfunction in the spine. (Lec. 5) Pre: 550 and second-year standing, or permission of chairperson.

560 Neuromuscular Therapeutics (5)

Physical therapy management of individuals with, and the prevention of, impaired motor function and sensory integrity associated with neuromuscular dysfunction. (Lec. 5) Pre: second-year standing in D.P.T. or permission of chairperson.

570 Cardiopulmonary Physical Therapy (4 or 5)

Physiological basis, testing and evaluation, treatment, and administration of programs for cardiac and pulmonary-diseased patients requiring physical therapy. (Lec. 4 or 5) Pre: second-year standing in D.P.T., or permission of chairperson. Offered for 4 credits beginning summer 2010.

574 Sports Physical Therapy (2)

Advanced knowledge and competency in sports injury evaluation and treatment are developed. Ad-

ditional coverage of sports injury prevention, athletic screening, medical intervention, interdisciplinary coordination, and patient or public education is provided. (Lec. 1, Lab. 3) Pre: 550 or permission of instructor.

575 Physical Therapy Internship I (4 or 5)

Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Specific setting and rotational time schedule are determined by the student, academic clinical coordinator, and clinical site. (Practicum) Pre: second-year standing in D.P.T. or permission of chairperson. S/U credit. Offered for 4 credits beginning fall 2011.

576 Broadening Experiences in Physical Therapy (2)

Provision of physical therapy service in a non-traditional setting or with a unique population. Preparatory work and two-week hands-on experience. (Lec. 1, Practicum in approved setting) Pre: enrolled in D.P.T. Program and with permission of the instructor. May be repeated for credit.

580 Pediatric Physical Therapy (2 or 3)

Physical Therapy assessment, care planning, and treatment of the pediatric population in diverse practice settings. Some hands-on experience with infants and children with a variety of diagnoses. (Lec. 2 or 3) Pre: 511 and third-year standing in D.P.T., or permission of chairperson. Offered for 2 credits beginning spring 2011.

585 Physical Therapy Internship II (4 or 5)

Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Specific setting and rotational time schedule are determined by the student, academic clinical coordinator, and clinical site. (Practicum) Pre: permission of instructor. S/U credit. Offered for 4 credits beginning spring 2012.

586 Physical Therapy in Geriatric Populations (2)

Geriatric and aging issues related to physical therapy practice. Evaluation and treatment strategies for disorders affecting adults, including biology, cognition, and motor function. Exposure to geriatric populations. (Lec. 2) Pre: second-year standing or permission of chairperson.

592 Comprehensive Cases in Physical Therapy (4)

Cross-curricular integration of physical therapy evaluation, diagnosis, prognosis, intervention and outcome assessment applied to complex cases. Consideration of modifications necessary for different stages of development/age, different cultures, and across the continuum of care. Pre: third-year standing in D.P.T. program.

595 Physical Therapy Internship III (4 or 5)

Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Selection of clini-

cal specialty area of student's interest is considered in determination of the setting. (Practicum) Pre: permission of instructor. S/U credit. Offered for 4 credits beginning spring 2012.

600 Foundations of Evidence-Based Practice (3)

Presentation and application of principles of evidence-based practice as related to current physical therapy practice, theory development, and scientific literature. Preparation of proposal through literature review. (Lec. 3) Pre: first-year standing or permission of chairperson.

605 Special Topics and Professional Preparation in Physical Therapy (2)

Integration of the art and science of physical therapy with the delivery of services. Comprehensive review of systems, including evaluation and interventions as they relate to physical therapy. (Lec. 2) Pre: third-year standing, or permission of chairperson.

610 Evidence-Based Inquiry I (1-3)

Introduces the student to the concept of evidence-based inquiry and its importance in the physical therapy profession. Initial stages of an evidence-based inquiry project formulated with the guidance of a faculty advisor. (Independent Study) Pre: 600 or permission of chairperson.

615 Differential Diagnosis (3)

Development of skill in differential diagnosis and referral focusing on level of decisions, triage, and interaction with other diagnostic professionals. Medical diagnostics, test considerations, and referral strategies are developed through practical diagnostic clinical rotation. (Lec. 3) Pre: 542 and second-year standing or permission of chairperson. Final offering spring 2011.

620 Evidence-Based Inquiry II (1-3)

Guides the student through the refinement and focusing of a previously identified multi-phase inquiry project in which evidence is the critical feature. Identification of target audience, delineation of scope of evidence to be gathered occurs along with initial evidence collection. (Independent. Study) Pre: 610 and second-year standing, or permission of chairperson.

630 Evidence-Based Inquiry III (1-3)

Final data gathering, analysis/synthesis, and documentation aspects of a multi-phase inquiry project in which evidence is the critical feature. Statistical analysis and literature synthesis are potential techniques to be utilized. (Independent. Study) Pre: 620 or permission of chairperson.

640 Evidence-Based Inquiry IV (1-3)

Formal dissemination of a multi-phase inquiry project in which evidence is the critical feature. The form this dissemination takes will be individual to the specific project, but may include a research poster, scholarly publication, newsletters or other professional scholarly sources. (Independent Study) Pre: 630 or permission of chairperson.

655 Diagnostic Imaging (2 or 3)

Referral and interpretation of diagnostic images relevant in musculoskeletal assessment and management. Radiologic anatomy, normal variants, and pathological and traumatic conditions reviewed. CT scan, magnetic resonance imaging, ultrasonography, angiography addressed. (Lec. 2 or 3) Pre: 500 and first-year standing in D.P.T. or permission of chairperson. Offered for 2 credits beginning spring 2010.

672 Pharmacological Considerations in Physical Therapy (2 or 3)

Pharmacological actions, interventions, and interactions that physical therapists encounter in their treatment of patients undergoing physical rehabilitation. Drug administration appropriate to physical therapy practice. (Lec. 2 or 3) Pre: second-year standing in D.P.T. or permission of chairperson. Offered for 2 credits beginning spring 2010.

Physics (PHY)

Chairperson: Professor Northby

109 Introduction to Physics (3)

Appreciation of the physical environment and an introduction to the principles and theories of contemporary physics. Recommended for elementary education majors. (Lec. 3) Pre: concurrent enrollment in 110. Not open to students with credit in 111 or 112 or 203 or 204 or 205. (N)

110 Laboratory for Introduction to Physics (1)

Demonstrations and laboratory exercises related to 109. (Lab. 2) Pre: concurrent enrollment in 109.

111, 112 General Physics I, II (3 each)

111: Mechanics, heat, and sound. 112: Optics, electricity, magnetism, and modern physics. Noncalculus presentation of fundamental physics. (Lec. 3) Pre: concurrent enrollment in 185 for 111 and 186 for 112. (N)

140 The Ideas of Physics (3)

A nonmathematical presentation of classical and modern physics illustrated by lecture demonstrations. (Lec. 3) Of particular interest to liberal arts students. (N)

185, 186 Laboratory for General Physics I, II (1 each)

Selected laboratory exercises applicable to materials in 111, 112. (Lab. 2) Pre: concurrent enrollment in 111 for 185 and 112 for 186. (N)

203 Elementary Physics I (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. (N)

204 Elementary Physics 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, credit or concurrent enrollment in MTH 142, and concurrent enrollment in 274. Intended for science or engineering majors. (N)

205 Elementary Physics III (3)

Introduction to topics of thermodynamics, kinetic theory, wave motion, acoustics, and optics. (Lec. 3) Pre: 203; credit or concurrent enrollment in MTH 243 or 362; concurrent enrollment in PHY 275. Intended for science or engineering majors. (N)

273, 274, 275 Elementary Physics Laboratory I, II, III (1 each)

Laboratory exercises and recitation sessions related to topics in 203, 204, and 205. (Lab. 3) Pre: concurrent enrollment in 203, 204, and 205. (N)

306 Elementary Modern Physics (3)

Introduction to relativistic and quantum physics: special relativity theory, structure of atoms, molecules, nuclei, and solids including semiconductor devices; wave and particle properties (Lec. 3) Pre: 204 and 205.

322 Mechanics (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.

331 Electricity and Magnetism (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.

334 (or AST 334) Optics (3)

Geometrical and physical optics; thick lens optics, interference, diffraction, polarization. (Lec. 3) Pre: 112 or 205.

381, 382 Advanced Laboratory Physics (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.

401, 402 Seminar in Physics (1 each)

Preparation and presentation of papers on selected topics in physics. (Seminar) Required of all undergraduate and graduate students in physics; one semester required for all senior physics majors.

410 Computational Physics (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. 2, Lab. 3) Pre: MTH 215 and CSC 200 or CSC 201 or CSC 211; credit or concurrent enrollment in MTH 244 and PHY 306.

420 Introduction to Thermodynamics and Statistical Mechanics (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.

425 Acoustics (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.

430 Modern Biological Physics (3)

Quantitative representation of the structure and organization of biological molecules (DNA, RNA, proteins, membranes), the forces that stabilize biomolecules, cooperative transitions, protein folding, membrane physics, energy transduction in biological systems, molecular motors, and ratchet models. Pre: MTH 244. Not for graduate credit.

451 Introduction to Quantum Mechanics (3)

Particle-wave duality, uncertainty principle; Schrödinger equation: eigenvalues, wavefunctions, time dependence; Dirac notation; Heisenberg representation: operators, matrices, eigenvalues; angular momentum: spin and polarization, Pauli matrices, hydrogen atom, application to quantum computation; symmetries: conservation laws, fermions and bosons. (Lec. 3) Pre: 306, and 322, and MTH 215, and 244.

452 Quantum Mechanics: Techniques and Applications (3)

Approximation techniques including time-dependent and time-independent perturbation theory, WKB, variational method, Born, Hartree, and computational techniques. Applications to atomic and molecular structure, model potentials, radiative transitions, and scattering. (Lec. 3) Pre: 451 and MTH 461.

455 Introduction to Solid-State Physics (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.

483, 484 (or AST 483, 484 or OCG 483, 484) Laboratory and Research Problems in Physics (3 each)

Research in current areas of physics. Students perform research projects with individual faculty members. Students in physics and physical oceanography may coordinate their research project with a faculty member of the Graduate School of Oceanography. (Lec. 1, Lab. 6) Pre: 381 and 382.

491, 492 (or AST 491, 492) Special Problems (1–6 each)

Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study)

510 Mathematical Methods of Physics I (3)

Topics designed to include applications in physics. Vector and tensor analysis; linear algebra; coordinate systems. Determinants, matrices; introductory group theory. Infinite series, complex analysis, analytic properties, conformal mapping, calculus of residues. Fourier analysis and Laplace transforms. (Lec. 3) Pre: permission of chairperson.

520 Classical Dynamics (3)

Newton's laws. Conservation theorems and symmetry properties. Lagrangian mechanics. Central force motion. Dynamics of rigid bodies. Hamiltonian mechanics. Canonical transformations. Action-angle coordinates. Hamilton-Jacobi theory. Deterministic chaos. Relativistic mechanics. (Lec. 3) Pre: credit or concurrent enrollment in 510.

525 Statistical Physics I (3)

Equilibrium thermodynamics. Thermodynamics of phase transitions. Elements of kinetic theory. Statistical ensembles and partition functions. Classical and quantum equilibrium statistical mechanics. (Lec. 3) Pre: 420 or equivalent, 510.

530 Electromagnetism I (3)

Electrostatics, including boundary value problem. Multipoles, electrostatics of macroscopic media, dielectrics. Magnetostatics. Time-varying fields, Maxwell equations, conservation laws. Plane electromagnetic waves, wave propagation. Wave guides, resonant cavities. Magnetic materials. (Lec. 3) Pre: credit or concurrent enrollment in 510 and 520.

540 Modern Biological Physics (3)

Quantitative representation of biological molecules (DNA, RNA, proteins, membrane) structure and organization, forces stabilized biomolecules, cooperative transitions, protein folding, membrane physics, energy transduction in biological systems, molecular motors, ratchet models. Pre: MTH 244.

560 Experimental Methods in Condensed Matter Science (3)

Fundamental experiments on topics related to departmental research. Experimental methodology. (Lec. 2, Lab. 3) Pre: 484 or equivalent.

570 Quantum Mechanics I (3)

Dirac notation. Matrix representations, observables, uncertainty relations. Time evolution; Schroedinger and Heisenberg pictures. Schroedinger equation applications. Propagators and Feynman path integrals. Aharonov-Bohm effect. Angular momentum; Wigner-Eckart theorem. (Lec. 3) Pre: credit or concurrent enrollment in 510 and 520.

577, 578 Seminar in Sensors and Surface Technology (1)

Students, faculty, and invited outside speakers present and discuss selected topics related to research interests of the Sensors and Surface Technology Partnership. (Seminar) Pre: permission of instructor. May be repeated. S/U credit.

580 Condensed Matter Physics I (3)

Drude and Sommerfeld theories. Crystal lattices and symmetries. Bragg scattering. Properties and calculation of electron spectra. Fermi surfaces of metals. Electrons in magnetic field. De Haas – van Alphen effect and Phonons. Electron-phonon interaction. Defects in solids. (Lec. 3) Pre: 525, 570 or permission of chair.

590 Faculty Project (1–6)

A special project directly related to the research program of an individual faculty member. (Independent Study). Pre: permission of chairperson. Not to exceed 6 credits.

591 Special Problems (1–6)

Advanced study under the supervision of a faculty member arranged to suit the individual needs of the student. (Independent Study) Pre: permission of chairperson. Not to exceed 6 credits.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

610 Mathematical Methods of Physics II (3)

Topics designed to include applications in physics. Ordinary and partial differential equations; Sturm-Liouville theory. Numerical methods and computational techniques. Probability and statistics. Integral transforms. Integral equations; Green's functions. Special functions of mathematical physics. (Lec. 3) Pre: 510.

625 Statistical Physics II (3)

Equilibrium critical phenomena (critical exponents, scaling relations, multicritical phenomena). Exact solutions. Renormalization group theory and other approximate methods. Critical behavior of magnets, fluids, and surfaces. (Lec. 3) Pre: 525 and 670.

626 Statistical Physics III (3)

Stochastic processes. Markov condition. Master equation. Fokker-Planck equation. Brownian motion. Langevin equation. Transport phenomena. Onsager theory of irreversible processes near equilibrium. Boltzmann equation. Linear response theory, fluctuation dissipation theorem. (Lec. 3) Pre: 525.

630 Electromagnetism II (3)

Radiating systems, scattering, and diffraction. Special theory of relativity. Dynamics of relativistic particles and electromagnetic fields. Collisions between charged particles, energy loss and scattering. Radia-

tion by moving charges. Multipole fields. (Lec. 3) Pre: 530.

670 Quantum Mechanics II (3)

Symmetry (parity, translation, time-reversal). Time-independent (dependent) perturbation theory, variational methods. Identical particles. Scattering theory (Lippman-Schwinger equation, Born series, partial waves, resonances, optical theorem, inelastic scattering). Applications. Relativistic quantum mechanics. (Lec. 3) Pre: 570 or permission of chairperson.

680 Condensed Matter Physics II (3)

Interacting systems. Green's functions. Diagrammatic methods. Applications to superconductivity. Fluctuations. Functional integration. Generalized susceptibility and dielectric response. Fluctuation-dissipation theorem. Structure function. (Lec. 3) Pre: 530 and 580 or permission of chair.

690 Topics in Physics (3)

Advanced topics in areas of research specializations: a) neutron physics; b) quantum fluids; c) magnetism; d) surface physics; e) nonlinear phenomena; f) advanced quantum physics; g) nuclear physics; h) low-temperature physics. (Lec. 3) Pre: permission of chairperson.

691 Advanced Special Topics (1–6)

Special topics related to current developments by visiting or permanent faculty. (Lec. 1–6) Pre: permission of instructor.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

930 Workshop in Physics Topics for Teachers (0–3 each)

Especially designed for teachers of physical sciences. Basic topics in physics from an advanced or pedagogical perspective. (Workshop) Pre: teacher certification.

Plant Sciences (PLS)

Chairperson: Professor Maynard

101 Freshman Inquiry into Plant Sciences (1)

Introduction for freshmen to the opportunities, careers, research activities, applied outreach, and educational programs in the Department of Plant Sciences. Interact weekly with faculty. Explore hands-on modules. (Lec. 1) S/U credit.

107 (or BIO 107) Plant Biology Seminar (1)

A seminar series offered by faculty, graduate students, and visiting professionals for the purpose of acquainting students with career opportunities provided by the plant biology program. (Seminar)

150 Plant Biology for Gardeners (3)

Fundamentals of plant biology, emphasizing the structure, physiology, and ecology of vascular plants common to gardens and landscaped environments. (Lec. 3) (N)

190 Issues in Biotechnology (3)

See Aquaculture and Fisheries Science 190. (N)

200 Introduction to Plant Protection (4)

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. 4) Pre: BIO 102 or PLS 150 or permission of instructor.

210 Plant Protection Practicum (2)

Introduction to practical aspects of plant protection, concentrating on field diagnostic techniques and development of analytical and observation skills. Diagnostics are primarily an interactive field activity, supplemented by microscopy, report writing, and oral presentations. (Practicum) Pre: credit or concurrent enrollment in 200 or permission of instructor.

215 Propagation of Plant Materials (4)

Theory and practice of the propagation of ornamental plants by seed, cuttings, grafting, and tissue culture. (Lec. 2 Lab. 4) Pre: BIO 102 or PLS 150 or permission of instructor.

233 Floral Art (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, Lab. 4) (A) or (N)

250 Plant Breeding and Genetics (4)

Introduction to the general principles of plant breeding, with emphasis on the application of genetic principles in plant improvement strategies. (Lec. 3, Lab. 2) Pre: BIO 102 or PLS 150 or permission of instructor.

255 Horticultural Plant Science (3)

Fundamental concepts underlying life functions in plants and their horticultural implications and relevancy. Emphasis on plant physiology, plant nutrition, and plant reproduction and how they relate to horticultural plant production. (Lec. 3) Pre: BIO 102 or PLS 150 and CHM 103 or 124 or permission of instructor.

301 Nursery Crop Production and Management (4)

Foundation of nursery management and woody plant production practices. History and organization of the nursery industry, land selection and management, plant culture, growing structures and equipment, and recent innovations. (Lec. 3, Lab. 3) Pre: BIO 102 or PLS 150 or permission of instructor. In alternate years. Next offered spring 2011.

306 Landscape Management and Arboriculture (4)

Culture of new and established trees, shrubs, and vines in the landscape. Practical exposure to planting, pruning, fertilization, and plant protection. Prepares the student for Arborist's Certification Examination. (Lec. 3, Lab. 3) Pre: BIO 102 or PLS 150 or permission of instructor.

311 Fruit Culture (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: BIO 102 or PLS 150 or permission of instructor. In alternate years. Next offered spring 2011.

320 Landscape Design (3)

Examination of landscape design principles and practices including introduction to landscape graphics, preliminary design, and planting design. (Lec. 3) Not open to landscape architecture majors.

322 Power Units (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)

324 Vegetable Crops (4)

Study of vegetable crops including the botany and systematics of the vegetables commonly grown in the United States. Includes organic and conventional production techniques for home gardeners and market farmers. (Lec. 3, Lab. 2) Pre: 150 or BIO 102 or permission of instructor.

331 Floriculture and Greenhouse Management (4)

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, Lab. 3) Pre: BIO 102 or PLS 150 or permission of instructor. In alternate years. Next offered spring 2010.

332 Plant Pathology: Introduction to Plant Diseases

See Biological Sciences 332.

335 Commercial Floral Design and Flower Shop Practices (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, Lab. 4) Pre: 233 or permission of instructor. (A) [D]

341 Introduction to Turf Management (3)

Fundamental aspects of turfgrass science including identification, propagation, fertilization, pest control, and other soil-plant relationships. (Lec. 2, Lab. 2) Pre: BIO 102 or PLS 150 or permission of instructor.

350 Herbaceous Garden Plants (3)

Identification and use of annual and perennial herbaceous ornamental plants in the landscape. Emphasis on sustainable landscaping and the use of native plants. (Lec. 2, Lab. 2) Pre: BIO 102 or PLS 150 or permission of instructor.

353 Landscape Plants I

See Landscape Architecture 353.

354 Landscape Plants II

See Landscape Architecture 354.

361 Weed Science (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: BIO 102 or PLS 150 or permission of instructor. In alternate years. Next offered fall 2009.

390 Irrigation Technology (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) Service learning. Pre: MTH 107 or 108 or 111 or permission of instructor. In alternate years. Next offered fall 2010.

393, 394 Plant Protection Clinic (3 each)

Practical experience in plant pest detection and identification, pest management techniques and equipment. (Lec. 1, Lab. 4) Pre: ENT 305 or 387 and PLS 332 or 440 and permission of instructor.

399 Plant Sciences Internship (1–6)

Directed work experience programs at nurseries, turf farms, greenhouses, plant breeding farms, arboreta, research farms, or laboratories. (Practicum) Pre: BIO 102 or PLS 150 or permission of instructor. May be repeated for a maximum of 6 credits. S/U credit.

401, 402 Plant Sciences Seminar (1 each)

Presentations and discussions of current topics of concern to producers and consumers of plants and plant products, including plant protection. (Seminar)

415 Plant Plagues: Causes and Consequences (2)

Events and decisions leading to major plant epidemics, historical and current. Emphasizes causative organisms and their characteristic biology, with subsequent consideration from diverse social-political-economic viewpoints. Extensive student preparation/participation required. (Lec. 2) Pre: 200 or BIO 102 or permission of instructor.

440 Diseases of Turf and Ornamentals (3)

Diagnosis, epidemiology, and control measures of common turf and ornamental plant diseases found

in the Northeast United States. (Lec. 3) Pre: 200 or 332. Not for graduate credit.

441 Plant Disease Laboratory (1)

Laboratory and field diagnosis of turf diseases and diseases of trees and ornamental shrubs. (Lab. 2) Pre: concurrent enrollment in 440.

442 Advanced Turf Management (3)

Establishment and maintenance practices for specialty turfgrass areas (golf courses, athletic fields, and parks) including design and construction specifications and budget management. (Lec. 3) Pre: 341 and 440 or permission of instructor. Not for graduate credit.

471 Plant Improvement (4)

Traditional breeding techniques and methods used for germplasm development and enhancement. Plant cell and tissue culture methodologies as they relate to the improvement of plant varieties through biotechnology. (Lec. 3, Lab. 2) Pre: 250 and 215 or permission of instructor. Not for graduate credit. Offered in alternate years.

491, 492 Special Projects and Independent Study (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. (Independent Study) Pre: permission of instructor by override only.

501, 502 Graduate Seminar in Plant Sciences (1 each)

Presentation of technical reports and discussion of current research papers in crop science, landscape ecology, growth and development of economic plants, and production, protection, and management of economic crops. (Seminar)

508 Seminar in Biological Literature

See Biological Sciences 508.

540 Diseases of Turf and Ornamentals (3)

Disease diagnosis, epidemiology, and control measures of common turf and ornamental diseases found in the Northeast United States. (Lec. 3) Pre: 200 or 332.

542 Advanced Turf Management (3)

Establishment and maintenance practices for specialty turfgrass areas (golf course, athletic fields, and parks) including design and construction specifications and budget management. (Lec. 3) Pre: 341, 440.

571 Plant Improvement (4)

Traditional breeding techniques and methods used for germplasm development and enhancement. Plant cell and tissue culture methodologies as they relate to the improvement of plant varieties through biotechnology. (Lec. 3, Lab. 1) Pre: 250 and 215 or permission of instructor. Offered alternate years.

591, 592 Nonthesis Research in Plant Sciences (1-3 each)

Advanced work under the supervision of researchers to expand research experience into areas other than those related to thesis research. Arranged to suit individual requirements. (Independent Study) Pre: permission of instructor.

Note: For other related courses, see BIO 311, 321, 323, 432, 437, 447, 453, 515, 521, 522, 524, 534, 536, 554, 571, 572 and MIC 521, 552.

Political Science (PSC)

Chairperson: Professor Tyler

113 Introduction to American Politics (4)

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, Rec. 1) (S) [D]

116 Introduction to International Politics (4)

Nature of the state system, foundations of national power, means of exercising power. Cooperative interactions between states. Current international problems. (Lec. 3, Rec. 1) (S) [D]

201 Introduction to Comparative Politics (4)

An examination of different governmental systems and political institutions. Illustrations and comparisons from the Americas, Europe, and the developing nations. (Lec. 4) Pre: 116. (S) [D]

210 American Politics: Theories and Applications (4)

The core course for political science majors pursuing the American Politics Track. Students identify, apply and criticize the major theories used to interpret American Politics. (Lec. 4)

211 World Politics: Theories and Applications (4)

The core course for political science majors pursuing the World Politics Track. Students identify, apply, and criticize the major theories used in World Politics. (Lec. 4)

212 Introduction to Political Science (4)

The core scope and methodology course for all political science majors. Topics covered include: history of political science, evaluation of its current character, and the extent to which politics can be studied scientifically. (Lec. 3, Rec. 1)

221 State and Local Government (3)

Survey of institutional framework of American state and local governments. Consideration of current events and controversies at state and local levels. (Lec. 3) Pre: 113.

240 Major Political Ideologies (3)

Introduction to and analysis of fascism, communism, socialism, and capitalism. An examination of the

contemporary meaning of liberalism, radicalism, and conservatism. (Lec. 3)

274 (Criminal Justice System)

See Sociology 274. See

288 The American Legal System (4)

Political and social analysis of the American legal system, particularly at trial court and street levels, roles of participants in that system with court observation. (Lec. 4/Online) Pre: 113. (S)

300 Challenge of Nuclear Arms (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. (Lec. 3) Pre: 3 credits in the social sciences recommended or permission of instructor.

303 The Politics of the Vietnam War (4)

The politics of the Vietnam War addressed from a range of perspectives. Emphasis on the political, social, strategic, legal, and moral issues raised by the Vietnam War and its aftermath. (Lec. 3, Practicum 2) Pre: 113 or 116 or permission of instructor.

305 Politics in Rhode Island (4)

An exploration of the political process in Rhode Island in an age of New Federalism. Examination of the political development of the state and the character of contemporary politics and policymaking. (Lec. 3, Practicum 2) Pre: 113.

312 Topics in Political Science (3)

Critical study of selected topics. Subject will vary according to the expertise and availability of instructors. (Lec. 3) Open to any major. May be repeated for a total of 9 credits.

320 Comparative European Politics (4)

Introduces students to the major political, economic and social systems of Europe through a detailed examination of the United Kingdom, France, Germany, Italy, and Russia. (Lec. 3, Online 1)

321 Politics and Problems of Israel (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.

341 Political Theory: Plato to Machiavelli (4)

Major political philosophies from Plato to Machiavelli and their influence on such key concepts as justice, equality, and political obligation. (Lec. 3, Practicum 2) (L)

342 Political Theory: Modern and Contemporary (4)

Continuation of 341. Rousseau to the present. (Lec. 3, Practicum 2) Pre: 113 and 116. (L)

344 International Financial Economics

See Economics 344.

350 From Cold War to Cold Peace (4)

Provides essential political and historical background to understanding the evolution of U.S. and Soviet/Russian relations over the past 60 years. (Lec. 3, Practicum 2) Pre: 116.

365 Political Parties and Practical Politics (4)

Analysis of the American party process with some attention to comparative party systems. History, organization, functions, methods, problems, and prospects for reform. Focus on interpersonal interactions with party leaders and activists. (Lec. 3, Practicum 2) Pre: 113.

368 Public Opinion (4)

Examination of public opinion and formative influences upon it. Role and implications of public opinion in governmental process. Focus on the practical analysis of public opinion data. (Lec. 3, Online 1) Pre: 113.

369 Legislative Process and Public Policy (4)

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, Online 1) Pre: 113.

370 Politics and Media (4)

Analysis of the relationship between the mass media in the United States and the political process. Emphasis on the impact of the media on both domestic and foreign policy processes. (Lec. 3, Practicum 2) Pre: 113 or 116, or permission of instructor.

371 The Constitution and the Supreme Court (4)

The historical role of the Constitution and the Supreme Court in American democracy. Analysis of leading constitutional decisions regarding governmental powers and civil rights and liberties. (Lec. 3, Online 1)

375, 376 Field Experience in Practical Politics (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. (Practicum) Pre: 12 credits in the social sciences including 6 credits in political science and permission of instructor. May be repeated for a maximum of 6 credits. S/U credit.

377 Politics of China (4)

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, Practicum 2) Pre: 116 or equivalent recommended.

380 Civil Rights Movement

See African and African American Studies 380.

402 Environmental Policy and Politics (4)

Seminar in the politics and public policy associated with environmental pollution. (Lec. 3, Project 3) Pre: 113 and junior or senior standing. Not for graduate credit.

403 Global Ecopolitics (4)

Seminar focuses on the international politics of global pollution, marine pollution, atmospheric pollution, tropical deforestation, and conservation. (Lec. 3, Project 3) Pre: 210 and 212 or 402. Not for graduate credit.

408 (or AAF 408) African Governments and Politics (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.

410 Issues in African Development

See African and African-American Studies 410.

415 Dynamics of Social Change in the Caribbean

See African and African American Studies 415.

416 (407) Russian Politics and Society (4)

An upper-level introduction to the politics and society of Russia and the Commonwealth of Independent States. (Lec. 3, Project 3) Pre: 211 and 212 or permission of instructor. Not for graduate credit. Offered in alternate years.

417 (406) Russian Foreign Policy (4)

An upper-level introduction to the issues of Russian foreign policy, including relations with newly formed states of the CIS. (Lec. 3, Project 3) Pre: 211 and 212 or permission of instructor. Not for graduate credit. Offered in alternate years.

420 Nonviolence and Change in the Nuclear Age (3)

Focuses on the philosophies and political participation of individuals and movements working non-violently for social change and conflict resolution from M. Gandhi and M.L. King to the present within America and globally. (Lec. 3) Pre: 113 or 116.

422 International Political Economy (4)

Examines the impact of political and economic influences on interactions between and within states. (Lec. 3, Project 3) Not for graduate credit.

431 International Relations (4)

Analysis of the various theories of international relations and study of the major factors influencing the politics of international conflict, trade, organizations, and other interactions between international actors. (Lec. 3, Project Pre: 211 and 212 or permission of the instructor. Not for graduate credit.

432 International Government (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.

434 American Foreign Policy (4)

Analysis of the institutions, techniques, and instruments of policy making and the execution of foreign policy. (Lec. 3, Project 3) Pre: 211 and 212 or permission of the instructor. Not for graduate credit.

435 Theories of International Conflict (4)

Analysis of the various theories of international conflict. Topics include interstate war, international disputes, interstate rivalry, and democratic peace theory. (Lec. 3, Project 3) Not for graduate credit.

440 The Politics of Being Mortal (4)

Seminar on how attitudes toward death affect political values and priorities, especially in regard to capitalism and the threat of nuclear war. (Seminar 3, Project 3) Pre: 341, 342, or permission of instructor. Not for graduate credit.

441 Women and Politics (3)

Explores the role of women in the American political system, as voters, campaign activists, and office holders, and as members of organized groups in the policy-making process. (Lec. 3) Pre: 113 or permission of instructor. Not for graduate credit.

443 Twenty-first Century Political Theory (4)

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, Project 3) Pre: 240 or 341 or 342 or any 300 level philosophy course or permission of instructor. Not for graduate credit. Offered every third year.

455, 456 Directed Study or Research (3 each)

Special work arranged to meet the needs of individual students who desire advanced work in political science. (Independent Study) Pre: permission of chairperson.

461 The American Presidency (4)

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, Project 3) Pre: 210 and 212 or permission of instructor. Not for graduate credit.

466 (or AAF 466) Urban Problems (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/Online) Pre: 113.

471 Constitutional Law (3)

The Supreme Court as a political institution in American democracy. Analysis of leading constitutional decisions exploring adaptation of govern-

mental 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.

472 Civil Liberties (4)

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, Project 3) Pre: 371 or permission of instructor. Not for graduate credit.

476 Policy Issues in Criminal Justice

See Sociology 476.

481, 482 Political Science Seminar (3 each)

Intensive studies in various important fields in political science. Class discussion of assigned readings and student reports. Emphasis on independent research. (Seminar) Pre: 6 credits in political science beyond 113 and 116.

483 Political Process: Policy Formulation and Execution (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: 113 or permission of instructor.

485 The Politics of Children's Rights (3)

Explores the political aspects and their relationship to socioeconomic and cultural factors of major issues that affect children's lives. Focuses on individual and societal rights and responsibilities in America and internationally. (Seminar) Service learning. Pre: six credits in social sciences recommended or permission of instructor.

491 Principles of Public Administration (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.

498 Public Administration and Policy Formulation (3)

Identification and analysis of factors that 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.

501 Administrative Theory (3)

Theoretical constructs and models in fields of public administration; theories of Weber, Riggs, Dorsey, Simon, Presthus. Lower-level models in subfields of organization, communications, and decision making.

Task-oriented subject matter such as personnel, budget, and program administration related to theoretical formulations that seek to explain them. (Lec. 3) Pre: 491 or permission of instructor.

502 Techniques of Public Management (3)

Principles and techniques employed in the administration of activities of the public service, such as administrative planning, project scheduling, and budgeting. (Lec. 3) Pre: 491 or permission of instructor.

503 (or LRS 503) Problems in Public Personnel Administration (3)

Development of personnel administration, including problems of recruitment, examination, promotion, and staffing within public service. Emphasis on evaluation of employee performance and collective bargaining in public service. (Lec. 3) Pre: graduate standing or permission of instructor.

504 Ethics in Public Administration (3)

This course explores through case studies, class discussion, films, and readings how ethical deliberation in the public sector is an essential commitment and skill for public administrators. (Seminar) Pre: graduate standing or permission of instructor.

505 (or SOC 505) Public Program Evaluation (3)

Research design and methodologies associated with the evaluation of governmental programs and activities. (Lec. 3) Pre: STA 308 or equivalent or permission of instructor.

506 Seminar in Budgetary Politics (3)

Examination of federal, state, and local fiscal and budgetary processes, focusing on the politics of the budgetary process and models of budgeting, with emphasis on contemporary issues. (Seminar)

507 Government Financial Administration (3)

Political, administrative, and technical elements of government financial management in public policy settings are examined. Special emphasis is placed on local and state governments and public authorities. (Seminar) Pre: graduate standing or permission of instructor.

512 Marine Science and Policy Analysis

See Marine Affairs 512.

521 International and Comparative Trade Unions and Labor Relations

See Labor and Industrial Relations 521.

523 Seminar in Comparative Public Administration (3)

Theory, practice, and organization of selected European and developing nations' administrative systems. Analysis of selected policies. Influence of English and French systems on developing systems. Structure-function and ecological analysis. (Seminar) Pre: 491, 501, or permission of instructor.

524 Seminar in Public Policy Problems (3)

In-depth exploration of selected problems of policy formulation: intergovernmental relations, regionalization, citizen participation and control, priority setting for public sector programs. (Seminar) Pre: 491, 501, or permission of instructor.

543 Labor Relations and Collective Bargaining: Public Sector

See Labor Studies 543.

544 Democracy and Its Critics (3)

Seminar examining the roots of modern democracy in the social contract theories and analyzing the quality and limits of self-determination in these theories in the light of contemporary politics. (Lec. 3) Pre: 341, 342, or permission of instructor.

546 Peace and World Order Studies (3)

This seminar explores various approaches globally to peace-building, world order, and community. Emphasizes conflict resolution, from local to transnational levels, and the search for social justice and human unity. (Seminar) Pre: 420 or permission of instructor.

553 Scope and Methods of Political Science (3)

Study of political science as a discipline, its development in relation to other social sciences, and survey of political theories, concepts, and analytic models. (Seminar) Pre: graduate standing.

555, 556 Directed Study or Research (3 each)

Special work arranged to meet the individual needs of graduate students in political science. (Independent Study) Pre: permission of chairperson.

573 Administrative Law (3)

Legal aspects of interaction among government agencies, individuals, and public interest groups. Systematic analysis of leading cases, evaluating the courts as an instrument for protecting the individual's rights in administrative action. (Lec. 3) Pre: 113.

577 International Ocean Law

See Marine Affairs 577.

580 Seminar in International Relations Theory (3)

A critical treatment of major international relations theories beginning with an analysis of core theoretical concepts. (Seminar) Pre: honors seniors with permission of instructor or graduate standing.

581, 582 Special Topics Seminar (3 each)

Master's-level seminar on special topics in political science not regularly covered in other courses. (Seminar) Pre: graduate or senior standing in political science or permission of instructor. May be repeated up to five times for a total of 15 credits with different topic.

583 Seminar in American Politics (3)

Critical consideration of central issues in American political institutions, behavior, and policy making.

(Seminar) Pre: honors seniors with permission of instructor or graduate standing.

584 Seminar in Advanced Comparative Theory (3)

A critical treatment of the major methodological approaches used in comparative politics beginning with an analysis of core theoretical concepts. (Seminar) Pre: graduate standing; undergraduates only with permission of instructor.

590 Internship in Public Administration (3–6)

Participation at an administrative agency under supervision of agency head and a faculty member. Planning, personnel management, research organization, budgeting, interdepartmental relations, informal liaisons that are the hallmark of effective administration. (Practicum) Pre: permission of M.P.A. director. May be taken as one 6-credit unit or two 3-credit units.

595 Environment and Development Economics

See Environmental Economics 595.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Portuguese (POR)

Chairperson: Professor Morello (Languages)

101 Beginning Portuguese I (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 is required. Will not count toward the language requirement if the student has studied Portuguese for more than one year within the last six years. (FC) [D]

102 Beginning Portuguese II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

103 Intermediate Portuguese I (3)

Intensive and extensive reading of moderately difficult Portuguese prose, review of grammar structures, idiomatic expressions, conversation practice based on readings. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

104 Intermediate Portuguese II (3)

Continuation of 103. Readings of more difficult texts. Class discussion and reports on supplementary readings. Students enrolling in this course should have taken 103 or equivalent. (Lec. 3) (FC) [D]

205, 206 Advanced Portuguese (3 each)

Practice in speaking and writing standard Portuguese. Understanding varieties of Portuguese. Materials of cultural, intellectual, and professional interest.

Students enrolling in this course should have taken 104 or equivalent. (Lec. 3) (FC) [D]

335 Topics in the Literature of the Portuguese-Speaking World (3)

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.

497, 498 Directed Study (3 each)

For the advanced student. Individual study and reports on problems of special interest. (Independent Study) Pre: one 300-level course in Portuguese, acceptance of project by faculty member, and approval of chair. Not for graduate credit.

Prior Learning Assessment (PLA)

100 Prior Learning Assessment Portfolio Development (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. (Seminar) Pre: matriculated status and permission of the student's academic dean. Offered through the Alan Shawn Feinstein College of Continuing Education. S/U only.

Psychology (PSY)

Chairperson: Professor Morokoff

103 Towards Self-Understanding (3)

Individual and social problems of normal persons. Personality development, social behavior, and adjustment reactions with emphasis on increasing awareness of personal and interpersonal functioning. (Lec. 3/Online) (S) [D]

113 General Psychology (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) (S) [D]

232 Developmental Psychology (3)

Comprehensive understanding of human development and growth from birth to senescence. (Lec. 3) Pre: 113. (S) [D]

235 Theories of Personality (3)

Critical survey of the major theories of personality. Emphasis will be placed on the "normal" personality. (Lec. 3) Pre: 113. (S) [D]

254 Behavior Problems and Personality Disorders (3)

Evaluation of the more serious behavioral disorders as found in the major forms of character disorders, psychoneuroses, and psychoses. Theories of causa-

tion, development and effects of anxiety and defense mechanisms, and interpretation of symptoms and methods of treatment. (Lec. 3) Pre: 113. (S) [D]

255 Health Psychology (3)

Investigates the relationship between behavior and health; emphasizes the theory and science of health behavior change; explores specific behaviors and behavior change strategies from an individual and public health perspective. (Lec. 3) (S) [D]

261 The Alcohol-Troubled Person: Introductory Concepts (3)

Introductory and basic concepts in alcohol trouble: prevention, identification, early intervention, treatment, education. (Lec. 3)

275 Alcohol Use and Misuse (3)

Examination of biological, psychological, and social determinants of alcohol use and misuse. Prevention, early intervention, and treatment approaches also covered. (Lec. 3) Pre: 113.

300 Quantitative Methods in Psychology (3)

Basic concepts and techniques of quantification in psychology. Emphasis on application of certain descriptive and inferential statistical tools in the analysis of psychological measurements of behavior. (Lec. 3) Pre: 113, at least one college-level mathematics course, and sophomore standing.

301 Introduction to Experimental Psychology (4)

Lectures, demonstrations, and laboratory experiments introduce the student to basic methodological principles and experimental techniques applied in psychological research. (Lec. 3, Lab. 2) Pre: 300.

305 Field Experience in Psychology (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) pre-clinical, b) community, c) laboratory, and d) organizational applications. (Practicum) Pre: 113 and permission of instructor. May be repeated for a maximum of 6 credits.

310 History and Systems of Psychology (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/Online) Pre: 113. (L)

334 Introduction to Clinical Psychology (3)

Emphasis on scope of the field, functions of the clinical psychologist, methods used, and problems encountered, both scientific and professional. (Lec. 3) Pre: 254.

335 The Psychology of Social Behavior (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.

361 Learning (3)

Learning process in humans and non-humans, focusing on principles and methods. This course features operant-learning and behavior-modification principles and examples from real life. (Lec. 3) Pre: 301 or permission of instructor.

381 Physiological Psychology (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.

384 Cognitive Psychology (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. (Lec. 3) Pre: 113 and 301 or equivalent. In alternate years.

385 Perception (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.

399 (or AAF 399) Introduction to Multicultural Psychology (3)

Introductory course focusing on multiculturalism as a major paradigm. Emphasizes the meaning of multiculturalism and associated principles, concepts, and sociocultural factors as related to assessment, intervention, and research. (Lec. 3/Online) Pre: 113 or 103.

405 Psychological Anthropology

See Anthropology 405.

425 Peace Psychology (3)

Peace Psychology combines aspects of cognitive, social, clinical and cross-cultural psychology that bear on the prevention of violence and the promotion of constructive nonviolent behavior. Pre: Prior coursework in Psychology, or permission of instructor. Prior coursework in another social science is recommended.

430 Intimate Relationships

See Sociology 430.

432 Advanced Developmental Psychology (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.

434 Psychological Testing (3)

Measurement procedures employed in the measurement of intelligence, aptitudes, abilities, attitudes, interests, and personality. Focus on psychometric principles associated with the various tests. (Lec. 3) Pre: 300 or equivalent.

436 Psychotropic Drugs and Therapy

See Biomedical and Pharmaceutical Sciences 436.

442 Psychology of Exceptionality (3)

Survey of the major issues underlying the classification, institutionalization, and treatment of persons with mental, physical, psychological, and educational disabilities. Specific topics include social attitudes toward exceptionalities, past and current legislation, special education services, and transitions into community life and the workplace. (Lec. 3) Service learning. Pre: junior or senior standing.

460 The Substance-Troubled Person (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 the Alan Shawn Feinstein College of Continuing Education.

464 Humanistic Psychology (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.

465 Introduction to Crisis Intervention (3)

Interventions for various types of emergencies including substance abuse and functional or organic disorders. (Lec. 3) Pre: 254 and permission of instructor.

466 Child Sexual Abuse (3)

Current theorizing regarding the causes of sexual abuse of children will be presented, as well as the short- and long-term effects of such abuse. Management of problems will be followed, from disclosure through current state-of-the-art practices in treatment. Issues in prevention, court cases, and investigation will be reviewed. (Lec. 3) Pre: senior status and permission of instructor. Not for graduate credit.

470 Topics in Social Psychology (3)

Empirical and conceptual approaches to a major topic in contemporary social psychology. Topics will vary from semester to semester. (Seminar) Pre: 113 and 335.

471 Applied Behavioral Analysis and Remediation (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. (Lec. 3) Pre: 361 or permission of instructor. Offered through the Alan Shawn Feinstein College of Continuing Education only.

473 Practicum in Behavioral Psychology (3)

Supervised, on-site field experience in applications of behavioral approaches in an educational or human

service setting. (Practicum) Pre: 471 or permission of instructor.

477 Preparation for Careers in Psychology (1)

Designed to assist students as they explore career options in the field of psychology. Students will prepare materials for job/graduate school applications, and practice interview skills. (Lec. 1) Pre: sophomore standing or above. Not for graduate credit.

478 Applications of Psychology (1-3)

Applications of psychological research and theory to contemporary problems, with an emphasis on scholarly bases. (Seminar) Some topics may be offered online. May be repeated for a maximum of 12 credits.

479 Topics in Psychology (1-3)

Central issues in the field of psychology, allowing in-depth study of contemporary or historical topics. (Seminar) Some topics may be offered online. Pre: 113 or permission of instructor. May be repeated with a change in topic for a maximum of 12 credits.

480 Psychology of Women (3)

Discussion of psychological research and theories on the psychology of girls and women from a multicultural perspective. Topics include personality theories, gender similarities and differences, biological aspects of sex and gender, cultural images of women, sexuality, relationships, motherhood, work and achievement, physical and mental health. (Lec. 3/Online) Pre: 113 and at least one 200-level psychology course.

487 Seminar for Psychology Teaching Assistants (1)

Students will learn pedagogies and engage in activities designed to enhance teaching skills (Seminar) Pre: junior or senior standing. Not for graduate credit.

488 Undergraduate Teaching Experience in Psychology (1-3)

Students will acquire experience in psychology working under the supervision of course instructors and/or faculty members. (Practicum) Pre: permission of instructor. May be repeated for a total of 3 credits. Not for graduate credit.

489 Problems in Psychology (3)

Advanced work in psychology. Course will be conducted as seminar or as supervised individual project. Pre: permission of instructor. May be repeated once.

499 Psychology Practicum (1-6)

Individual and group projects applying psychology in clinical or laboratory settings. (Practicum) Pre: permission of instructor. May be repeated for a maximum of 12 credits. No more than 6 credits may be taken in one semester. Not for major credit in psychology. S/U only.

505 Community Psychology (3)

Introduction to community psychology; study and change of individual's interaction with community systems; theoretical and empirical models, intervention strategies, and research methods relevant to community psychology. (Lec. 3)

517 (or STA 517) Small N Designs (3)

A survey of Small N experimental methodology appropriate for repeated observations on a single unit or individual. Methods include quasi-experimental designs, interrupted time series, and multivariate time series. Applications in applied research, particularly behavioral intervention. (Seminar) Pre: 532 and 533. In alternate years.

527 Language Study for Teachers of Reading

See Education 527.

532 Experimental Design

See Statistics 532.

533 Advanced Quantitative Methods in Psychology (3)

Advanced quantitative methods applied to psychology. Survey of methods such as multiple regression, multivariate analysis of variance, discriminant analysis, canonical correlation, principal component analysis, and factor analysis. Applications involve practice with computer programs. (Lec. 2, Lab. 2) Pre: 532.

540 (or EDC 540) Learning Disabilities: Assessment and Intervention (3)

Applications of early screening batteries; remedial programs for various disabilities, including behavioral programs and methods for older children and adolescents. Emphasis on pragmatic application of skills for detection and treatment. (Lec. 3) Pre: permission of instructor. May be repeated for a maximum of 6 credits.

544 (or EDC 544) Reading Acquisition and Reading Disability: Research and Implications for Practice (3)

Examination of research on the language, cognitive, and reading characteristics of children who successfully learn to read and of those who encounter difficulty. Additional focus on the implications and use of the research for assessment and instruction. (Lec. 3) Pre: graduate standing or permission of instructor.

550 Behavior Analysis and Change (3)

Introduction to the principles of operant conditioning with emphasis on the use of these principles in the analysis and change of behavior in real-life settings such as schools and families. (Lec. 3)

554 Alternative Therapies (3)

Theory and practice of a variety of individual and group techniques that can be integrated into one's present style of helping. (Lec. 2, Lab. 2) Pre: professional and/or graduate standing.

581 Psychological Aspects of a Healthy Lifestyle

See Kinesiology 581.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

600 Multicultural Issues in Psychology: Theory, Research, and Practice (3)

Focus is on general issues and concepts relevant to a psychology that is concerned with multicultural populations as sources of enrichment for theory, research, and practice. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Seminar) Pre: graduate standing.

601 Physiological Psychology (3)

An advanced consideration of physiological research on neural, endocrine, and response systems as they relate to attention, motivation, emotion, memory, and psychological disorders. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 2, Lab. 2)

602 Learning and Motivation (3)

Empirical and theoretical analysis of the basic principles of acquisition and loss of habits. Topically organized to deal with respondent and operant conditioning, and their relationship to reinforcement and motivation. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3) Pre: undergraduate learning course.

603 Development (3)

Theoretical, methodological, and applied issues in life span development, including cognitive, perceptual, psychomotor, affective, and social development. Topically organized. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

604 Cognitive Psychology (3)

A survey of the theoretical and methodological issues in human cognition. Topics include pattern recognition, attention, memory, language, problem solving. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

605 Personality (3)

Reading of primary source materials from major personality theorists relevant to a particular topical emphasis. Application and comparative evaluation of the theories studied. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

606 Social Psychology (3)

Intensive exploration of the methods, theory, and database of contemporary social psychology focusing on salient issues that clarify significant topics in this area. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

607 Advanced Psychopathology (3)

A review of the multicultural, theoretical, clinical, and empirical literature related to the development, classification, and diagnosis of psychopathology. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

608 Theories and Systems (3)

An in-depth analysis of the origin and logical structure of major systematic approaches to psychology. Emphasis on significant recurrent controversies. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3) Pre: graduate standing.

609 Perception (3)

A survey of topics in the psychology of perception, including sensory function; psychophysical models, measurement, and scaling; visual perception; and methods for analyzing perceptually guided behavior. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

610 (or STA 610) Parsimony Methods (3)

Multivariate procedures designed to reduce the dimensionality and help in the interpretation of complex data sets. Methods include principal components analysis, common factor analysis, and image analysis. Related methods: cluster analysis and multidimensional scaling. Applications involve the use of existing computer programs. (Lec. 3) Pre: 533 or STA 541 or equivalent. In alternate years.

611 Methods of Psychological Research and Experimental Design (3)

Provides the student of psychology with a knowledge of research methodology and the techniques of experimental designs. It prepares for the development of thesis problems of graduate students in psychology and related disciplines. (Lec. 3) Pre: 532 and 533.

612 (or STA 612) Structural Modeling (3)

Theory and methodology of path analysis with latent variables. Discussion of "causation" and correlation, confirmatory factor analysis, measurement and structural equation models. Practical applications using current computer programs (e.g. EQS). (Lec. 3) Pre: 533 or 610.

613 Qualitative Research and Analysis in Psychology (3)

Introduction to qualitative methods and analyses with a focus on interviews, focus groups, and visual data methods. Counts as a "core" methodology course for graduate study in psychology and includes historical and contemporary perspectives in psychology. (Lec. 2, Lab. 2) In alternate years. Pre: graduate standing.

614 Evaluation Research Seminar (3)

Introduction to application of research and consultation methods to program and policy evaluation; emphasizes quantitative methods and utilization focus. Assumes background in social science research methods. (Seminar) Pre: graduate standing.

615 Collaborative Research in Psychology (1–3)

Collaborative approaches to methods of psychological inquiry. Special emphasis on topics that can involve students at varying levels of research skill. Format includes weekly seminars and colloquia. (Seminar) May be repeated for a maximum of 24 credits. S/U credit.

625 Seminar: Social Psychology (3)

Emphasis on a major area in contemporary social psychology. Empirical studies analyzed for their relevance to theoretical and applied issues: students will design an original investigation. (Seminar) Pre: graduate standing or permission of instructor. May be repeated for a maximum of 12 credits with different topic.

626 Psychology of Sex and Gender (3)

Examines theory and research relevant to sex and gender from social, psychological, multicultural, and interdisciplinary perspectives. Focuses on topics relevant to men, women, transgendered people, transsexuals, and intersexuals. In alternate years.

635 Transtheoretical Model Applied to Health Psychology (3)

The transtheoretical model is an influential comprehensive model of behavior change that has been extensively employed in health psychology. Applications include smoking cessation, exercise, diet, dress, and medication adherence. (Seminar) Pre: graduate standing.

641 Introduction to Psychotherapy (3)

An analysis of the major systems of psychotherapy. Developing an integrative, eclectic model through identifying the processes of change that are the core of effective therapy. (Lec. 3)

642 Introduction to Psychotherapy Practice (3)

Instruction and practice in the basic interviewing skills and clinical techniques necessary for practicum courses in psychotherapy. Seminar format with some lecture material, role playing, structured experiential exercises, case presentation, and discussion and videotape illustration. (Seminar) Pre: 641. S/U credit.

644 Family Therapy (3)

Introduction to theories and techniques of family assessment and family therapy. Seminar format with videotape illustrations, case presentation and discussion, lecture, and selected experiential exercises. (Lec. 3) Pre: permission of instructor. Not offered every year.

647 Child Therapy (3)

Seminar discusses issues, techniques, and research related to behavior changes in children and their families. Aspects of therapy, the role of behavioral approaches, and the participation of parents will be explored. Direct, supervised experience is included in this course. (Lec. 3) Pre: participation in the Psychological Consultation Center.

660 Clinical Assessment and Decision Making (3)

Covers basic principles and methods for decreasing error and increasing accuracy in applied clinical work, such as clinical versus actuarial judgment and use of base rates. (Lec. 3) Pre: course in psychological testing.

661 Psychological Services I: Administration and Interpretation of Cognitive Tests (3)

Instruction and practice in administration and interpretation of contemporary cognitive tests; individual intelligence tests of both general and specific abilities. Rationale, research evidence, clinical applications. (Lec. 3) Pre: 660.

662 Psychological Services II: Administration and Interpretation of Personality Tests (3)

Instruction and practice in the administration and interpretation of instruments used in the assessment of personality. Emphasis on tests such as the MMPI, Rorschach, TAT. Rationale, research evidence, and clinical application. (Lec. 2, Lab. 2) Pre: 661.

663 Child and Adolescent Personality Assessment and Intervention (3)

Psychological assessment and intervention with children and adolescents, focused on personality functioning, behavioral, social, and emotional problems. Emphasis on assessment theory and methods as linked to empirically supported intervention approaches. (Lec. 2, Lab. 2) Pre: graduate standing in psychology and 665, 661 or permission of instructor.

665 Developmental Psychopathology (3)

Child and adolescent psychological disorders are conceptualized through a developmental perspective, and contemporary research on etiology, diagnosis, course, prognosis, and treatment/management is examined. (Lec. 3) Pre: 603 or equivalent.

666 Seminar: Ethical and Legal Issues in Psychology (3)

Ethical, legal, and professional issues as they relate to the provision of psychological services and psychological research. Emphasis is on the study of ethical issues and the examination of the development of professional standards as they relate to the areas of clinical psychology practice, school psychology practice, and applied research practice. (Seminar)

668 School Psychological Consultation (3)

Historical and contemporary perspectives on consultation are reviewed. Theory, research, and practice are discussed from various consultation models including mental-health, behavioral, and organiza-

tional. The focus is on content and process of consultation in various clinical and educational settings. (Lec. 3) Pre: 661 and 663 or equivalent.

670 Field Experience in Psychological Services (1–12)

Practicum placements and internships are available in a variety of agencies, clinical and school settings, under supervision. (Practicum) S/U credit.

672 Individual Clinical Practicum (3–9)

Introductory experience in dealing with clinical problems in a variety of clinical settings under supervision. (Practicum) Pre: 661, 662. May be repeated for a maximum of 9 credits. S/U credit.

674 Clinical Practices: Therapy (1–12)

Specialized techniques of clinical interviewing, counseling, and psychotherapy. Critical discussions of student's own supervised therapy sessions. (Practicum) Pre: 607 and 641. May be repeated for a maximum of 12 credits.

676 Neurological Correlates of Psychopathology (3)

Functioning and physiology of the central nervous system with particular attention to determining how nervous-system disruption and injury are manifested in behavioral disorder. Techniques used to evaluate and interpret neuropsychological functioning. (Lec. 2, Lab. 2) Pre: permission of instructor. Not offered every year.

681 Ethical, Historical, Legal, and Professional Issues in School Psychology (3)

Introduction to school psychology with focus on ethical, historical, legal, and professional issues. Roles and functions of school psychologists in schools and other settings will be explored. (Seminar) May be repeated for a maximum of 9 credits.

683 (or EDC 683) Psychology of the Exceptional Child (3)

Social, psychological, and educational factors that constitute the matrix of concerns with the exceptional individual in the school and community. Recent innovations in public and private education and habilitation. Research issues and legislation discussed evolve into student studies. (Lec. 3)

687 (or EDC 687) Seminar: Topics in the Psychology of the Exceptional Individual (3)

Survey of topics and current issues in the treatment, needs, and understanding of the psychology of specific exceptionalities. (Seminar) May be repeated for a maximum of 9 credits with different topics.

688 Developmental Neuropsychology Seminar (3)

Conceptual overview emphasizing changing relationships between human central nervous system and behavior from conception through adolescence. Normal and abnormal neurodevelopment, theoretical principles, assessment and intervention issues,

and selected research methodologies. (Seminar) Pre: 601 or equivalent.

690 Seminar: Contemporary Issues in Psychology (3–12)

Recent developments and current issues. Rigorous exploration of experimental, applied, and theoretical literature. (Seminar) May be repeated for a maximum of 12 credits.

692, 693 Directed Readings and Research Problems (3–12 each)

Directed readings and advanced research work under the supervision of a faculty member arranged to suit the individual requirements of the students. (Independent Study)

695 Seminar: Teaching Psychology (3)

Primarily a seminar in the teaching of psychology at the undergraduate level. Includes a consideration of general issues in college teaching, preparation of a course proposal, and sample presentation. (Seminar)

696 Practicum: Teaching Psychology (1–3)

Practicum for students teaching a college-level psychology course. Supervision of course preparation, presentation, and evaluation. (Practicum) Pre: 695 or permission of the department. May be repeated for a total of 6 credits with permission of the department. S/U credit.

699 Doctoral Dissertation Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Public Relations (PRS)

Coordinators: Associate Professor Derbyshire, Communication Studies, and Professor Levin, Journalism

340 (or JOR 340) Public Relations (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 JOR 220 with a grade of C or better.

441 (or JOR 441) Public Relations Practices (3)

Practical application of traditional PR methods in solving problems in a variety of markets. Explores fundamental agency operations, client-agency relationships. Combines practical experience with individual projects, programs, and campaigns. (Practicum) Pre: 340. Not for graduate credit.

491 Public Relations Internship (3 or 6)

Supervised experience in public relations. Requires a minimum of 120 hours (3 credits) or 240 hours (6 credits). Weekly class meeting. May be repeated; maximum of 6 credits allowed toward graduation. Pre: public relations majors only; 340, 441, COM

306, and JOR 341. Permission of instructor and application required. Not for graduate credit.

Religious Studies (RLS)

Chairperson: Professor Zeyl (Philosophy)

111 Judaism, Christianity, and Islam (3)

Comparative study of the teachings, the histories, and the practices of the three religions of Abraham; emphasis on their teachings. (Lec. 3) (L) [D]

125 Biblical Thought (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) (L)

126 The Development of Christian Thought (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) (L)

131 Introduction to Asian Philosophies and Religions (3)

Introductory study of the main philosophical and religious ideas in Asia, with emphasis on Hinduism, Buddhism, Confucianism, and Taoism. (FC) or (L)

151 The Jewish Experience (3)

Examines Judaism's history, customs, culture, and beliefs. (Lec. 3)

Resource Development Education (RDE)

Coordinator: Professor Mallilo

486 Internship in Agricultural and Extension Education (1–6)

Provides experiential learning opportunities related to agricultural education and/or Cooperative Extension education. (Practicum) May be repeated for a maximum of 6 credits. Not for graduate credit.

Russian (RUS)

Section Head: Professor Aronian

101 Beginning Russian I (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 is required. Will not count toward the language requirement if the student has studied Russian for more than one year within the last six years. (FC) [D]

102 Beginning Russian II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

103 Intermediate Russian I (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. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

104 Intermediate Russian II (3)

Continuation of 103. Students enrolling in this course should have taken 103 or equivalent. (Lec. 3) (FC) [D]

205, 206 Advanced Russian (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. Students enrolling in this course should have taken 104 or equivalent. (Lec. 3) (FC) [D]

391, 392 Masterpieces of Russian Literature (3 each)

Prose, poetry, and drama from late 18th through 20th centuries in translation. Emphasis on literary movements through textual analysis. Authors range from Pushkin to Pasternak, including Dostoevsky and Tolstoy. (Lec. 3) (A) [D]

460 The Russian Novel (3)

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.

498 Directed Study (3)

For the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of project by member and approval of section head.

Service Learning

The Feinstein Center for Service Learning recognizes the following courses as having a service learning component. Service learning is an alternative way of both teaching and learning about concepts or theories. All first-year students are introduced to service learning through their required URI 101, Traditions and Transformations course. The purpose of these courses is to help students make meaningful connections between academic course work and societal issues and needs within the community. The service work is profoundly connected to and enhanced by the specific course of study. Depending on the instructor, the service learning component may be an optional or required part of the course content.

African and African-American Studies (AAF)

380 African-Americans in the Legal System

Community Planning (CPL)

510 Community Planning and Political and Social Change
523 Planning Theory

Community Service (CSV)

- 101 Introduction to Cultural Competence
 102 Cultural Competence Experiences
 301 Course-Cased Community Service

Education (EDC)

- 424 Teaching Literacy in the Primary Grades (service is optional)

- 429 Emergent Literacy (service is optional)

Human Development and Family Studies (HDF)

- 303 Early Childhood Practicum
 380 Field Experiences in Community Agencies
 381 Field Experience Seminar
 434 Children and Families in Poverty
 560 Group Procedures and Leadership
 562 Organization Development in Human Services
 583, 584 Master's Internship

Human Science and Services (HSS)

- 140 Ways of Knowing in Human Science and Services I

- 141 Ways of Knowing in Human Science and Services II

- 530 Multidisciplinary Health Seminars for the Elderly

Landscape Architecture (LAR)

- 244 Basic Landscape Architecture Design
 444 Landscape Architecture Studio III: Sustainable Design (Professor Green)
 445 Landscape Architecture Studio IV (Professor Green)

Music (MUS)

- 119 Introduction to the Music Profession

Natural Resources Science (NRS)

- 309 Wildlife Management Techniques Laboratory

Nursing (NUR)

- 324 Medical-Surgical Nursing Practicum
 344 Practicum in Childbearing and Reproductive Health Nursing
 346 Practicum in Care of Clients and Families
 434 Practicum in Nursing of Children
 444 Practicum in Community Health Nursing
 532 Practicum in Primary Health Care Nursing I
 534 Practicum in Primary Health Care Nursing II
 590 Directed Study and Practice in Advanced Clinical Nursing

Nutrition and Food Sciences Science (NFS)

- 394 Nutrition in the Life Cycle I
 395 Nutrition in the Life Cycle II

Plant Sciences (PLS)

- 390 Irrigation Technology

Political Science (PSC)

- 485 Children, Community, and Human Rights
 487 Rebuilding Our Communities: Theory and Practice

Psychology (PSY)

- 442 Psychology of Exceptionality

Sociology (SOC)

- 497 Field Experience in Sociology

Women's Studies

- 150 Introduction to Women's Studies (some sections)

Writing (WRT)

- 304 Writing for Community Service

In addition to the courses listed above, specific topics in other courses and some temporary courses may also carry the Service Learning designation.

Sociology (SOC)

Chairperson: Professor Loy (Sociology and Anthropology)

100 General Sociology (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) (S) [D]

204 Social Psychology (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)

212 Families in Society (3)

Examines the role of families in maintaining and changing society. Emphasis on demographic and historical changes in family life, the diversity of family structures, and connections between the family and the political economy. (Lec. 3/Online) (S) [D]

214 Urban Sociology (3)

Introduction to major theories of urbanization; examination of the social, political, and cultural aspects of urbanization and contemporary urban problems such as the population explosion, pollution, class inequality and alienation; emphasis on a global and comparative cross-national perspective. (Lec. 3)

216 Deviant Behavior (3)

Examination and analysis of major theories of deviant behavior. Application of these theories to particular types of deviant behavior. (Lec. 3)

224 Health, Illness, and Medical Care (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)

230 Crime and Delinquency (3)

Survey of the extent, distribution, trends, and costs of delinquency and crime in the United States; examination of selected types of crime and delinquency; policy implications. (Lec. 3/Online) (S) [D]

240 (or AAF 240) Race and Ethnic Relations (3)

Relations among the various ethnic, religious, racial, and political minorities and majorities, with special reference to the United States. (Lec. 3) (S) [D] Professor Cunnigen's section is writing intensive [WI].

242 Sex and Gender (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) (S) [D]

274 (or PSC 274) Criminal Justice System

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) (S) [D]

300 Topics in Sociology (3)

Critical study of selected topics. Subject will vary according to the expertise and availability of instructors. (Lec. 3) Pre: one 100- or 200-level sociology course. May be repeated for credit with different topic.

301 Sociological Research Methods (3)

Scientific method in sociological research; emphasis on the development of the ability to construct and evaluate data-based arguments; topics include the nature of evidence, research design, principles and techniques of sampling, data collection and interpretation. (Lec. 3) Pre: 9 credits in SOC. Open only to sociology majors.

318 Social Movements and Social Change (3)

Analysis of theoretical perspectives, directions, patterns, and consequences of social change in relationship to social movements. Case studies of social movements with special emphasis on the civil rights movement. (Lec. 3) Pre: 6 credits in sociology.

320 Organizations (3)

Explores both formal and informal aspects of organizations from a sociological perspective. Topics include bureaucracy and its consequences; post-bureaucratic and postmodern forms of organization; modern and contemporary theories of organizing and organizations. (Lec. 3) Pre: One 100- or 200-level sociology course. Offered in the spring of even-numbered years.

322 The Arts and Social Order (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.

326 Madness and Society (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. (Lec. 3) Pre: 6 credits in sociology or permission of instructor.

329 (or APG 329) Contemporary Mexican Society (3)

Examines the social, political, economic, and cultural dimensions of contemporary Mexico. Demographic

composition, economic and political development, civil society and women's political participation, indigenous issues and rights, U.S.-Mexico relations and bilateral issues, and human rights. (Lec. 3) Pre: SOC course at the 200-level or APG 203.

330 Police in Democratic Societies (3)

Examines the development of policing, its structures and functions, police discretion and accountability, and current innovations. Focus on the United States with comparisons to other countries. (Lec. 3) Pre: 274 or PSC 274.

331 Punishment and Corrections (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: 274 (or PSC 274).

336 (or AAF 336) Social Inequality (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. Professor Cunnigen's section is writing intensive [WI].

350 Work and Family Life (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 212 or HDF 230.

370 Theories of Crime and Delinquency (3)

Historical development of criminological theory; examination of the major sociological and social psychological theories of crime, criminality, and delinquency; evaluation of competing theories. (Lec. 3) Pre: 230.

375 Race, Crime, and Criminal Justice (3)

Examination of the involvement of selected racial and ethnic groups in crime, both as victims and offenders; disparity and discrimination in the criminal justice system. (Lec. 3) Pre: 230 and PSC 274 (or SOC 274).

401 History of Sociological Thought (3)

Examination of the basic questions and issues that have been the focus of sociological thought; critical analysis of theoretical sociology with an emphasis on the contributions of sociological theory to understanding the structures and problems of modern society. (Lec. 3) Pre: 100 and 6 credits in sociology. Open only to sociology majors.

403 Gender, Crime, and Justice (3)

Gender differences in the extent and nature of crime and delinquency; sociological explanations of the gender difference in crime and delinquency; gender differences in formal and informal social control. (Seminar) Pre: 370. Not for graduate credit.

408 Individual Life and Social Order (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. (Lec. 3) Pre: 9 credits in sociology or permission of instructor.

413 Gender Inequality (3)

Development of gender inequality. Critique of various theories explaining inequality. Sociological interpretation of theories of gender. (Seminar) Pre: 242 or permission of instructor.

420 Family Violence (3)

Surveys the extent, distribution, trends, and costs of physical, emotional, and economic forms of family violence at individual, dyadic, and cultural levels. (Seminar) Pre: 301. Approved for graduate credit.

428 (or AAF 428) Institutional Racism (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. (Seminar) Pre: one 300-level sociology course or permission of instructor. In alternate years.

430 (or PSY 430) Intimate Relationships (3)

Examination of the effects of cultural, social, and psychological processes on the development, maintenance, and dissolution of intimate relationships. Emphasis on friendship patterns, dating and marital relationships, intimacy in nontraditional relationships. Emphasis on research. (Lec. 3) Pre: any 100- or 200-level course in sociology or PSY 113 or permission of instructor. Not for graduate credit.

432 (or LRS 432) Work, Employment, and Society (3)

Explores the workplace and employment relations from a sociological perspective. Topics include work systems, worker alienation and organization, occupational identity, and the impacts of immigration, feminization, and globalization on the workplace. (Lec. 3) Pre: 100 or permission of the instructor. Offered in the spring of odd-numbered years.

437 Law and Families in the United States

See Human Development and Family Studies 437.

438 Aging in Society (3)

Analysis of the use of age in assigning roles, age changes over the life course, and the implications of demographic changes for societies. Emphasis upon theories of aging, the status and power of the aged, and relations between age groups. (Lec. 3) Pre: one 300-level course in sociology or permission of instructor.

444 The Sociology of Religion (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.

446 Sociology of Knowledge (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. (Seminar) Pre: one 100- or 200-level sociology course.

452 Class and Power (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. (Lec. 3) Pre: 6 credits in sociology.

476 (or PSC 476) Policy Issues in Criminal Justice (3)

Examination of current and proposed criminal justice policies in light of social science theory and research, including capital punishment, community policing, gun control, intermediate sanctions, legalization of drugs, mandatory sentencing, privatization of prisons, restorative justice. (Seminar) Pre: 274 (or PSC 274) and 301 and permission of instructor.

495 Senior Seminar in Sociology (3)

Critical examination of selected topics in sociology. Particular topics for examination will be selected by the course instructor. Required for students in the B.A. program in sociology. (Seminar) Pre: senior standing; open only to sociology majors. Not for graduate credit.

497 Field Experience in Sociology (3-6)

Field experience in an approved government agency or nonprofit organization; practice in applying sociological concepts and methods to the analysis of problems faced by the agency and/or its clients, exploration of career opportunities. (Practicum) Service learning. Pre: junior or senior standing and 6 credits in sociology beyond 100. May be taken for 3 or 6 credits. A maximum of 6 credits may be earned. Not for graduate credit. Open only to sociology majors or with permission of instructor.

498, 499 Independent Study (3 each)

Areas of special research not covered in other courses. May be taken as honors courses. (Independent Study) Pre: one 300-level sociology course and permission of instructor.

505 Public Program Evaluation

See Political Science 505.

Spanish (SPA)

Section Head: Professor Manteiga

101 Beginning Spanish I (3)

Introduction to Spanish for beginners. (Lec. 3) Pre: no prior Spanish is required. Will not count toward the language requirement if the student has studied

Spanish for more than one year within the last six years. (FC) [D]

102 Beginning Spanish II (3)

Continuation of 101. Students enrolling in this course should have taken 101 or equivalent. (Lec. 3) (FC) [D]

103 Intermediate Spanish I (3)

Reading and discussion of representative authors, grammar review, and continued practice in language skills to broaden understanding of Hispanic culture. Students enrolling in this course should have taken 102 or equivalent. (Lec. 3) (FC) [D]

104 Intermediate Spanish II (3)

Continuation of 103. Students enrolling in this course should have taken 103 or equivalent. (Lec. 3) (FC) [D]

111 Accelerated Elementary Spanish (6)

Accelerated elementary Spanish equivalent to 101 and 102. Develops basic communication skills in Spanish. Explores the products, practices, and perspectives of Hispanic culture. (Lec. 6) (FC) [D]

113 Accelerated Intermediate Spanish (6)

Accelerated intermediate Spanish equivalent to 103 and 104. Develops intermediate communication skills in Spanish. Explores the products, practices, and perspectives of Hispanic culture. (Lec. 6) Pre: 102 or 111 or permission of instructor. (FC) [D]

205 Spanish Language and Style I (3)

Development and refinement of all Spanish language skills, with emphasis on writing, through structured practice using Hispanic cultural and literary materials. Students enrolling in this course should have taken 104 or equivalent. (Lec. 3) (FC) [D]

206 Spanish Language and Style II (3)

Continuation of 205. Students enrolling in this course should have taken 205 or equivalent. (Lec. 3) (FC) [D]

207 Oral Expression in Spanish (3)

Development of oral skills in Spanish through discussion, interpreting, and reports on topics of personal, practical, or cultural interest. Students enrolling in this course should have taken 205 or equivalent. (Lec. 3). May be taken concurrently with 205. (FC) [D]

210 Spanish for Heritage Speakers (3)

Fundamentals of Spanish grammar, spelling, and writing for heritage speakers with native speaker background who have not had academic training in Spanish. (Lec. 3) Offered every semester. (FC) [D]

305 Early Spanish-American Literature and Culture (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.

306 Modern Spanish-American Literature and Culture (3)

Significant figures and developments in literature, the arts, and society, from Independence to the present. (Lec. 3) Pre: 206 or permission of instructor.

307 Hispanic Culture Through the 17th Century (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 16th and 17th centuries. (Lec. 3) Pre: 206.

308 Literature and Culture of Modern Spain (3)

Major figures and developments in Spanish literature, the arts, and society from the 18th century to the present. (Lec. 3) Pre: 206 or permission of instructor.

310 Field Workshop (1-6)

Cultural visit to Spain or Hispanic America. Significant monuments and places of interest to the student of literature and civilization will be studied. Lectures supplemented by assigned readings. (Workshop) Pre: 104 or permission of instructor.

312 Advanced Spanish (3)

Problematic aspects of Spanish grammar; proper syntax and word usage in speaking, translation, and writing at sophisticated levels; correct reproduction of sounds and intonation patterns. (Lec. 3) Pre: 206 or permission of instructor.

313 Introduction to Spanish Linguistics (3)

Introduction to Spanish linguistics with focus on what human languages are and how they are used. Analysis of Spanish phonetics, phonology, morphology, and syntax, along with issues of language variation and bilingualism in Spanish-speaking communities. (Lec. 3) Pre: 312.

315 Practicum in Community Work (3)

Practical application of Spanish in a community agency, school, or business. Individual project developed by student under guidance of a Spanish faculty member. Requires a minimum of 120 hours. (Practicum) Pre: 206 and permission of instructor.

316, 317 Spanish Internship Abroad (3-6)

Supervised work experience in Spanish-speaking country for advanced language students. (Independent Study) Pre: 321. For credit for the B.A. in Spanish only for students also completing a B.S. in engineering.

320 Critical Studies in Spanish Cinema (3)

Study of major Spanish film genres and of prominent Spanish film directors. Emphasis will vary. Course taught in English. Students counting the course for a major or minor in Spanish are required to do all written work in Spanish and must have credit for 206. (Lec. 3) FLM 101 or equivalent recommended. May be repeated with different topics for a total of 6 credits. (A) (FC) [D]

321 Spanish for Business and Technology (3)

Study of the concepts and terminology of the Spanish language common to the realm of international business and engineering. (Lec. 3) Pre: 206 or equivalent. For credit for the B.A. in Spanish only for students also completing a B.S. in engineering.

325 Introduction to Literary Genres (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. Required for Spanish majors. (A)

401 Oral and Dramatic Presentation of Hispanic Literature (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.

413 Spanish Sociolinguistics and Pragmatics (3)

Study of Spanish sociolinguistics and pragmatics. Analysis of speech variants or dialects and the factors that determine them. Examination of the use of language in context and the ways in which speakers interpret discourse. (Lec. 3) Pre: any 300-level SPA course or permission of the instructor.

421 Business Spanish (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.

430 Castilian Prose of the 16th and 17th Centuries (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.

431 Drama and Poetry of the 16th and 17th Centuries (3)

Spanish poetry and drama from the early Renaissance through the Baroque. (Lec. 3) Pre: 325 or permission of instructor.

450 Romanticism and Realism (3)

Nineteenth-century Spanish literature of the romantic and realist movements. Examples of drama, poetry, and prose as they reflect evolving concerns of the modern writer and society. (Lec. 3) Pre: 325 or permission of instructor.

471 Topics in Latin American Literature and Culture (3)

Latin American topics or author not emphasized in other courses. (Seminar) Pre: 325 or permission of instructor. May be repeated with a change in topic for a maximum of 6 credits.

472 Topics in Hispanic Literature (3)

Topics in Hispanic linguistics not emphasized in other courses. (Seminar) Pre: 325 or permission of

instructor. May be repeated with a change in topic for a maximum of 6 credits.

473 Topics in Spanish Literature and Culture (3)

Spanish topics or authors not emphasized in other courses. (Seminar) Pre: 325 or permission of instructor. May be repeated with a change in topic for a maximum of 6 credits.

481 Don Quijote (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.

485 Modern Spanish Narrative (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.

486 Modern Spanish Poetry and Drama (3)

Selected poetry and plays from the 19th century through the present. (Lec. 3) Pre: 325 or permission of instructor.

488 Spanish-American Poetry and Drama (3)

Traces the development of poetic expression and drama from the 17th century to modern times as a reflection of the evolution of Spanish-American identity. (Lec. 3) Pre: 325 or permission of instructor.

489 The Spanish-American Narrative (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.

497, 498 Directed Study (1–3 each)

For the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: 325, acceptance of project by faculty member, and approval of section head.

510 Contemporary Spanish Workshop (3–6)

New developments in all areas of Hispanic studies including pedagogical matters and classroom techniques. (Workshop) Pre: graduate standing or permission of instructor.

511 The Spanish of the Americas (3)

Examines linguistic dialect variation within Spanish and the factors that determine it. Individual and social bilingualism and its educational implications are also discussed. (Seminar) Pre: graduate standing or permission of instructor.

513 Bilingualism in Spanish-speaking Communities (3)

Study of bilingualism from perspective of psycholinguistics. Study of different bilingual educational models and programs in the Spanish-speaking world and in the U.S.

561 Seminar in Medieval Poetry and Prose (3)

Examination and analysis of the epic, lyrical, and narrative medieval literature of Spain and its impact on subsequent literature. (Seminar) Pre: graduate standing or permission of instructor.

570 Topics in Hispanic Literature and Culture (3)

Special topics or authors not emphasized in other courses. (Seminar) Pre: graduate standing or permission of instructor.

572 Evolution of Spanish-American Culture and Thought (3)

Development of Spanish-American thought and cultural trends, as portrayed in major works of artists and thinkers. (Lec. 3) Pre: graduate standing or permission of instructor.

574 Interpretations of Modern Spanish-American Thought (3)

Topics of interest in the development of modern Spanish-American thought as represented in the essay from the period of independence to the present. (Seminar) Pre: graduate standing or permission of instructor.

580 Seminar in 19th-Century Spanish Literature (3)

Selected authors and topics from the Spanish Romantic movement through realism and naturalism. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topic and permission of instructor.

584 Interpretations of Modern Spain (3)

Development of Spanish thought particularly with respect to sociological and cultural problems from the 18th century to the contemporary period as seen through the writings of significant essayists. (Lec. 3) Pre: graduate standing or permission of instructor. In alternate years.

585 Seminar in 20th-Century Spanish Literature (3)

Topics of aesthetic, cultural, and linguistic concern in 20th-century peninsular literature. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topic and permission of instructor.

587 Seminar in Renaissance and Baroque Literature (3)

Aesthetic analysis of works representative of the period and their influence on subsequent literatures. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topic and permission of instructor.

588 Seminar in Colonial Spanish-American Literature and Culture (3)

Topics of interest dealing with the development of Spanish-American cultural identity and literature from the period of discovery and colonization to

independence. (Seminar) Pre: graduate standing or permission of instructor.

589 Seminar in Modern Spanish-American Literature and Culture (3)

Topics of interest dealing with the development of Spanish-American literature and culture from the period of independence to the present. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topic.

590 The Hispanic Presence in the United States (3)

A study of the establishment of the Hispanic presence and its heritage in the art, folklore, and language of the United States, and an analysis of the literature of the Spanish-speaking peoples. (Lec. 3) Pre: graduate standing or permission of instructor. In alternate years.

597, 598 Directed Study (3 each)

Individual research and reports on problems of special interest. (Independent Study) Pre: graduate standing and approval of the director of graduate studies. May be repeated with different topic.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

Statistics (STA)

Section Head: Associate Professor Gonzales

220 Statistics in Modern Society (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. 2, Rec. 1) (MQ)

307 Introductory Biostatistics (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. 2, Rec. 1) Pre: MTH 107 or 108 or 131 or 141 or permission. Not open to students with credit in 308 or 409.

308 Introductory Statistics (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. 2, Rec. 1) Pre: MTH 107 or 110 or 111 or 131 or 141 or BUS 111 or permission. Not open to students with credit in 307 or 409.

409 Statistical Methods in Research I (3)

Same as 308 but is for students who have better mathematical preparation. (Lec. 3) Pre: MTH 131 or 141. Not open to students with credit in 307 or 308.

411 (or PHP 411 or BPS 411) Biostatistics II (3)

An overview of statistical methods used in performing research in pharmacotherapeutics and pharmacoepidemiology. Emphasis will be on understanding both common study designs and the output from statistical analysis of data obtained from these studies. (Lec. 3) Pre: an introductory statistics course (i.e., 307) or permission of instructor.

412 Statistical Methods in Research 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.

491 Directed Study in Statistics (1–3)

Advanced work in statistics. Conducted as supervised individual projects. (Independent Study) Pre: permission of chairperson. S/U credit.

492 Special Topics in Statistics (3)

Advanced topics of current interest in statistics. (Lec. 3) Pre: permission of chairperson.

500 Nonparametric Statistical Methods (3)

Rank and sign tests, permutation tests and randomization, run test, tests of goodness of fit, order statistics, estimation, and comparison with parametric procedures. Examples illustrating the applications of nonparametric techniques. (Lec. 3) Pre: 409.

501 Analysis of Variance and Variance Components (3)

Analysis of variance and covariance, experimental design models, factorial experiments, random and mixed models, estimation of variance components, unbalanced data. (Lec. 3) Pre: 412.

502 Applied Regression Analysis (3)

Topics in regression analysis including subset selection, biased estimation, ridge regression, and nonlinear estimation. (Lec. 3) Pre: 412.

513 Statistical Quality Assurance

See Industrial and Systems Engineering 513.

515 Spatial Data Analysis (3)

Analysis of point patterns: visualizing, exploring and modeling, space time clustering, correcting for spatial variation, clustering around a specific point source. Analysis of spatially continuous data: variogram analysis and Kriging methods. (Lec. 3) Pre: 412 or permission of instructor.

517 Small N Designs

See Psychology 517.

520 Fundamentals of Sampling and Applications (3)

Simple random sampling; properties of estimates, confidence limits. Sample size. Stratified random sampling; optimum allocation, effects of errors, and quota sampling. Regression and ratio estimates; systematic and multistage sampling. (Lec. 3) Pre: 308 or 409.

522 Bioinformatics I (3-4)

See Computer Science 522.

532 (or ASP 532 or PSY 532) Experimental Design (3)

Application of statistical methods to biological and psychological research and experimentation. Experimental situations for which various ANOVA and ANCOVA designs are most suitable. (Lec. 3) Pre: 409 or equivalent.

535 Statistical Methodology in Clinical Trials (3)

Bioavailability, dose response models, crossover and parallel designs, group sequential designs, survival analysis, meta analysis. (Lec. 3) Pre: 409, 411, or 412 or permission of instructor.

536 Applied Longitudinal Analysis

Longitudinal data, linear mixed effects models, repeated measures ANOVA, generalized linear models for correlated data. (Lec. 3) Pre: 411 or 412 or permission of the instructor.

541 Multivariate Statistical Methods (3)

Review of matrix analysis. Multivariate normal distribution. Tests of hypotheses on means, Hotelling's T², discriminate functions. Multivariate regression analysis. Canonical correlations. Principal components. Factor analysis. (Lec. 3) Pre: 412.

542 Categorical Data Analysis Methods (3)

Analysis of multidimensional categorical data by use of log-linear and logit models. Discussion of methods to estimate and select models followed by examples from several areas. (Lec. 3) Pre: 412.

545 Bayesian Statistics (3)

Introduces Bayesian methods for a variety of statistical problems. Topics include Bayesian inference, model selection, Bayesian computation, hierarchical models and Gibbs sampling. Open-source software will be utilized for Bayesian data analyses. Pre: 411 or 412 or permission of instructor.

550 Ecological Statistics (3)

Application of statistical methodology to the following topics: population growth, interactions of populations, sampling and modeling of ecological populations, spatial patterns, species abundance relations, and ecological diversity and measurement. (Lec. 3) Pre: 409 or permission of instructor.

576 Econometrics

See Environmental Economics 576.

584 Pattern Recognition

See Electrical Engineering 584.

591 Directed Study in Statistics (1–3)

Advanced work in experimental statistics conducted as supervised individual projects. (Independent Study) Pre: permission of chairperson. S/U credit.

592 Special Topics in Statistics (3)

Advanced topics of current interest in statistics. (Lec. 3) Pre: permission of chairperson. May be taken more than once.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

610 Parsimony Methods

See Psychology 610.

612 Structural Modeling

See Psychology 612.

In addition to statistics courses offered by the Department of Computer Science and Statistics under the STA code, there are a number of statistics-oriented courses offered by other departments:

Business

210 Managerial Statistics I

212 Managerial Statistics II

461 Forecasting

Industrial and Systems Engineering

411 Probability and Statistics for Engineers

412 Statistical Methods for Engineers

533 Advanced Statistical Methods for Research and Industry

634 Design and Analysis of Industrial Experiments

Master of Business Administration

500 Statistical Methods for Management

582 Applied Time Series Methods and Business Forecasting

Mathematics

451 Introduction to Probability and Statistics

452 Mathematical Statistics

550 Probability and Stochastic Processes

551 Mathematical Statistics

Psychology

300 Quantitative Methods in Psychology

533 Advanced Quantitative Methods in Psychology

Sustainability (SUS)

Coordinator: Professor Swift
(Communication Studies)

315 Environmental Dimensions of Communication

See Communication Studies 315.

Textiles, Fashion Merchandising, and Design (TMD)

Chairperson: Professor Welters

103 Textile Products (3)

Product knowledge in design, manufacturing, and merchandising within the textile complex. Emphasis on domestic and international issues. Survey of careers in business, industry, government, and research. (Lec. 3)

113 Color Science (3)

The science of color: light and its interaction with objects and color vision. Color explained, mixed, measured, described, and reproduced (paints, dyes, photography, TV). Color in the natural world. (Lec. 3) (N)

222 Apparel Production (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/Online) Pre: 103.

224 Culture, Dress, and Appearance (3)

Analysis of social, psychological, and cultural factors in the creation, maintenance, and use of human appearance. Focus on dress and appearance as a communication system from cross-cultural and international perspectives. (Lec. 3) (FC) or (S) [D]

226 Interior Design I (3)

Physical, social, psychological, economic, and aesthetic aspects required of interiors for single and multiple dwellings; interactive functions of residential and commercial spaces; elements and principles of design. (Lec. 3) Pre: ART 101 or 207 or ARH 120 or 251 or 252.

232 Fashion Retailing (3)

A comprehensive study of fashion retailing as an operating system. Examination of the strategies and the organizational structure that support the fashion retail system. (Lec. 3/Online)

240 Development of Contemporary Fashion (3)

History of contemporary fashion from the beginning of the 20th century to the present. Influence of designers, buyers, consumers, and technology on fashion in the marketplace. (Lec. 3) Pre: 103 and sophomore standing.

303 Textile Science (3)

The primary textile industry: fiber to finished fabric. Textile fibers and their properties; yarns, fabric construction, dyeing, finishing, and printing. (Lec. 3) Pre: TM or TMD majors admitted to the College of Human Science and Services with junior standing and credit in CHM 105. TMD 313 must be taken concurrently.

313 Textile Science Laboratory (1)

Laboratory exercises in fiber identification, fabric analysis, and fabric performance testing, dyeing, and finishing. (Lab. 2) Students must be admitted to the degree-granting college (HSS) as TMD or TM majors, and concurrently enrolled in 303.

325 Apparel I (4)

Principles of garment production as related to construction, fit, performance, quality, and cost. Construction techniques, sizing, material evaluation, and assembly management. Quality analysis and introduction to computer-aided design. (Lec. 2, Lab. 4) Pre: 103.

326 Interior Design II (3)

Application and implementation of design concepts to interior spaces; elevations, sections, materials selection, isometrics and perspectives, presentation boards. Introduction to computer-aided design (Lec. 2, Lab. 2) Pre: TMD 103 and 226.

327 Apparel Design (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) Pre: ART 101 or 207 or ARH 120 or 251 or 252 and TMD 222 or 325.

332 Fashion Merchandise Buying (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.

335 Apparel II (3)

Application of flat pattern design. Special emphasis on sloper development and pattern drafting. Creative laboratory processes from design to finished product. (Lec. 2, Lab. 2) Pre: 325 or permission of instructor.

342 Fashion Study Tour (1)

Students spend two weeks overseas during intercession 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. (Practicum) Pre: junior standing or permission of instructor.

345 CAD Apparel Design (3)

Application of flat pattern design using computer-aided design techniques as related to sloper development, sizing, and pattern manipulation. Creative laboratory processes from design to finished product. (Lec. 2, Lab. 2) Pre: 335 or permission of instructor.

346 Computer-Aided Textile and Apparel Design (3)

Development and production of textile and apparel designs and patterns using selected computer soft-

ware packages. Implications for use in the apparel industry. (Lec. 1, Lab. 4) Pre: 327 or permission of instructor.

355 Draping for Apparel (3)

Application of draping techniques for apparel pattern making and design. Includes sloper development and draping in fashion fabric. Creative laboratory processes from design to finished product. (Lec. 2, Lab. 2) Pre: 335 or permission of instructor.

358 Weaving (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)

361, 362 Special Problems (1–4 each)

Open to qualified juniors and seniors who wish to do advanced work. (Independent Study) Pre: approval of application by instructor and chairperson. May be repeated for a maximum of 6 credits.

402 Seminar in Textiles and Clothing (1–2)

Recent developments in manufacturing, marketing, and retailing of textile products. Discussion of fashion issues and impact on consumer. Lectures by speakers from business, industry, and government. (Lec. 1–2) Pre: TM or TMD majors admitted to the College of Human Science and Services with junior or senior standing or permission of instructor. May be repeated once.

403 Textile Performance (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.

413 Dyeing and Finishing of Textiles (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.

424 Fashion Theory and Analysis (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.

426 Historic and Contemporary Furniture (3)

Review of major historical styles of furniture and their influence on contemporary furniture design. Materials, styles, and construction of contemporary furniture. In-depth study of upholstery fabrics. (Lec. 3) Pre: 103, 226.

427 Portfolios and Presentations (3)

Students create design portfolios using traditional media and digital techniques. Development of original ideas in sketches and technical flats. (Lec. 2, Lab. 2) Pre: 327 or permission of instructor. Not for graduate credit.

432 Fashion Retail Supply Chain Management (3)

Comprehensive understanding and analysis of fashion retail organization management including financial merchandising management, product development and supply chain management in the fashion industry. Emphasis on implications for retail organization management. (Lec. 3) Pre: 232 and 332.

433 Textile Markets (3)

Study of social, economic, and political issues that 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/Online) Pre: 303 and ECN 201 and 202.

440 Historic Textiles (3)

Chronological study of textiles, emphasizing socio-economic, religious, and political influences. Contribution of designers, inventors, trade groups, and industrialists. (Lec. 3) Pre: 303 and 313 or permission of instructor.

441 History of Western Dress (3)

Study of western dress from earliest civilizations to early 20th century and factors that affect design, production, and use; material culture analysis of a pre-20th century garment or accessory. (Lec. 3) Pre: 303 and 313 or permission of instructor.

442 Fashion Promotion (3)

Emphasis on understanding and applying the principles of fashion retailing communication. Evaluation and application of effective promotional activities such as visual merchandising and fashion shows to trade and retail levels of fashion merchandising. (Lec. 3) Pre: 232 and 332 or permission of instructor.

452 Consumer Behavior in Fashion Retailing (3)

Use by fashion retailing management of explanatory and predictive models of consumer behavior relating to fashion merchandising in establishing retail policy and strategy. (Lec. 3) Pre: 232 and 332 or permission of instructor.

461, 462 Internship (1–6)

Structured internship in textiles, apparel, or interior design supervised by a faculty advisor. Juniors and seniors work in business, industry, or other agencies under supervision of qualified personnel. (Minimum of 45 hours per semester per credit) May be repeated for a maximum of 12 credits. Pre: completion of 60 credits, minimum GPA of 2.00, and permission of instructor and chairperson. Not for graduate credit.

500 Ethnic Dress and Textiles (3)

Survey of regional styles of dress and textiles from all areas of the world, excluding fashionable dress. Influence of social, economic, technological, and aesthetic factors. (Lec. 3) Pre: 224 or equivalent, 440, 441 or permission of instructor. In alternate years.

503 Topics in Textile Science (3)

Advanced study in a particular area of textile science. One topic will be studied from a list that includes dyeing, finishing, printing, polymer and fiber chemistry, dyestuff chemistry, and color science. (Lec. 2, Lab. 2) Pre: graduate standing, 303 or equivalent, or permission of instructor. May be repeated up to three times with different topics.

510 Research Methods in Textiles (3)

Application of research methodology to the study of textiles and clothing. Approach is multidisciplinary in that experimental, social science, and historic methods are covered. (Lec. 3) Pre: graduate standing or permission of instructor.

513 Detergency (3)

Study of composition and function of surfactants and additives in laundry detergents for home, industrial, and institutional applications; effect of fabric, water, and soil on cleaning; evaluation of laundry products. (Lec. 2, Lab. 2) Pre: graduate standing, 303 or equivalent, or permission of instructor. In alternate years.

518 Introduction to Textile Conservation (3)

Survey of methods used to analyze, clean, repair, store, and exhibit historic textiles and apparel. Laboratory experience in conservation practices. (Lec. 2, Lab. 2) Pre: a textile science course and historic textiles or costume course, or permission of instructor.

524 Cultural Aspects of Dress (3)

Seminar in social, psychological, and cultural aspects of dress. Symbolic interaction and other dress-relevant theories concerning individual motivation and group interaction. (Seminar) Pre: 224 or permission of instructor.

528 Cleaning Historic Textiles (1)

Application of aqueous and solvent cleaning treatments used by textile conservators on historic and ethnographic textiles and apparel. (Lab. 2) Pre: 518 and concurrent enrollment in 513, or permission of instructor. In alternate years.

530 Historic Textile Internship (2–4)

Supervised internship designed to introduce the student to management of textile and costume collections in a museum or historical society setting. Individually designed to suit student needs: conservation, education, and research. (Practicum) Pre: 510, 518, graduate standing in textiles, fashion merchandising, and design, or permission of chairperson.

538 Repair and Stabilization (3)

Study of repair and stabilization practices used by textile conservators; evaluation of materials and techniques for treating damaged objects. (Lec. 2, Lab. 2) Pre: 518, experience in textile conservation, or permission of instructor. In alternate years.

540 Special Problems in Textiles and Clothing (3)

Supervised independent study in specific areas of textiles and clothing. (Independent Study) Pre: permission of chairperson. May be repeated once.

548 Exhibition and Storage of Historic Textiles (3)

Study of how light, temperature, humidity, and stress affect textiles and apparel; review of exhibition and storage techniques and materials; preparation of an exhibition for the Textile Gallery. (Lec. 2, Lab. 2) Pre: 518, experience in textile conservation and exhibition, or permission of instructor. In alternate years.

558 Topics in Textile Conservation (1–3)

Investigation of textile conservation theory and methodology. Some topics will include laboratory assignments. (Lec. 1–3) Pre: 518 or experience in textile conservation, and permission of instructor. May be repeated with different topic.

568 Special Problems in Textile Conservation (1–3)

Supervised independent studies on specific textile conservation projects or research. (Independent Study) Pre: 518 or experience in textile conservation, and permission of instructor. May be repeated for a maximum of 6 credits.

570 Topics in Historic Textiles or Costume (3)

Advanced study in a particular area of historic textiles or costume using artifactual and documentary primary sources. Use of historic textile and costume collection. (Lec. 3) Pre: 440, 441 or equivalent. May be repeated for a maximum of 6 credits.

580 Curatorship (3)

Supervised experience planning and mounting an exhibition in URI Textile Gallery. Student identifies a theme, selects artifacts, writes proposal, prepares objects, writes labels and promotional materials, and helps install exhibit. (Practicum) Pre: 518 and permission of instructor, 548 recommended.

599 Master's Thesis Research

Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) 5/U credit.

Thanatology (THN)

Coordinator: Associate Professor Ferszt (College of Nursing)

360 Impact of Death on Behavior

See Nursing 360.

390 Directed Study

See Nursing 390.

421 Death, Dying and Bereavement

See Human Development and Family Studies 421.

471 Responding to Grief

See Human Development and Family Studies 471.

506 Independent Study (2–6)

See Nursing 506.

523 Contemporary Thanatology (3)

See Nursing 523.

524 Exploring Loss Through Creative Arts Therapy

See Nursing 524.

525 Spirituality of Loss and Death for the Helping Professions

See Nursing 525.

526 Loss Across the Life Span

See Nursing 526.

529 Special Topics in Thanatology

See Nursing 529.

In addition, special topics and directed studies in thanatology may be offered by the Department of Human Development and Family Studies, the College of Nursing, and the Honors Program.

Theatre (THE)

Chairperson: Associate Professor McClasson

Courses in theatre offer theory, production, design, and performance training in various areas of dramatic arts, and many are open to nonmajors. The Theatre Department conducts open auditions and makes performance and production work available to all members of the URI community.

100 Introduction to Theatre (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, Lab. 4) Not open to theatre majors. (A)

111 Introduction to Acting (3)

Designed to initiate students to theatre as a collaborative art through systematic exposure to the principles and techniques of acting. (Studio 6)

112 Introduction to Acting II (3)

To expand the work of 111 (exercise for relaxation, concentration, imagination) with character work on a monologue and scene complemented by intense

work on voice, text, and movement. (Lec. 2, Lab. 2) Pre: 111.

161 Introduction to Stagecraft (3)

Stage carpentry, rigging, properties, scene painting, and lighting mechanics with practical experience working on productions. (Lec. 2, Lab. 2)

181 Script Analysis (3)

Analysis of plays from varying perspectives of the actor, director, and designer. Course emphasizes theatre terminology and develops a working vocabulary. (Lec. 3) (A)

182 Script Analysis for Film Media (3)

Understanding scripts through analysis of structure, character, language, genre, and style and their evolution from page to film. Scripts, videos, and DVDs will be studied. (Lec. 3)

211, 212 Basic Acting I, II (3 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 6) Pre: (for 211) 111, 112, and concurrent enrollment in 213. 212: Continuation of 211. Pre: 211.

213 Acting Workshop (1)

A voice-movement workshop to be taken concurrently with 211. (Studio 2) Pre: concurrent enrollment in 211.

214 Acting Workshop (1)

A voice-movement workshop to be taken concurrently with 212. (Studio 2) Pre: concurrent enrollment in 212.

217 The Role of Music in Theatre (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. (Studio 6) Pre: permission of instructor. May be repeated for a maximum of 6 credits with permission of instructor.

221 Stage Management (3)

Theoretical and practical study of the basic methods and procedures of the production with emphasis on the director-stage manager relationship and the role of each. Participation in productions required. (Lec. 2, Lab. 2)

227 Dance for Musical Theatre (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. (Studio 6) Pre: theatre major or permission of instructor. May be repeated once with permission of instructor.

237 Stage Combat (3)

Fundamental principles of safety, form, choreographic conception, and execution. Unarmed combat included. Eventual application in a performance environment geared to beginning and advanced students. (Studio) Pre: permission of instructor.

250 Costume Laboratory (3)

Practical experience in the principles of costuming including construction and finishing techniques, and experience working on a theatrical production. (Lec. 1, Lab. 4)

261 Introduction to Theatre Design (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)

291 Production Laboratory (1)

Orientation and instruction in theatre through tutored participation in crews and production assignments or projects for departmental productions. (Independent Study) May be repeated for credit.

300 Individual Problems in Theatre Studies (1–3)

Individual theatre work on an approved project under supervision of a faculty member. (Independent Study) May be repeated for a maximum of 6 credits.

301 Special Group Studies (1–3)

Group theatre work in approved production projects under supervision of a faculty member. (Independent Study) May be repeated for a maximum of 6 credits.

307 Creative Dramatics (3)

Explores purposes, techniques, and benefits of drama in the K-12 classroom. Theory and practice of creative dramatics, methodologies, and activities. Teaching practicum in and out of the class to develop utilization of creative drama to teach a variety of skills. (Lec. 2, Lab. 2)

311, 312 Intermediate Acting I, 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: 212; concurrent enrollment in 313. 312: Continuation of 311. (Studio 6) Pre: 311; concurrent enrollment in 314.

313 Acting Workshop (1)

A voice-movement workshop to be taken concurrently with 311. (Studio 2) Pre: concurrent enrollment in 311.

314 Acting Workshop (1)

A voice-movement workshop to be taken concurrently with 312. (Studio 2) Pre: concurrent enrollment in 312.

321 Orientation to Play Direction (3)

Director's role in the process of theatre production. Emphasis on development of production concepts and rehearsal techniques. (Lec. 2, Lab. 2)

322 Play Direction (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.

331 Playwriting (3)

Analysis and evaluation of written material supplemented by play readings and workshop tryouts of students' plays. (Lec. 2, Lab. 2)

341 Theatre Management (3)

Principles, terminology, and practical technique of theatre administration. Assignments will be made to departmental productions. (Lec. 2, Lab. 2)

350 Makeup (1)

Principles and techniques of stage makeup. Practical experience in application through a number of projects in developing character makeups with prosthetics, wigs, and facial hair. (Studio 2) Open to senior theatre majors only. Others by permission of instructor.

351, 352 Principles and Theories of Theatrical Costuming I, II (3 each)

351: Analytical study of fashions, modes, and manners in Western civilization as required for modern theatrical production; early recorded history to the Renaissance. (Lec. 3) 352: Continuation of 351; the Renaissance to the present. (Lec. 3) (A) [D]

355 Stage Costume Design (3)

Costume design theories and techniques for modern and period plays in a wide variety of styles. (Studio 6) Pre: 261 and 351 or 352 or permission of instructor.

362 Scene Painting (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)

365 Scene Design (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. (Studio 6) Pre: 261 or permission of instructor.

371 Stage Lighting (3)

Theories and techniques of lighting for the stage. A series of design projects and lab work introduces students to script analysis and conceptualization for lighting, instrumentation, and the use of color in stage lighting. (Lec. 2, Lab. 2)

381 History of Theatre to 1642 (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) (A)

382 History of Theatre: Neoclassical Through the 19th Century (3)

Course includes non-Western drama of China, Japan, and Korea. Continuation of 381. (Lec. 3) (A)

383 History of the Modern Theatre (3)

Modern theatre and drama from 1880 to the present. Course includes new European stagecraft and its influence on the development of modernist and postmodernist drama, and contemporary non-Western drama. (Lec. 3) (A)

384 American Theatre History (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. (Lec. 3)

391 Advanced Production Laboratory (1-2)

Advanced instruction in theatre through tutored participation in crews and production assignments or projects for departmental productions. (Independent Study) May be repeated for credit.

400 Advanced Individual Problems in Theatre Studies (1-3)

Advanced individual theatre work on an approved project under supervision of a faculty member. (Independent Study) May be repeated for a maximum of 6 credits. Not for graduate credit.

401 Advanced Special Group Studies (1-3)

Advanced group theatre work in approved production projects under supervision of a faculty member. (Independent Study) May be repeated for a maximum of 6 credits. Not for graduate credit.

411, 412 Scene Study (3 each)

Emphasis on the analysis and interpretation of assigned scenes representative of the major theatrical genres and styles. (Studio 6) Pre: for 411, 312, and permission of instructor and concurrent enrollment in 417; for 412, 411 and concurrent enrollment in 418. Not for graduate credit.

413 Special Workshop in Acting (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 6) Pre: permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit.

415 Professional Internship (6-12)

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. (Practicum) Pre: permission of chairperson. Not for graduate credit.

417 Acting Workshop (1)

A voice-movement workshop to be taken concurrently with 411. (Studio 2) Pre: concurrent enrollment in 411. Not for graduate credit.

418 Acting Workshop (1)

A voice-movement workshop to be taken concurrently with 412. (Studio 2) Pre: concurrent enrollment in 412. Not for graduate credit.

420 Advanced Directing Practice (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. Weekly tutorial required. (Independent Study) Pre: 321, 322, or equivalent and permission of instructor. Not for graduate credit.

441 Advanced Theatre Management (3)

Individual projects of theatre management in a major departmental production or project. (Practicum) Pre: 341. Not for graduate credit.

451 Stage Costume Technology (3)

Construction methods and techniques appropriate to stage costuming with emphasis on major theatrical periods and productions. (Studio 6) Pre: 351 or 352 or permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit.

455 Advanced Costuming (1-3)

Individual projects in costume design for studio or major productions. Styles and theory related to projects; costume sketches and construction. (Independent Study) Pre: 355 or permission of instructor. Not for graduate credit.

463 Special Workshop in Design and Technical Theatre (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.

465 Advanced Scene Design (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.

475 Advanced Stage Lighting (1-3)

Individual projects in lighting design and control for studio and major productions. (Studio 2-6) Pre: 371 and permission of instructor. Not for graduate credit.

481 Topics in Theatre (3)

Selected topics in theatre. (Seminar) May be repeated for credit with different topic.

484 Special Research Project (3)

An in-depth study of a single critical or historical aspect of theatre. The subject is normally related to a departmental production. (Independent Study)

Pre: upper-division standing. May be repeated for a maximum of 6 credits. Not for graduate credit.

499 Senior Seminar (1)

A capstone seminar for the graduating Theatre Major. Content will be developed to assist in the transition from the educational realm to the professional world with Portfolio development and assessment as integral experience. (Seminar) Pre: senior standing and major or minor in theater.

University of Rhode Island Freshman Seminar (URI)

Coordinator: Dean Richmond

101 Traditions and Transformations: A Freshman Seminar (1)

Introduces first-year students to the traditions of higher education and academic culture and to significant societal and personal issues that bear on developing goals for the undergraduate years. Required of all new freshmen and new transfer students with less than 24 credits. May not be repeated for credit.

101 B Traditions and Transformations

[for B.G.S. students] may be taught online. Note: The community service component of URI 101 is part of the Feinstein Enriching America Program.

Women's Studies (WMS)

Director: Assistant Professor Lisberger

150 Introduction to Women's Studies (3)

Images of women, the theories and processes of socialization, historical perspectives, and implications for social change. (Lec. 3/Online) Service learning in some sections. (S) [D]

220 Women and the Natural Sciences (3)

An interdisciplinary perspective on women as practitioners and subjects of the natural sciences; history of women in science; science as a gendered discourse. (Lec. 3) (L) [D]

300 Field Experience in Women's Studies (2-6)

Supervised field work allowing students to learn through direct personal experience about the background, problems, and concerns of particular populations of women. (Practicum) Service learning. Pre: 150 or 315 or permission of instructor. May be taken or repeated for a maximum of 6 credits.

301 Women's Professional Development and Leadership (3)

Theory, data, and skill development for career building and leadership. Gender issues in organizational settings, developing professional skills and responses to challenges in the workplace, and strategies for positive change. (Lec. 3/Online)

305 Current Issues in Women's Studies (1)

Research and analysis of one issue such as job discrimination or sex trafficking. Class plans a project addressing the issue. (Lec. 1) Pre: 150. May be repeated once if topic changes.

306 Practicum in Women's Studies (1)

Practicum. Students work alone or in groups to conduct a project developed in 305. May be repeated once if topic changes. (Lec. 1) Pre: 305.

310 Race, Class, and Sexuality in Women's Lives (3)

Interconnections among race, ethnicity, class, and sexuality and the impact of sexism, racism, classism, and heterosexism on women's lives are investigated. Alliance building among women is explored. (Lec. 3) Pre: 150 or 315 or permission of instructor.

315 Introduction to Feminist Theories and Methodologies (3)

Development of feminist thought, exploration of contemporary feminist theories and research methods, including African-American, lesbian, Western and non-Western perspectives, and the future role of feminist theories and methodologies. (Lec.3/Online) Pre: 150 or permission of instructor. (L) [D]

317 (or ENG 317) Contemporary Women Novelists of the Americas (3)

Novels by contemporary women writers from the American continents. Topics include construction of the female body, sexuality and desire, motherhood, exile and immigration, women and work. (Lec. 3) (A) [D]

320 Feminist Thought into Action (3)

Analysis and discussion of how feminist thought has been transformed into action for social change. Women's civil and human rights. Political thought, analysis, and activism in campaigns for women's rights. Pre: 150 or permission of instructor. (L) or (S) [D]

325 International Women's Issues (3)

Focuses on women's rights in a global context, ideologies and practices that deny women equal status in society, including violence against women, freedom and democracy movements, and women's rights. (Lec. 3) Pre: 150 or permission of instructor.

350, 351 Special Topics in Women's Studies (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. (Lec. 3/Online) 350, 351 topics include "Media Images of Women," "Narrative of the Witch," "Women and Aging," "Women and Health," "Women and the Law," "Women and Music," "Women and Religion," "Women and Business Culture," "Ecofeminism," "Latin American Women," "Native American Women," "Women and Film," "Women, Violence and Non-violence," "Women and

Mental Health" and "Violence Prevention Training."

Some topics may be offered online. May be repeated with different topic.

360 Men and Masculinities (3)

Examines from a feminist perspective the values, beliefs, myths, realities, research, and writings about men and masculinities in contemporary United States life. (Seminar/Online). Pre: 150.

361 Women's Lives in New England, 1790-1930

See History 361.

365 Sexual Victimization (3)

Analysis of a range of victimizations, based on gender and sexualities. Consideration of heterosexist and homophobic reactions through such acts as bullying, harassment, abuse, and assault; intersections with age, race, and gender. (Seminar) Pre: 150 or permission of instructor.

370 Sex Trafficking (3)

Focuses on the commercial sexual exploitation and slavery of women and girls and the impact on their health, rights, and status in society. (Lec. 3/Online) Pre: 150 or permission of instructor.

400 Critical Issues and Feminist Scholarship (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. (Seminar) Pre: 315 or 310 or 320 and senior standing or permission of instructor.

401 Human Trafficking and Contemporary Slavery (3)

Focuses on contemporary human trafficking and slavery, including sex trafficking, bonded labor, forced labor, child soldiers, and domestic servant slavery. (Lec. 3) Pre: junior standing or permission of the instructor. Not for graduate credit.

402 Campaigns and Services for Victims of Trafficking and Slavery (3)

Focuses on historical and contemporary campaigns for ending human trafficking and slavery and on providing services to contemporary victims of human trafficking and slavery. (Lec. 3/Online) Pre: junior standing or permission of instructor. Not for graduate credit.

410 Portfolio in Women's Studies (1)

Portfolio of student papers and projects as culmination of women's studies course work. (Lec. 1) Pre: WMS majors and minors in senior year. Not for graduate credit.

430 Women and Human Rights Policy (3)

Focus on women and human rights around the world and human rights policy in the U.S. The human rights movement from the 1970s to the present will be discussed. (Lec. 3/online) Pre: junior standing.

450 Independent Study (3)

Advanced work in women's studies under the direction of a faculty member affiliated with the women's studies program. (Independent Study) Pre: junior or senior standing. May be repeated for a maximum of 6 credits.

490 Advanced Topics in Women's Studies (1-3)

Advanced study in topics of special interest in women's studies. This course will be conducted as a seminar for juniors, seniors, and graduate students. Pre: 315 or 310 or 320 and senior standing or permission of instructor. (Seminar) Some topics may be offered online. May be repeated with different topic.

500 Colloquium in Women's Studies (2-3)

Discussion of research methods in women's studies; presentations on current research and issues relevant to women's and gender studies.

501 Human Trafficking and Contemporary Slavery (3)

Focuses on contemporary human trafficking and slavery, including sex trafficking, bonded labor, forced labor, child soldiers, and domestic servant slavery. (Lec. 3) Pre: graduate standing or permission of instructor.

502 Campaigns and Services for Victims of Trafficking and Slavery (3)

Focuses on historical and contemporary campaigns for ending human trafficking and slavery and on providing services to contemporary victims of human trafficking and slavery. (Lec. 3) Pre: 501 or permission of instructor.

Following are related courses offered by various departments of the University.

African and African-American Studies

290 African-American Women: Service, Community, and Self

Anthropology

310 Gender and Culture

Art History

385 Women in Art

Business Administration

346 Women in Business and Management

Communication Studies

345 Gender and Communication

Community Service

303 Service in the Community

English

260 Women and Literature

385 Women Writers

History

118 Women in European History

145 Women in the North American Colonies and the United States, 1500-1890

146 Women in the United States, 1890-Present

308 Between Eve and Mary: Women in the Middle Ages

351 Historical Perspectives on Women and Health

352 Topics in the History of Women and Gender

355 Black Women in the U.S.: Colonial Times to the Present

376 Women in Muslim Societies

391 Directed Study or Research (when the topic is women)

Human Development and Family Studies

230 Marriage and Family Relationships

298 Contemporary Issues in Student Development

430 Family Interaction

432 Perspectives on Parenting

433 Family Life Education

437 Law and Families in U.S.

505 Human Sexuality and Counseling

559 Gender Issues in Therapy

Kinesiology

475 Gender Issues in Sport and Physical Culture (3)

555 Women in Sport: Issues and Controversies

Nursing

150 Human Sexuality

459 Perspectives on Male and Female Sexuality

Philosophy

210 Women and Moral Rights

Political Science

441 Women and Politics

Psychology

430 Intimate Relationships

466 Child Sexual Abuse

480 Psychology of Women

Sociology

212 Families in Society

242 Sex and Gender

413 Gender Inequality

420 Family Violence

430 Intimate Relationships

403 Gender, Crime, and Justice

Textiles, Fashion Merchandising and Design

224 Culture, Dress, and Appearance

In addition, special topics may be offered by other departments.

Writing (WRT)

Director: Associate Professor Miles

100 Introduction to College Writing (2)

Practice in topic development, research techniques, documentation and attribution, and process-based writing. Focuses on thesis statements, topic sentences, paragraphing, coherence, and syntax. (Lec. 2) Pre: admission to Talent Development's pre-matriculation program.

104 Writing to Inform and Explain (3)

Writing emphasizing the sharing of information. Varieties and strategies of expository writing for differing audiences and situations. Genres may include reports, proposals, letters, reviews, Web sites, academic essays. (Lec. 3) Not open to students with credit in 105 or 106. (ECw)

105 Forms of College Writing (3)

Practice in writing papers frequently assigned in introductory and general education courses across the curriculum. May include summaries, syntheses, annotations, reaction papers, text analysis, documented thesis-support papers. Emphasizes disciplinary conventions. (Lec. 3) Not open to students with credit in 104 or 106. (ECw).

106 Introduction to Research Writing (3)

Introduction to working with sources and the research process. Guided help in conducting interviews, observations, and database searches. All assignments contribute to a major research report. Not open to students with credit in 104 or 105. (Lec. 3) (ECw)

201 Writing Argumentative and Persuasive Texts (3)

Concepts, methods, and ethics of argumentative and persuasive writing. Writing argumentatively to examine complex issues, define values, resist coercion, and seek common ground among diverse publics. (Lec. 3) (ECw)

227 Business Communications (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/Online) Open to business majors with sophomore or higher standing. Open to a limited number of writing majors with sophomore or higher standing. (ECw)

235 Writing in Electronic Environments (3)

Includes writing with computers; email; Internet; text on screen, graphic- and audio-enhanced text; desktop publishing; study of document design and the history of writing as shaped by technologies. (Lec. 3/Online) (ECw)

240 The Essay (3)

Contemporary and historical backgrounds. Explores rhetorical strategies, role of essayist literacy in identity and social formation, nonfiction reading and response techniques. Attention to language and style. (Lec. 3)

270 Writing Our Selves: Writing in the Expressivist Tradition (3)

Focuses on the expressivist tradition of writing, including memoirs, medical narratives, nature meditations, and informal essays. (Seminar)

302 Writing Culture (3)

Experience with noncanonical writings that sustain or reshape culture. May include profiles and biographies, reviews, food and fashion writing, liner and exhibition notes. (Lec. 3/Online) (ECw)

303 Public Writing (3)

Writing in the public sphere. Emphasizes civic literacy, democratic discourse, and writing for social change. May include letters, public documents, electronic forums, activist publications, legislative texts. (Lec. 3/Online) (ECw)

304 Writing for Community Service (3)

Study and practice of nonacademic writing for community service organizations. Entails substantial outreach, teamwork, research, composing, designing, and revision. May include brochures, recommendation reports, Web sites, membership packets. Service Learning. (Lec. 3) (ECw) [D]

305 Travel Writing (3)

Writing about places both new and familiar. Emphasis on descriptive techniques, the use of facts, and different critical and cultural perspectives. May include place journals, book reviews, proposals, non-fiction essays. (Lec. 3/Online) (ECw) [D]

306 Writing Health and Disability (3)

Explores the ways we experience, label, and politicize health and disability in our culture. Writing may include narratives, cultural critiques, persuasive essays, and policy proposals. (Lec. 3/Online)

333 Scientific and Technical Writing (3)

Practice in specific forms of writing in the scientific and technical fields. (Lec. 3) Competence in basic skills required. (ECw)

353 Issues and Methods in Writing Consultancy (3)

Practice and theory of one-to-one instruction emphasizing varied writing situations and multiple learning styles. Covers approaches to collaboration, learning, writing, and responding. Offers strategies for making appropriate writing choices. (Lec. 3) Pre: permission of instructor or B or better in two WRT courses.

360 Composing Processes and the Canons of Rhetoric (3)

Examines historical and contemporary theories of composing and rhetorical canons: writing processes, style and arrangement, and relationships among writing, learning social contexts, technology, and publication. Field research on professional writers. (Lec. 3) Pre: 201 and another WRT course at the 200-level or above.

383 Field Experience in Writing Consultancy

Supervised field experience, tutoring in the Writing Center or in the undergraduate peer consultants program. Pre: 353 and permission of instructor. May be repeated for a maximum of 9 credits

391, 392 Independent Study in Writing and Rhetoric (1-3)

Intensive study and practice of an approved topic in writing and rhetoric under the supervision of a faculty member. (Independent Study) Pre: permission of director.

415 Perspectives on Reporting

See Journalism 415.

435 (or EDC 435) The Teaching of Composition (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. (Seminar) Pre: junior standing or permission of instructor.

484 Internship in Writing and Rhetoric (1-3)

Practice and direct supervision in workplace writing. Placement options include community-based, governmental, technological, health services, military, educational, and nonprofit organizations. (Practicum). Pre: 60 credits with a minimum of 12 in WRT, 2.50 GPA, and permission of faculty advisor. May be repeated for a maximum of 6 credits. S/U only.

490 Writing and Rhetoric (3)

Study emphasizing audience, composing processes, and rhetorical theories, including issues relevant to writing professionally. (Lec. 3) Pre: 360.

495 Composing Electronic Portfolios (3)

Capstone for WRT majors. Readings in electronic writing technologies and portfolios. Preparation of a substantive collection of representative writings. Culminates in an electronic portfolio and a public writing showcase. (Lec. 3) Pre: 360 and an additional 300-level writing course. Not for graduate credit.

512 Studies in Rhetorical Theory (3)

Emphasis on written discourse and the relationships among language, epistemology, and subjectivity. Readings will range from classical to contemporary and will reflect the expanding canon of rhetorical theory. (Lec. 3) Pre: graduate standing or permission of instructor.

524 Histories and Theories of Writing Instruction (3)

Traces the origins and influences on current writing instruction, beginning with composition treatises of the 19th century and concluding with an analysis of contemporary practices. May include archival research. (Lec. 3) Pre: graduate standing or permission of instructor.

533 Graduate Writing in Life Sciences (3)

Graduate writing skills for the life and environmental sciences; writing and editing journal articles, proposals; rhetorical analysis of scientific writing. (Lec. 2, Lab. 2) Pre: WRT 104, 105, or 106 or equivalent or

permission of instructor; graduate standing or senior status.

599 Masters Thesis Research in Rhetoric (1-6)

Number of credits is determined each semester in consultation with major professor or program committee. Pre: permission of graduate director in writing & rhetoric.

645 Seminar in Rhetoric and Composition (3)

Critical and theoretical conceptions of rhetoric and rhetoricality with varying historical periods and/or connections to cultural studies, literature, and composition studies. (Seminar)

647 Seminar in Research Methods: Rhetoric and Composition Studies (3)

Advanced practice in the theory and design of research projects, emphasizing qualitative and quantitative studies. May include archival research, teacher-research, ethnographies, case studies, interviews, surveys, experiments, and discourse analyses. (Seminar) Pre: graduate standing or permission of instructor.

691 Independent Study in Rhetoric (1-3)

Advanced study of an approved topic in Rhetoric and Writing Studies under the supervision of a graduate faculty member. Pre: permission of WRT graduate director. May be repeated for a maximum of six credits.

699 Doctoral Dissertation Research in Rhetoric (1-9)

Number of credits is determined each semester in consultation with the major professor or program committee. Pre: permission of graduate director in writing & rhetoric.

999 Methods of Teaching College Writing (0)

Materials and multiple methods of teaching writing on the college level. Required of teaching assistants who will teach in the Writing and Rhetoric unless waived by the director of English graduate studies, the supervisor of teaching assistants, and the director of Writing and Rhetoric. (Seminar)

For an explanation of course codes and other numbers and abbreviations, see pages 165-166.

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(as of July 30, 2009)

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Faculty (as of July 30, 2009)

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★Denotes graduate faculty

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★Boothroyd, Geoffrey, Ph.D., *Professor of Industrial and Manufacturing Engineering*
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Brittingham, Barbara, Ph.D., *Dean, College of Human Science and Services and Professor of Education*
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Caldwell, Marjorie J., Ph.D., *Professor of Nutrition and Food Science*
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 ★Cohen, Stewart, Ph.D., *Professor of Human Development and Family Studies*
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 ★Doody, Agnes G., Ph.D., *Professor of Communication Studies*
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Patric, Earl F., Ph.D., *Associate Dean of the College of Resource Development and Professor of Natural Resources Science*
Pearlman, Daniel D., Ph.D., *Professor of English*
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Ramsay, Karen M., M.L.S., *Associate Professor, Library*
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★Recksiak, Conrad W., Ph.D., *Professor of Fisheries, Animal and Veterinary Science*
★Reilly, Mary Ellen, Ph.D., *Professor of Women's Studies and Sociology*
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★Roxin, Emilio O., Ph.D., *Professor of Mathematics*
★Russo, Francis Xavier, Ph.D., *Professor of Education*
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★Schilling, Jean-Guy, Ph.D., *Professor of Oceanography*
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★Schmieding Norma Jean, Ed.D., *Professor of Nursing*
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Schwarz, Stephen D., Ph.D., *Professor of Philosophy*
★Schwartzman, Solomon, Ph.D., *Professor of Mathematics*
★Seleen, Diane Rae, Ed.D., *Associate Professor of Physical Education and Exercise Science*
★Shao, David M., Ph.D., *Associate Professor of Industrial Engineering*
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★Shaw, Richard J., Ph.D., *Associate Professor of Plant Sciences*
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Sheridan, Jean, M.L.S., *Associate Professor, Library*
Sherman, Arthur L., Ed.D., *Associate Professor of Physical Education*
★Shimizu, Yuzuru, Ph.D., *Professor of Biomedical and Pharmaceutical Sciences and of Chemistry*
Sieburth, Janice F., M.L.S., *Professor, Library*
★Sigurdsson, Haraldur, Ph.D., *Professor of Oceanography*
★Sillanpoa, Wallace P., Ph.D., *Professor of Italian*
★Silva, Armand J., Ph.D., *Professor of Civil and Ocean Engineering*
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★Silverstri, Gino, Ph.D., *Assistant Professor of History*
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Smith, Lewis T., Ph.D., *Professor of Fisheries, Aquaculture, and Pathology*
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★Spence, John E., Ph.D., *Professor of Electrical Engineering*
★Starkey, James L., Ph.D., *Professor of Economics*
★Stein, Arthur, Ph.D., *Professor of Political Science*
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Strommer, Diane W., Ph.D., *Dean, University College and Special Academic Programs*
★Sullivan, Richard E., *Associate Professor of Education*
★Surprenant, Carol F., Ph.D., *Associate Professor of Marketing*
★Suryanarayan, E. Ramnath, Ph.D., *Professor of Mathematics*
★Suter, Ann C., Ph.D., *Professor of Classical Studies*
★Sutinen, Jon G., Ph.D., *Professor of Environmental and Natural Resource Economics*
Suzawa, Gilbert S., Ph.D., *Professor of Economics*
Swan, M. Beverly, Ph.D., *Provost and Vice President for Academic Affairs, Justin Smith Morrill Distinguished University Professor and Associate Professor of Education*
★Swift, Elijah, Ph.D., *Professor of Oceanography and Biological Sciences*
★Swonger, Alvin K., Ph.D., *Professor of Biomedical and Pharmaceutical Sciences*
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- Tate, Barbara, Ed.D., *Dean of the College of Nursing and Professor of Nursing*
- Test, Frederick L., Ph.D., *Professor of Mechanical Engineering*
- Thompson, Jack, M.S., *Associate Professor of Journalism*
- ★Traficante, Daniel D., Ph.D., *Professor of Chemistry*
- ★Traxler, Richard W., Ph.D., *Professor of Food Science and Nutrition and of Biochemistry, Microbiology, and Molecular Genetics*
- ★Tremblay, George C., Ph.D., *Professor of Biochemistry, Microbiology, and Molecular Genetics*
- ★Trivelli, Remo J., D.M.L., *Professor of Italian*
- ★Tufts, Donald W., Sc.D., *Professor of Electrical Engineering*
- ★Turnbaugh, William A., Ph.D., *Professor of Anthropology*
- ★Twombly, Saran, Ph.D., *Professor of Biological Sciences*
- ★Tyrrell, Timothy J., Ph.D., *Professor of Environmental and Natural Resource Economics*
- ★Urish, Daniel W., Ph.D., *Professor of Civil Engineering*
- ★Valentino, Dominic, Ph.D., *Professor of Psychology*
- ★Vangermeersch, Richard, Ph.D., C.P.A., *Professor of Accounting*
- ★Vaughn, Sue Fisher, M.A., *Associate Professor of English and of Writing and Rhetoric*
- Velletri, Andrew, M.S., *Associate Professor of Mechanical Engineering*
- ★Venkatesan, M. (Ven), Ph.D., *Professor of Marketing*
- ★Verma, Ghasi Ram, Ph.D., *Professor of Mathematics*
- ★Viau, Paula A., Ph.D., *Associate Professor of Nursing*
- Viets, Hermann, Ph.D., *Dean of the College of Engineering*
- ★Viglionese, Paschal, Ph.D., *Professor of Italian*
- ★Vittimberga, Bruno M., Ph.D., *Professor of Chemistry*
- ★Vosburgh, William T., Ph.D., *Professor of Psychology*
- Wakefield, Robert C., Ph.D., *Professor of Plant Sciences*
- Waters, Harold A., Ph.D., *Professor of French*
- Weeden, Patricia J., M.S., *Associate Professor of Textiles, Fashion Merchandising, and Design*
- ★West, Niels, Ph.D., *Professor of Marine Affairs*
- Wheeler, Kimber G., M.A., *Associate Professor of Theatre*
- ★White, Frank Mangrem, Ph.D., *Professor of Mechanical and Ocean Engineering*
- White, Sidney H., Ph.D., *Professor of English*
- Willis, Jack, M.S., *Professor of Physics*
- ★Willoughby, Alan, Ph.D., *Professor of Psychology*
- Wilson, Mason P., Jr., Ph.D., *Professor of Mechanical Engineering*
- Wilson, Philip Hempstead, M.S., *Associate Professor of Plant Science*
- ★Wimbush, Mark, Ph.D., *Professor of Oceanography*
- ★Wolke, Richard E., Ph.D., *Professor of Fisheries, Animal and Veterinary Science*
- Wood, Stephen B., Ph.D., *Professor of Political Science*
- Worthen, Leonard R., Ph.D., *Associate Dean of Pharmacy and Professor of Pharmacognosy*
- Wright, William Ray, Ph.D., *Professor of Natural Resources Science*
- Yates, Vance J., Ph.D., *Professor of Animal and Veterinary Science*
- ★Yeaw, Evelyn, Ph.D., *Professor of Nursing*
- ★Yoder, James A., Ph.D., *Professor of Oceanography*
- ★Young, William, Th.D., *Professor of Philosophy*
- Zipkowitz, Fay, D.A., *Professor of Library and Information Studies*
- ★Zucker, Norman L., Ph.D., *Professor of Political Science*

Faculty

★Denotes graduate faculty

First date after title indicates appointment to present position; the second date, when the first fails to do so, indicates first appointment in the University.

- ★Aberdam, Eliane M., *Assistant Professor of Music, 2004, 2001. B.A., 1988, Rubin Academy of Music and Dance, Jerusalem, Israel; M.A., 1992, University of Pennsylvania, Philadelphia; Ph.D., 1998, University of California, Berkeley.*
- Accetta, David A., *Assistant Professor of Military Science and Leadership, 1996. B.A., 1987, University of Rhode Island.*
- ★Adams, Jerome F., *Professor of Human Development and Family Studies, 2000, 1989. B.A., 1968; M.A., 1970, University of Windsor; Ph.D., 1989, Purdue University.*
- ★Adams, Suellen, *Assistant Professor of Library and Information Studies, 2007. B.A., 1977, Upper Iowa University; M.A.L.S., 1988, University of Wisconsin, Madison; Ph.D., 2006, University of Texas.*
- ★Adams-Labonte, Sue K., *Assistant Professor of Human Development and Family Studies, 2007. B.A., 2001, Wheaton College; M.A., 2004; Ph.D., 2007, University of Massachusetts, Boston.*
- ★Adamy, Peter H., *Associate Professor of Education, 2005, 1999. B.A., 1988, Stanford University; M.A., 1994, University of California, Berkeley; Ph.D., 1999, University of Virginia.*
- ★Agostinucci, James, *Associate Professor of Physical Therapy, 1995, 1992. B.S., 1975; D.Sci., 1988, Boston University.*
- ★Akhlaghi, Fatemeh, *Associate Professor of Biomedical and Pharmaceutical Sciences, 2006, 2000. Pharm.D., 1990, Ferdousi University of Mashhad, Iran; Ph.D., 1996, University of Sydney, Australia.*
- Alfonso Peter, *Vice President for Research and Economic Development and Professor of Communicative Disorders, 2007. B.A., 1972, University of Connecticut; M.A., 1973, Western Michigan University; Ph.D., 1977, Purdue University.*
- ★Alm, Steven R., *Professor of Plant Sciences, 1999, 1987. B.S., 1976; M.S., 1979, State University of New York; Ph.D., 1985, Ohio State University.*
- ★Amador, Jose A., *Professor of Natural Resources Science, 2001, 1992. B.S., 1982; M.S., 1986; Ph.D., 1990, Cornell University.*
- Anderson, Benjamin R., *Assistant Professor of Art and Art History, 2007. B.F.A., 1984, Rhode Island School of Design; M.F.A., 1992, University of California, San Diego.*
- ★Anderson, Christopher M., *Associate Professor of Environmental and Natural Resource Economics, 2006, 2000. B.S., 1996, Brown University; Ph.D., 2000, California Institute of Technology.*
- ★Anderson, James L., *Professor of Environmental and Natural Resource Economics, 1994, 1983. B.S., 1976, College of William and Mary; M.S., 1978, University of Arizona; Ph.D., 1983, University of California, Davis.*
- ★Anderson, Joan Gray, *Professor of Consumer Studies and Human Development and Family Studies, 1997, 1984. B.S., 1971, University of Massachusetts; M.S., 1975, Cornell University; Ph.D., 1984, University of California, Davis.*
- ★Andreev, Oleg, *Associate Professor of Physics, 2009, 2005. M.S., 1979; Ph.D., 1990, Moscow Physics – Technical Institute, Russia.*
- ★Arakelian, Paul G., *Professor of English, 1993, 1976. B.A., 1969, California State University, Los Angeles; Ph.D., 1975, Indiana University.*
- Archambault, Raoul, *Professor of Military Science and Leadership, 1995. B.S., 1979, State University of New York, Albany; M.A., 1980, Central Michigan University; M.A., 1991, Salve Regina University; M.A., 1991, Naval War College.*
- ★Aronian, Sona, *Professor of Russian and Women's Studies, 1987, 1970. A.B., 1960, Boston University; Ph.D., 1971, Yale University.*
- ★Atash, Farhad, *Professor of Landscape Architecture, 1999, 1985. B.S., 1976; M.S., 1978, Tehran University; M.R.C.P., 1981, Kansas State University; Ph.D., 1986, Rutgers–The State University of New Jersey.*
- ★August, Peter V., *Professor of Natural Resources Science and Director of Coastal Institute, 1995, 1989. B.S., 1974, University of San Diego; M.S., 1976, Texas Tech University; Ph.D., 1981, Boston University.*
- Baglama, James, *Associate Professor of Mathematics, 2007. B.S., 1990; M.S., 1991, Youngstown State University; Ph.D., 1997, Kent State University.*
- Bajcz, William J. Jr., *Assistant Professor of Military Science and Leadership, 2000. B.A., 1989, Slippery Rock University.*
- ★Ballard, Robert D., *Professor of Oceanography, 2002. B.S., 1965, University of California, Santa Barbara; Ph.D., 1974, University of Rhode Island.*
- ★Barber, Stephen M., *Associate Professor of English, 2003, 1997. B.A., 1988, Trent University; M.A., 1990, Carleton University, Ottawa; Ph.D., 1995, York University.*
- Barbour, Marilyn McFarland, *Professor of Pharmacy Practice, 1997, 1983. Pharm.D., 1982, University of California, San Francisco.*
- Barnett, Judith B., *Professor, Library, 1992, 1971. A.B., 1959, Barnard College; M.L.S., 1962, Drexel University.*
- ★Barnett, Stanley M., *Professor of Chemical Engineering, Food Science and Technology, and Pharmaceuticals, 1980, 1969. B.A., 1957, Columbia College; B.S., 1958, Columbia University; M.S., 1959, Lehigh University; Ph.D., 1963, University of Pennsylvania.*
- ★Baudet, Gerard M., *Associate Professor of Computer Science, 1987. Eng. Deg., 1970, Ecole Polytechnique; Doctorat, 1973, University of Paris VI; Ph.D., 1978, Carnegie Mellon University.*
- ★Baxter, Christopher D.P., *Associate Professor of Ocean Engineering and Civil and Environmental Engineering, 2007, 2000. B.S., 1990, Tufts University; M.S., 1994, Purdue University; Ph.D., 1999, Virginia Polytechnic Institute and State University.*
- ★Beauregard, Raymond A., *Professor of Mathematics, 1982, 1968. A.B., 1964, Providence College; M.S., 1966; Ph.D., 1968, University of New Hampshire.*
- ★Beauvais, Laura, *Professor of Management, 1999, 1984. B.S., 1979, College of Charleston; Ph.D., 1987, University of Tennessee.*
- ★Beckman, Judy K., *Associate Professor of Accounting, 1998, 1992. B.S., 1981, Bentley College; Ph.D., 1991, Texas Tech University; C.P.A. (Massachusetts).*
- Bella, Thomas, *Assistant Professor of Mathematics, 2008. B.S., 2003, Adelphi University; M.S., 2005; Ph.D., 2008, University of Connecticut.*

- ★Bengtson, David A., *Professor of Fisheries, Animal and Veterinary Science and Biological Sciences*, 2000, 1988. A.B., 1971, Boston University; M.S., 1974, Ph.D., 1982, University of Rhode Island.
- Berger Cardany, Audrey, *Assistant Professor of Music*, 2005. B.M., 1989, University of Wyoming; M.M., 1999, University of Nevada, Reno; D.M.A., 2004, Arizona State University.
- ★Besio, Walter, *Assistant Professor of Biomedical Engineering*, 2008. B.S., 1993, University of South Florida; M.S., 1997; Ph.D., 2002, University of Miami.
- ★Betensky, Carolyn, *Assistant Professor of English*, 2004. B.A., 1984, Barnard College; M.A., 1989; M.Phil., 1992; Ph.D., 1997, Columbia University.
- ★Bibb, Harold D., *Associate Dean of the Graduate School and Professor of Biological Sciences*, 1995, 1978. B.A., 1962, Knox College; M.S., 1964, Ph.D., 1969, University of Iowa.
- ★Bide, Martin J., *Professor of Textiles, Fashion Merchandising, and Design*, 1997, 1991. B.Tech., 1974; Ph.D., 1979, University of Bradford, United Kingdom.
- ★Billier, Henry B., *Professor of Psychology*, 1975, 1970. A.B., 1962, Brown University; Ph.D., 1967, Duke University.
- ★Blanpied, Peter R., *Professor of Physical Therapy*, 2007, 1989. B.S., 1979, Ithaca College; M.S., 1982, University of North Carolina; Ph.D., 1989, University of Iowa.
- ★Blanthorne, Cynthia, *Assistant Professor of Business Administration*, 2007. B.A., 1990, New Mexico State University; M.T., 1995; Ph.D., 2000, Arizona State University.
- ★Blismer, Bryan J., *Associate Professor of Kinesiology*, 2005, 2000. B.S., 1996, University of Illinois; M.S., 1997, Miami University, Ohio; Ph.D., 2000, University of Illinois.
- ★Boatright-Horowitz, Susan L., *Professor of Psychology*, 2009, 1992. B.S., 1979, Virginia Polytechnic Institute; Ph.D., 1992, City University of New York.
- ★Bodah, Matthew M., *Associate Professor of Labor and Industrial Relations and Coordinator of Research, Labor Research Center*, 2002, 1992. B.A., 1985, Providence College; M.S., 1988, University of Rhode Island; Ph.D., 1996, Michigan State University.
- ★Boothroyd, Jon C., *Professor of Geosciences*, 1986, 1975. B.A., 1962, University of New Hampshire; M.S., 1972, University of Massachusetts; Ph.D., 1974, University of South Carolina.
- ★Bose, Arijit, *Professor of Chemical Engineering*, 1992, 1982. B.Tech., 1976, Indian Institute of Technology; Ph.D., 1981, University of Rochester.
- Bothun, Geoffrey D., *Assistant Professor of Chemical Engineering*, 2006. B.S., 1998, University of Nevada, Reno; M.S., 2001; Ph.D., 2006, University of Kentucky.
- ★Boudreaux-Bartels, Gloria F., *Professor of Electrical Engineering*, 1993, 1983. B.S., 1974, University of Southwestern Louisiana; M.S., 1980; Ph.D., 1983, Rice University.
- ★Boulmetis, John, *Professor of Education*, 1997, 1977. B.A., 1971; M.A., 1973, University of Rhode Island; Ph.D., 1982, Ohio State University.
- ★Boving, Thomas B., *Associate Professor of Geosciences*, 2005, 1999. B.S., 1989; Diplom., 1993, University of Tübingen, Germany; Ph.D., 1999, University of Arizona.
- ★Bovy, Kristine M., *Assistant Professor of Anthropology*, 2006. B.S., 1993, University of Wisconsin, Madison; M.A., 1998; Ph.D., 2005, University of Washington.
- ★Boyle, Edmund J., *Associate Professor of Accounting*, 1994, 1988. B.S., 1976, Boston College; M.B.A., 1979, Northeastern University; Ph.D., 1990, Pennsylvania State University; C.P.A. (New York).
- ★Bradley, Terence M., *Professor of Fisheries, Animal and Veterinary Science and of Cell and Molecular Biology*, 1996, 1983. B.S., 1977, St. John's University; M.S., 1979, University of Rhode Island; Ph.D., 1983, University of Idaho.
- ★Brady, Susan A., *Professor of Psychology*, 1995, 1989. B.A., 1970, Miami University; M.A., 1972; Ph.D., 1975, University of Connecticut.
- ★Branch, Katherine M., *Associate Professor of Human Development and Family Studies*, 2003, 1997. B.A., 1984; M.A., 1987, Ohio State University; Ph.D., 1997, Indiana University.
- ★Brown, Christopher W., *Professor of Chemistry*, 1976, 1968. B.S., 1960; M.S., 1962, Xavier University; Ph.D., 1967, University of Minnesota.
- ★Brown, Rebecca N., *Assistant Professor of Plant Sciences*, 2005. B.A., 1991, St. Olaf College; M.S., 1994, University of Minnesota; Ph.D., 2001, Oregon State University.
- ★Brown, Richard, *Professor of Materials and Chemical Engineering*, 1991, 1981. B.Sc., 1974, University of Nottingham, England; Ph.D., 1977, University of Cambridge, England.
- ★Brownell, Winifred E., *Dean of the College of Arts and Sciences and Professor of Communication Studies*, 1989, 1977. B.A., 1967; M.A., 1970; Ph.D., 1973, State University of New York, Buffalo.
- ★Budnick, Frank S., *Professor of Management Science*, 1982, 1971. B.S., 1966, Rutgers–The State University of New Jersey; M.B.A., 1968; D.B.A., 1973, University of Maryland.
- ★Bullock, Robert Craig, *Associate Dean of the College of Arts and Sciences and Professor of Biological Sciences*, 1990, 1974. B.S., 1966, Gordon College; M.S., 1968, University of Maine; A.M., 1970; Ph.D., 1972, Harvard University.
- ★Burbank, Patricia M., *Professor of Nursing*, 2000, 1982. B.S., 1974, University of Rhode Island; M.S., 1975; D.N.Sc., 1988, Boston University.
- ★Burkett, John P., *Professor of Economics*, 1992, 1981. B.A., 1971, Cornell University; M.A., 1976; Ph.D., 1981, University of California, Berkeley.
- Burkhardt, Joanna M., *Professor, Library*, 2007, 1992. B.A., 1975; M.A., 1981, University of Wisconsin, Madison; M.L.S., 1986, University of Rhode Island.
- ★Burrroughs, Richard, *Professor of Marine Affairs*, 1995, 1989. B.S., 1969, Princeton University; Ph.D., 1975, Massachusetts Institute of Technology and Woods Hole Oceanographic Institution.
- ★Buxton, Bridget, *Assistant Professor of History*, 2006. B.A., 1994; M.A., 1996, Victoria University of Wellington; Ph.D., 2003, University of California, Berkeley.
- ★Byrd, David M., *Professor of Education*, 1997, 1989. B.S., 1972, State University of New York, Brockport; M.A., 1976, State University of New York, Cortland; Ph.D., 1980, Syracuse University.
- ★Cai, Zhen, *Assistant Professor of Marketing*, 2008. B.B.A., 2001, Menlo College; Ph.D., 2008, Drexel University.
- ★Cain, J. Allan, *Professor of Geosciences*, 1971, 1966. B.Sc., 1958, University of Durham, U.K.; M.S., 1960; Ph.D., 1962, Northwestern University.
- ★Caldwell, Naomi R., *Associate Professor of Library and Information Studies*, 2007, 1999. B.S., 1980, Clarion State College; M.S.L.S., 1982, Clarion University of Pennsylvania; Ph.D., 2002, University of Pittsburgh.
- ★Campbell, Josie P., *Professor of English, Alan Shawn Feinstein College of Continuing Education, and Women's Studies*, 1985, 1972. B.A., 1965, Dickinson College; M.S., 1968, University of Rhode Island; Ph.D., 1972, Pennsylvania State University.
- ★Cappello, Mary C., *Professor of English*, 2001, 1991. B.A., 1982, Dickinson College; M.A., 1985; Ph.D., 1988, State University of New York, Buffalo.
- ★Carey, Steven N., *Professor of Oceanography*, 2000, 1987. B.S., 1975, University of Massachusetts; Ph.D., 1983, University of Rhode Island.
- Carothers, Robert L., *Distinguished University Professor*, 2009, 1991. B.S., 1965, Edinboro University; M.A., 1966; Ph.D., 1969, Kent State University; J.D., 1980, McDowell School of Law, University of Akron.
- ★Carroll, Leo, *Professor of Sociology*, 1982, 1972. A.B., 1963, Providence College; M.A., 1964, Fordham University; Ph.D., 1974, Brown University.
- ★Carson, C. Herbert, *Professor of Library and Information Studies*, 2007, 1986. B.S., 1968, State University College at Geneseo; M.S., 1973, Rochester Institute of Technology; M.L.S., 1976; Ph.D., 1988, Syracuse University.
- ★Casagrande, Richard A., *Professor of Plant Sciences*, 1989, 1976. B.S., 1969, Rutgers–The State University of New Jersey; M.S., 1972; Ph.D., 1975, Michigan State University.
- ★Chandlee, Joel M., *Professor of Plant Sciences and of Cell and Molecular Biology*, 2006, 1988. B.A., 1978, Rutgers–The State University of New Jersey; Ph.D., 1984, North Carolina State University.
- ★Chelidze, David, *Professor of Mechanical Engineering*, 2009, 2000. Diplom., 1992, Georgian Technical University; M.S., 1995, Southern Illinois University; Ph.D., 2000, Pennsylvania State University.
- ★Chen, Guo-Ming, *Professor of Communication Studies*, 2000, 1989. B.A., 1977, Chinese Culture University, Taiwan; M.A., 1983, University of New Mexico; Ph.D., 1987, Kent State University.
- ★Chen, Shaw K., *Professor of Management Science and Information Systems*, 1997, 1986. B.A., 1974, National Chechchi University; M.A., 1978, Taiwan University; Ph.D., 1988, University of Michigan.
- ★Chen, Yuwen, *Assistant Professor of Operations and Supply Chain Management*, 2008. B.A., 1993, National Taiwan University; M.S., 2002; Ph.D., 2008, University of Florida.
- ★Chichester, Clinton O., III, *Professor of Biomedical and Pharmaceutical Sciences*, 2001, 1981. B.S., 1973, University of California, Riverside; M.S., 1977; Ph.D., 1980, University of Rhode Island.
- ★Cho, Bongsup P., *Professor of Biomedical and Pharmaceutical Sciences*, 2004, 1991. B.S., 1977; M.S., 1979, Yonsei University; Ph.D., 1985, University of Illinois.
- ★Ciccomascolo, Lori E., *Associate Professor of Kinesiology*, 2008, 2002. B.S., 1992; M.S., 1995, Southern Connecticut State University; Ed.D., 2001, Boston University.
- ★Clark, Phillip G., *Professor of Human Development and Family Studies*, 1994, 1981. A.B., 1971; M.S., 1976; Sc.D., 1979, Harvard University.

- ★Cohen, Jerry L., *Professor of Psychology, 1989, 1980. B.S., 1968, Pennsylvania State University; M.A., 1971; Ph.D., 1973, University of Illinois.*
- ★Cohen, Joel A., *Professor of History, 1979, 1965. B.A., 1960, University of Rhode Island; M.A., 1962; Ph.D., 1967, University of Connecticut.*
- Cohen, Lisa B., *Assistant Professor of Pharmacy Practice, 2007, 2005. B.S., 1994; Pharm.D., 1996, University of Rhode Island.*
- ★Cohen, Paul Sidney, *Professor of Cell and Molecular Biology, 1975, 1966. A.B., 1960, Brandeis University; A.M., 1962; Ph.D., 1964, Boston University.*
- Cairo, Julie E., *Assistant Professor of Education, 2007. B.S., 1989, University of Connecticut; M.Ed., 1993, University of New Orleans; Ph.D., 2007, University of Connecticut.*
- ★Collie, Jeremy S., *Professor of Oceanography, 2001, 1993. B.Sc., 1980, University of York, England; Ph.D., 1985, Massachusetts Institute of Technology and Woods Hole Oceanographic Institution.*
- ★Collyer, Charles E., *Professor of Psychology, 1991, 1976. B.A., 1971, McMaster University; M.A., 1974; Ph.D., 1976, Princeton University.*
- Comerford, Mark D., *Assistant Professor of Mathematics, 2006. B.S., 1992, University College, Dublin; Ph.D., 2001, Yale University.*
- ★Comerford, Robert A., *Professor of Management, 1985, 1975. B.A., 1970; M.B.A., 1972; Ph.D., 1976, University of Massachusetts.*
- ★Conley, Mark, *Associate Professor of Music, 2005, 2000, 1997. B.M., 1987, University of Illinois; M.M. (choral conducting), 1991; M.M. (vocal performance), 1991, University of Michigan.*
- ★Cooper, Elizabeth A., *Professor of Management, 1999, 1985. B.A., 1979, McGill University; M.A., 1983; Ph.D., University of Akron.*
- Coppa, Denise, *Associate Professor of Nursing, 2005, 1985. B.S., 1972, University of Rhode Island; M.S., 1979, University of Colorado; Ph.D., 2002, University of Rhode Island.*
- ★Cornillon, Peter C., *Professor of Oceanography, 1990, 1981. B.S., 1968; Ph.D., 1973, Cornell University.*
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- ★Wang, Jyh-Hone, *Professor of Industrial and Systems Engineering*, 2007, 1995. B.S., 1980, Tunghai University; M.S., 1986; Ph.D., 1989, University of Iowa.
- ★Wang, Yeqiao, *Professor of Natural Resources Science*, 2005, 2001, 1999. B.S., 1982, Northeast Normal University, China; M.S., 1987, Changchun Institute of Geography, Chinese Academy of Sciences; M.S., 1992; Ph.D., 1995, University of Connecticut.
- ★Warner, Pamela J., *Assistant Professor of Art and Art History*, 2007. B.A., 1992, University of Michigan; M.A., 1996; Ph.D., 2005, University of Delaware.
- ★Watts, D. Randolph, *Professor of Oceanography*, 1988, 1974. B.A., 1966, University of California; Ph.D., 1973, Cornell University.
- ★Webb, Jacqueline F., *Professor of Biological Sciences*, 2006. B.S., 1979, Cornell University; Ph.D., 1988, Boston University.
- ★Weisbord, Robert G., *Professor of History*, 1973, 1966. B.A., 1955, New York University; M.A., 1960; Ph.D., 1966, New York University Graduate School.
- ★Weiss, Amy L., *Professor of Communicative Disorders*, 2007, 2004. B.A., 1974, State University of New York at Buffalo; M.A., 1976, University of Illinois, Champaign; Ph.D., 1983, Purdue University.
- ★Welters, Linda M., *Professor of Textiles, Fashion Merchandising, and Design*, 1994, 1981. B.S., 1971, College of St. Catherine; M.A., 1973, Colorado State University; Ph.D., 1981, University of Minnesota.
- ★Wenisch, Fritz, *Professor of Philosophy*, 1980, 1971. L.B.A., 1964, Salzburg, Austria; Ph.D., 1968, University of Salzburg.
- ★Westin, Stuart A., *Professor of Management Science*, 1996, 1983. B.B.A., 1977; M.S.B.A., 1978; Ph.D., 1983, University of Massachusetts.
- Weyandt, Lisa L., *Associate Professor of Psychology*, 2009, 2006. B.S., 1984, Pennsylvania State University; M.S., 1987; Ph.D., 1991, University of Rhode Island.
- ★Wheeler, Anthony R., *Assistant Professor of Labor Relations and Human Resources*, 2008. B.A., 1996, University of Maryland; M.S., 2001; Ph.D., 2003, University of Oklahoma.
- ★White, Clement A., *Professor of Spanish*, 2005, 1988. A.A., 1966, University of the Virgin Islands; B.A., 1968; M.A., 1976, Kent State University; Ph.D., 1987, Brown University.
- ★Whitworth, Ulysses G., Jr., *Assistant Professor of Fisheries, Animal and Veterinary Science*, 1997, 1992. B.S., 1974; D.V.M., 1976, Tuskegee Institute; M.P.H., 1983, University of North Carolina.
- Widell, Robert W. Jr., *Assistant Professor of History*, 2008. B.A., 1996, Duke University; M.A., 2001; Ph.D., 2007, Emory University.
- ★Wilga, Cheryl D., *Associate Professor of Biological Sciences*, 2005, 2000. B.Sc., 1992; Ph.D., 1997, University of South Florida.
- ★Wiley Temkin, Cynthia, *Professor of Pharmacy Practice*, 2001, 1987. B.A., 1977, Wellesley College; M.A., 1979; M.S., 1981; Ph.D., 1985, University of North Carolina.
- ★Williams, Travis D., *Assistant Professor of English*, 2006. B.A., 1996, University of California, Berkeley; 1998, Oxford University; Ph.D., 2006, University of California, Berkeley.
- ★Willis, George H., *Professor of Education*, 1981, 1971. A.B., 1964, Hamilton College; M.A.T., 1965, Harvard University; Ph.D., 1971, Johns Hopkins University.
- ★Willis, W. Grant, *Professor of Psychology*, 1995, 1987. A.B., 1977; M.A., 1980, Ohio University; Ph.D., 1984, University of Georgia.
- Wills, Sheri V., *Professor of Art and Film Media*, 2009, 1996. B.A., 1987, University of California, San Diego; M.F.A., 1992; M.A., 1995, School of the Art Institute of Chicago.
- Wilson, Deborah A., *Professor of Military Science and Leadership*, 2008. B.S., 1987, University of Tampa; M.P.A., 1996, Troy State University.
- ★Wishner, Karen, *Professor of Oceanography*, 1993, 1980. B.A., 1972, University of Chicago; Ph.D., 1979, Scripps Institution of Oceanography, University of California, San Diego.
- Wittwer, Christian, *Associate Professor of Theatre*, 1988, 1982. B.A., 1969, Emory and Henry College; M.F.A., 1973, University of Georgia, Athens.
- ★Wood, Mark D., *Professor of Psychology*, 2006, 1998. B.A., 1990, Arizona State University; M.A., 1993; Ph.D., 1996, University of Missouri, Columbia.
- ★Wood, Stephen C., *Professor of Communication Studies*, 1995, 1982. B.S., 1969, California State Polytechnic University; M.A., 1978, University of Maine, Orono; Ph.D., 1984, University of Maryland.
- Wortman, Bryna M., *Associate Professor of Theatre*, 2006, 1999. B.A., Barnard College, Columbia University; M.F.A., 1997, Brooklyn College, City University of New York.
- ★Wright, Raymond M., *Distinguished Engineering Professor of Civil and Environmental Engineering*, 1997, 1981. B.S., 1973, Tufts University; M.Eng., 1978; Ph.D., 1981, Pennsylvania State University.
- ★Wu, Li, *Associate Professor of Mathematics*, 2005, 2000. B.S., 1988, Nankai University; M.S., 1995, Chinese Academy of Sciences; Ph.D., 1998, University of Wyoming.
- Wyant, Sarina Rodrigues, *Associate Professor, Library*, 2008, 2002. B.S., 1983, Texas A&M; M.S.L.I.S., 1999, University of Rhode Island.
- ★Xiao, Jingjian, *Professor of Human Development and Family Studies*, 2001, 1992. B.S., 1982; M.S., 1986, Zhongnan University of Finance and Economics; Ph.D., 1991, Oregon State University.

- Xu, Furong, *Assistant Professor of Kinesiology*, 2007. B.S., 1996, East China Normal University; Ph.D., 2007, University of Georgia.
- ★Xu, Yan, *Assistant Professor of Finance*, 2008. B.S., 1993, Nankai University; M.B.A., 2001, Oklahoma State University; Ph.D., 2007, University of South Carolina.
- ★Yan, Bingfang, *Professor of Biomedical and Pharmaceutical Sciences*, 2004, 1997. D.V.M., 1982, Huazhong Agricultural University School of Veterinary Medicine; M.S., 1985, Nanjing Agricultural University School of Veterinary Medicine; Ph.D., 1994, University of Kansas Medical Center.
- ★Yang, Qing, *Professor of Electrical and Computer Engineering*, 1997, 1988. B.S., 1982, Huazhong University of Science and Technology; M.A.Sc., 1985, University of Toronto; Ph.D., 1988, University of Southwestern Louisiana.
- ★Yang, Sze Cheng, *Professor of Chemistry*, 1990, 1980. B.S., 1967, National Taiwan University; M.S., 1970; Ph.D., 1973, Columbia University.
- Ye, Yinjiao, *Assistant Professor of Communication Studies*, 2006. B.A., 1999; M.A., 2002, Huazhong University of Science and Technology; Ph.D., 2006, University of Alabama.
- ★Young, Betty, *Professor of Education*, 2001, 1989. B.S., 1969, Northern Illinois University; M.Ed., 1982; Ph.D., 1988, University of California, Los Angeles.
- ★Yu, Tong, *Associate Professor of Finance*, 2007, 2002. B.S., 1990 Fudan University, Shanghai, China; M.B.A., 1996, Georgia State University; Ph.D., 2001, University of South Carolina.
- ★Zavia, Nasser H., *Professor of Biomedical and Pharmaceutical Sciences*, 2007, 1999. B.S., 1984, University of Massachusetts; M.S., 1986, Loma Linda University; Ph.D., 1989, University of California.
- ★Zeyl, Donald J., *Professor of Philosophy*, 1984, 1971. B.A., 1966, University of Toronto; Ph.D., 1972, Harvard University.
- Zhang, Lingling, *Assistant Professor of Economics*, 2008. B.A., 1998, Shanghai Tiao Tong University; M.A., 2001, Southwestern University of Economics and Finance; Ph.D., 2008, McGill University.
- ★Zhang, Zongqin, *Professor of Mechanical Engineering*, 2000, 1991. B.S., 1982, Huashong University of Science and Technology; M.S., 1987; Ph.D., 1990, Duke University.
- ★Zia, Hossein, *Professor of Biomedical and Pharmaceutical Sciences*, 1995, 1986. Pharm.D., 1963, University of Isfahan; M.S., 1966, University of Rhode Island; Ph.D., 1969, University of Georgia.
- Aguero, Max F., *Adjunct Professor of Environmental and Natural Resource Economics*, 1989. Ph.D., 1983, University of Rhode Island.
- Ahmed, Aftab, *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2004. Ph.D., 1989, University of Karachi, Pakistan.
- Ahmed, Mohiuddin, *Adjunct Professor of Psychology*, 2004. Ph.D., 1969, University of Pittsburgh.
- Alkatib, Eid A., *Adjunct Assistant Professor of Civil and Environmental Engineering*, 1991. Ph.D., 1986, University of Rhode Island.
- Allen, Melody, *Adjunct Instructor of Library and Information Studies*, 1983. M.S., 1975, Simmons College.
- Allen, Paul, *Adjunct Assistant Professor of Film Media*, 2004. M.F.A., 1976, University of Southern California.
- ★Aloia, Mark, *Adjunct Assistant Professor of Psychology*, 1999. Ph.D., 1996, University of Mississippi.
- Alteri, Catherine Gaudiano, *Adjunct Assistant Professor of Nursing*, 2005. M.S., 1987, Boston University.
- Amos, Duncan, *Adjunct Professor of Fisheries, Animal and Veterinary Science*, 1982.
- ★Anagnostopoulos, Constantine N., *Adjunct Professor of Mechanical Engineering*, 2007. Ph.D., 1975, University of Rhode Island.
- ★Anatchkova, Milena, *Adjunct Professor of Psychology*, 2008. Ph.D., 2004, University of Rhode Island.
- Andersen, Peder, *Adjunct Assistant Professor of Environmental and Natural Resource Economics*, 1981. Cand. Ocean., 1979, University of Aarhus, Denmark.
- Anderson, Bradley, *Adjunct Associate Professor of Sociology*, 2002. Ph.D., 1984, Iowa State University.
- Anderson, Peter D., *Adjunct Associate Professor of Pharmacy Practice*, 2003. Pharm.D., 1998, University of Rhode Island.
- Angelini, Diane J., *Adjunct Associate Professor of Nursing*, 2005, 1991. Ed.D., 1992, Boston University School of Education.
- ★Apostal, Michael C., *Adjunct Associate Professor of Civil and Environmental Engineering*, 1978. Ph.D., 1974, State University of New York, Buffalo.
- ★Arruda, James, *Adjunct Assistant Professor of Psychology*, 1995. Ph.D., 1994, University of Rhode Island.
- Ascoli, Charlene, *Adjunct Clinical Instructor of Clinical Laboratory Science*, 1990. B.S., 1986, Rhode Island College.
- Aspri, Robert H., *Adjunct Assistant Professor, Library*, 2006. M.L.S., 1976, University of Rhode Island.
- ★Aucoin, Wayne J., *Adjunct Assistant Professor of Clinical Laboratory Science*, 1995. M.S., 1984, Salve Regina University.
- ★Augeri, David M., *Adjunct Assistant Professor of Natural Resources Science*, 2006. Ph.D., 2005, University of Cambridge, U.K.
- August, Mark R., *Adjunct Assistant Professor of Communication Studies*, 1998. M.A., 1992, Emerson College.
- Auld, Dianne B., *Adjunct Clinical Instructor of Clinical Laboratory Science*, 1993. B.S., 1983, Rhode Island College.
- Baboian, Robert, *Adjunct Research Professor of Chemical Engineering*, 1993. Ph.D., 1964, Rensselaer Polytechnic Institute.
- Badger, James M., *Adjunct Assistant Professor of Nursing*, 2005, 2002. Ph.D., 2003, University of Rhode Island.
- ★Badorek, Diane L., *Adjunct Assistant Professor of Civil and Environmental Engineering*, 1985. Ph.D., 1982, University of Missouri.
- Bailey, Jr., Edgar C., *Adjunct Instructor of Library and Information Studies*, 2004. M.L.S., 1975, Rutgers University Graduate School of Library Service.
- Baird, Jerold A., *Adjunct Professor of Civil and Environmental Engineering*, 2005. Ph.D., 1980, University of Rhode Island.
- ★Balkovic, Edward, *Adjunct Associate Professor of Clinical Laboratory Science*, 2003, 1990. Ph.D., 1984, Baylor College of Medicine.
- Balmforth, Maxon G., *Adjunct Assistant Professor of Fisheries, Animal and Veterinary Science*, 1984. D.V.M., 1972, University of Pennsylvania.
- ★Banerjee, Pranab K., *Adjunct Professor of Electrical Engineering*, 1980. Ph.D., 1971, University of Rhode Island.
- ★Barber, Norman L., *Adjunct Assistant Professor of African and African-American Studies*, 2003. Ed.D., 2002, University of Massachusetts, Amherst.
- Barbour, Paul, *Adjunct Associate Professor of Pharmacy Practice*, 2003, 1997. M.S., 1985, Northeastern University.
- ★Barker, Barbara E., *Adjunct Associate Professor of Clinical Laboratory Science*, 1988. Ph.D., 1965, University of Rhode Island.
- Barnett, Stanley, *Adjunct Professor of Pharmaceutics*, 1992. Ph.D., 1963, University of Pennsylvania.
- ★Bartels, William, *Adjunct Associate Professor of Philosophy*, 2000. Ph.D., 1985, Rice University.
- Barton, Holly H., *Adjunct Instructor of Library and Information Studies*, 2004. M.L.I.S., 1991, University of Rhode Island.
- Barton-Burke, Margaret, *Adjunct Associate Professor of Nursing*, 2005. Ph.D., 2002, University of Rhode Island.
- Basch, Ethan M., *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2003. M.D., 1998, Harvard Medical School.
- ★Basha, Mahammad Riyaz, *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2007. Ph.D., 1999, Sri Venkateswara University, India.
- Bascom, David D., *Adjunct Assistant Professor of Plant Sciences*, 1983. B.S., 1965, University of Rhode Island.
- ★Batson, Trent, *Adjunct Professor of Communication Studies*, 2002. Ph.D., 1974, George Washington University.
- Batty, Kristine, *Adjunct Instructor of Nursing*, 2007. M.S.N., 2001, University of Rhode Island.
- Bauer, Mark, *Adjunct Professor of Nursing*, 2003, 2007. M.D., 1982, University of Pennsylvania.
- Baumhover, Lisa, *Adjunct Instructor of Nursing*, 2007. M.S., 2000, University of Rhode Island.
- ★Beagle, Robert M., *Adjunct Professor of Communication Studies*, 2001. M.A., 1967, Pennsylvania State University.
- Beckert, Thomas E., *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2001. Ph.D., 1995, Eberhard-Karls University, Tübingen.
- Belazi, Dea, *Adjunct Assistant Professor of Pharmacy Practice*, 2003. Pharm.D., 2001, University of Rhode Island.
- Bellinger, Christina, *Adjunct Instructor of Library and Information Studies*, 1991. M.L.S., 1978, Simmons College.
- Bennett, Pamela J., *Adjunct Instructor of Nursing*, 2001. M.S., 1994, University of Rhode Island.
- Bergh, Ingrid, *Adjunct Associate Professor of Nursing*, 2005. M.D., 2003, Göteborg University, Sweden.

Adjunct Faculty

★Denotes graduate faculty

† Denotes professors in residence (graduate faculty able to serve as major professors)

†★Abedon, David H., *Adjunct Associate Professor of Natural Resources Science*, 2006, 1995. M.A., 1972, University of Rhode Island.

★Abrams, David B., *Adjunct Professor of Psychology*, 1986. Ph.D., 1981, Brown University.

Adams, Stephen, *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2008. D.O., 1993, Philadelphia College of Osteopathic Medicine.

- *Bergondo, Deanna, *Adjunct Assistant Professor of Natural Resources Science*, 2008. Ph.D., 2004, University of Rhode Island.
- Bergstrom, Roy F., *Adjunct Assistant Professor of Film Media*, 2007. M.A., 2003, University of Rhode Island.
- Berner, Paul J., *Adjunct Professor of Chemistry*, 1987. Ph.D., 1964, Stevens Institute of Technology.
- *Bicki, Thomas J., *Adjunct Assistant Professor of Plant Sciences*, 1998. Ph.D., 1981, Iowa State University.
- Binkley, Marian, *Adjunct Assistant Professor of Sociology and Anthropology*, 1985. Ph.D., 1981, University of Toronto.
- Binns, Linda, *Adjunct Clinical Instructor of Clinical Laboratory Science*, 1980. M.S., 1979, Northeastern University.
- Bird, Thomas Gary, *Adjunct Associate Professor of Pharmacy Practice*, 2004. Ph.D. 1982, Mississippi State University.
- Birmingham, Bruce K., *Adjunct Associate Professor of Biomedical and Pharmaceutical Sciences*, 2002. Ph.D., 1980, University of Rhode Island.
- Block, Pamela, *Adjunct Assistant Professor of Anthropology*, 2002. Ph.D., 1997, Duke University.
- Blott, Alan J., *Adjunct Assistant Professor of Fisheries, Animal and Veterinary Science*, 1986. B.S., 1968, University of Illinois.
- Blumen, Dale, *Adjunct Instructor of Human Development and Family Studies*, 1999. M.S., 1985, University of Rhode Island.
- *Bodammer, Joel E., *Adjunct Associate Professor of Fisheries, Animal and Veterinary Science*, 1990. Ph.D., 1974, University of Wisconsin.
- *Boekelheide, Kim, *Adjunct Professor of Biomedical and Pharmaceutical Sciences*, 1992. M.D., Ph.D., 1980, Duke University.
- Borgerson, Janet, *Adjunct Associate Professor of Philosophy*, 2000. Ph.D., 1996, University of Wisconsin, Madison.
- Botelho, Nancy M., *Adjunct Assistant Professor of Nursing*, 2003. M.S., 2003, University of Rhode Island.
- Boudreau, Marybeth, *Adjunct Assistant Professor of Pharmacy Practice*, 2004. Pharm.D., 1999, Massachusetts College of Pharmacy.
- *Bourbonnais, Richard J., II, *Adjunct Assistant Professor of Plant Sciences*, 1998. M.L.A., 1994, Virginia Polytechnic Institute and State University.
- Bowen, Craig, *Adjunct Assistant Professor of Pharmacy Practice*, 1997. Pharm.D., 1987, University of Rhode Island.
- Boyd, Rebecca, *Adjunct Professor of Biomedical and Pharmaceutical Sciences*, 2008. Ph.D., 1988, University of California, San Francisco.
- Boyd-Colvin, Melissa A., *Adjunct Instructor of Human Development and Family Studies*, 2008. M.S., 2003, University of Rhode Island.
- Bozkurt, Bedri, *Adjunct Assistant Professor of Chemical Engineering*, 1999. Ph.D., 1980, Ege University, Ismir, Turkey.
- *Bozyan, Elizabeth Pike, *Adjunct Associate Professor of Physics*, 1993. Ph.D., 1985, University of Texas, Austin.
- Bozzi, Joann D., *Adjunct Instructor of Nursing*, 2005. M.S., 1992, University of Rhode Island.
- *Brehaney, James J., *Adjunct Assistant Professor of Pharmacy Practice*, 2003. J.D., 1986, Western State University.
- Brennan, Noel-Anne G., *Adjunct Assistant Professor of Sociology and Anthropology and Women's Studies*, 1988. M.A., 1982, University of Rhode Island.
- Brenneman, Betsy J., *Adjunct Assistant Professor of Library and Information Studies*, 1976. M.A.T., 1978, Fitchburg State College.
- *Briere, Michael, *Adjunct Assistant Professor of Physics*, 1995. Ph.D., 1993, Technical University of Berlin.
- Brown, David William, *Adjunct Professor of Environmental and Natural Resource Economics*, 1995. Ph.D., 1956, Iowa State University.
- *Brown, Jody, *Adjunct Assistant Professor of Psychology*, 1997. Ph.D., 1990, City University of New York.
- Brown, Lynne J., *Adjunct Instructor of English*, 1991. M.A., 1978, Rhode Island College.
- *Brumbaugh, Robert David, *Adjunct Assistant Professor of Fisheries, Animal and Veterinary Science*, 2005. Ph.D., 1996, Old Dominion University.
- Brunell, Mary, *Adjunct Associate Professor of Nursing*, 2004, 2003. Ed.D., 2001, Teachers College, Columbia University.
- *Brush, Mark, *Adjunct Professor of Oceanography*, 2009. Ph.D., 2002, University of Rhode Island.
- *Bryant, Elizabeth Burke, *Adjunct Assistant Professor of Community Planning*, 1992. J.D., 1985, George Washington University.
- Buck, Sarah, *Adjunct Instructor of Nursing*, 2005. M.S., 2005, University of Rhode Island.
- Buckley, Francine G., *Adjunct Associate Research Professor of Natural Resources Science*, 1995, 1993. M.S., 1966, Cornell University.
- †*Buckley, Lawrence J., *Adjunct Professor of Oceanography*, 1991. Ph.D., University of New Hampshire
- Buckley, Louise, *Adjunct Instructor of Library and Information Studies*, 2004. M.L.S., 1992, Rutgers University.
- †*Buckley, P.A., *Adjunct Research Professor of Natural Resources Science and National Park Service Research Professor of Ecology*, 1990. Ph.D., 1966, Cornell University.
- Buco, Andria M., *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2007. Pharm.D., 2002, University of Rhode Island.
- Bundy, William F., *Adjunct Assistant Professor of Civil and Environmental Engineering*, 1996. M.A., 1993, United States Naval War College.
- Burgess, Joanne, *Adjunct Clinical Instructor of Pharmacy Practice*, 2009. B.S., 1985, University of Rhode Island.
- Burke, Rebecca L., *Adjunct Assistant Professor of Nursing*, 2002. M.S., 1988, Boston University.
- *Burks, Rachel J., *Adjunct Associate Professor of Geosciences*, 1997. Ph.D., 1985, University of Texas, Austin.
- *Buynovich, Ilya V., *Adjunct Professor of Oceanography*, 2008. Ph.D., 2001, Boston University.
- *Byrne, Deirdre A., *Adjunct Professor of Oceanography*, 2006. Ph.D., 2000, Columbia University.
- Cabral Mary V., *Adjunct Assistant Professor of Nursing*, 2008. M.S., 2003, University of Rhode Island.
- Cabral, Robert M., *Adjunct Associate Professor of Gerontology*, 1982. Ph.D., 1971, University of Massachusetts, Amherst.
- *Cady-Webster, Kathleen, *Adjunct Assistant Professor of Psychology*, 2003. Ph.D., 2001, University of Rhode Island.
- Caldwell, Elliott, *Adjunct Instructor of Library and Information Studies*, 2004. M.A., 1991, University of Rhode Island.
- Callahan, Patricia, *Adjunct Clinical Instructor of Pharmacy Practice*, 2008. B.S., 1977, University of Montana School of Pharmacy.
- Camara, Paul, *Adjunct Assistant Professor of Clinical Laboratory Science*, 1997. M.S., 1995, University of Rhode Island.
- *Campbell, Daniel E., *Adjunct Professor of Oceanography*, 1999. Ph.D., 1984, University of Florida.
- *Campbell, James F., *Adjunct Assistant Professor of Human Development and Family Studies*, 1992. Ph.D., 1987, Syracuse University.
- Campbell, Judith, *Adjunct Clinical Assistant Professor of Clinical Laboratory Science*, 1983. M.S., 1986, Southeastern Massachusetts University.
- *Campos, Edmo J., *Adjunct Professor of Oceanography*, 2000. Ph.D., 1990, University of Brasilia, Brazil.
- *Canick, Jacob A., *Adjunct Associate Professor of Clinical Laboratory Science*, 1988. Ph.D., 1972, University of Rhode Island.
- Cano, Steven, *Adjunct Professor of Pharmacy Practice*, 2006. M.S., 1985, University of Kansas.
- Caracuzzo, Alex, *Adjunct Instructor of Library and Information Studies*, 2007. M.L.I.S., 1993, M.B.A., 2003, University of Rhode Island.
- Carl, Robert L., Jr., *Adjunct Professor of Human Science and Services*, 1997. Ph.D., 1971, University of Michigan.
- *Carlton, James T., *Adjunct Professor of Biological Sciences*, 2002. Ph.D., 1979, University of California, Davis.
- Carr, Stephen R., *Adjunct Professor of Nursing*, 2007. M.D., 1982, University of Hawaii, John A., Burns School of Medicine.
- *Caruso, David A., *Adjunct Professor of Human Development and Family Studies*, 2000. Ph.D., 1985, Cornell University.
- Castro, Kathleen M., *Adjunct Associate Professor of Fisheries, Animal and Veterinary Science*, 2004. Ph.D., 2003, University of Rhode Island.
- Catalano, Carmen J., *Adjunct Assistant Professor of Pharmacy Practice*, 1990. M.Ed., 1978, Providence College.
- Cataldo, Diane, *Adjunct Clinical Instructor of Clinical Laboratory Science*, 1980. B.S., 1976, Barrington College.
- Celebuki, Carol, *Adjunct Professor of Psychology*, 2006, 2001. Ph.D., 1994, University of Rhode Island.
- Celver, Jeremy, *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2007. Ph.D., 2002, University of Washington, Seattle.
- Cerbo, Louis A., *Adjunct Assistant Professor of Psychology*, 1998. Ed.D., 1990, Boston University.
- *Cerrato, Robert M., *Adjunct Associate Professor of Natural Resources Science*, 2003. Ph.D., 1980, Yale University.
- Chabot, Russell, *Adjunct Assistant Professor of Sociology*, 2000. Ph.D., 1992, State University of New York, Buffalo.
- Chapin, Robert E., *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2008. Ph.D., 1980, University of North Carolina-Chapel Hill.
- Cheek, Dennis W., *Adjunct Associate Professor of Education*, 1997. Ph.D., 1989, Pennsylvania State University.
- Chen, Lisa, *Adjunct Instructor of Library and Information Studies*, 2005. M.S., 1993, University of Illinois at Urbana-Champaign.
- *Chen, Xuanjuan, *Adjunct Assistant Professor of Business Administration*, 2008. Ph.D., 2005, University of Rhode Island.
- Cheng, Yung-Sung, *Adjunct Assistant Professor of Mechanical Engineering and Applied Mechanics*, 1999. Ph.D., 1976, Syracuse University.

- Chiaramida, Salvatore, *Adjunct Professor of Electrical and Computer Engineering (Biomedical Engineering)*, 1998. M.D., 1974, New York Medical College.
- ★Chomet, Paul S., *Adjunct Professor of Biological Sciences*, 1993, and *Biochemistry, Microbiology, and Molecular Genetics*, 1997. Ph.D., 1988, State University of New York, Stony Brook.
- ★Cicchetti, Giancarlo, *Adjunct Professor of Oceanography*, 2008. Ph.D., 1998, The College of William and Mary.
- Cioe, Patricia A., *Adjunct Assistant Professor of Nursing*, 2009. M.S., 1995, University of Rhode Island.
- Cirillo, L. Anthony, *Adjunct Associate Professor of Nursing*, 2008. M.D., 1990, University of Vermont.
- Clapham, Andrew J., *Adjunct Assistant Professor of Chemistry*, 2001. M.S., 1966, University of Rhode Island.
- Clay, Patricia Mary, *Adjunct Assistant Professor of Anthropology*, 1994. Ph.D., 1992, Indiana University.
- Closson-Ross, Sylvia P., *Adjunct Instructor of Nursing*, 1994. M.S., 1991, University of Pennsylvania.
- ★Cochran, James K., *Adjunct Professor of Oceanography*, 2004. Ph.D., 1979, Yale University.
- Codiga, Daniel L., *Adjunct Professor of Oceanography*, 2008. Ph.D., 1996, University of Washington.
- Coffey, William J., *Adjunct Associate Professor of Marine Affairs*, 2000. J.D., 1969, Georgetown University Law Center.
- ★Cohen, Ronald A., *Adjunct Professor of Astronomy*, 1996. Ph.D., 1982, Louisiana State University.
- ★Cohenford, Menashi A., *Adjunct Professor of Chemistry*, 2004. Ph.D., 1982, University of Rhode Island.
- ★Colby, John J., *Adjunct Professor of Psychology*, 1986. Ph.D., 1974, University of Rhode Island.
- Colwill, Ruth Melanie, *Adjunct Associate Professor of Fisheries, Animal and Veterinary Science*, 2005. Ph.D., 1982, University of Cambridge, England.
- Compton, Jana E., *Adjunct Assistant Professor of Natural Resources Science*, 1996. Ph.D., 1994, University of Washington.
- Connolly, Walter C., *Adjunct Assistant Professor of Physics*, 1985. Ph.D., 1954, Catholic University of America.
- Cook, Margaret Wilson, *Adjunct Instructor of Nursing*, 1999. M.S., 1998, University of Rhode Island.
- Cooley, James W., *Adjunct Professor of Electrical Engineering*, 1996. Ph.D., 1961, Columbia University.
- Corriveau, Pierre, *Adjunct Professor of Mechanical Engineering and Applied Mechanics, 1999 and Ocean Engineering*, 2007. Ph.D., 1991, University of Rhode Island.
- Cosmas, Arthur C., *Adjunct Professor of Kinesiology*, 2007. Ph.D., 1973, University of Massachusetts.
- Coutu, Aaron J., *Adjunct Instructor of Library and Information Studies*, 2005. M.L.I.S., 2000, University of Rhode Island.
- Creeley, Mary Jane, *Adjunct Instructor of Nursing*, 1998. M.S., 1998, University of Rhode Island.
- ★Crisman, Everett E., *Adjunct Professor of Chemical Engineering*, 2006, 2002, 1989. Ph.D., 1984, Brown University.
- ★Cromarty, Stuart I., *Adjunct Associate Professor of Biological Sciences*, 2004, 2002. Ph.D., 1995, University of Rhode Island.
- Crowell, Sheryl, *Adjunct Clinical Instructor of Clinical Laboratory Science*, 1987. B.S., 1979, University of Rhode Island.
- ★Dabek, Lisa, *Adjunct Assistant Professor of Natural Resources Science*, 1999. Ph.D., 1994, University of Washington.
- Damon, Linda, *Adjunct Assistant Professor of Nursing*, 2006, 2003. M.S., 1983, Boston College; M.H.A., 1992, Framingham State College.
- Danish, Michele A., *Adjunct Clinical Associate Professor of Biomedical and Pharmaceutical Sciences*, 2002. Pharm.D., 1974, State University of New York.
- D'Asaro, Eric A., *Adjunct Professor of Oceanography*, 2006. Ph.D., 1980, Massachusetts Institute of Technology.
- Davies, William, *Adjunct Associate Professor of Biomedical and Pharmaceutical Sciences*, 2006. Ph.D., 1971, University of Rhode Island.
- ★Davis, Alan J., *Adjunct Assistant Professor of Electrical and Computer Engineering*, 2001. Ph.D., 2000, University of Rhode Island.
- Davis, Richard J., *Adjunct Professor of Biomedical and Pharmaceutical Sciences*, 2001. B.S., 1961, Arkansas State University.
- Davis, Wayne R., *Adjunct Associate Professor of Marine Affairs*, 1990. Ph.D., 1978, University of South Carolina.
- ★Deacutis, Christopher F., *Adjunct Professor of Biological Sciences*, 2008, 2002. Ph.D., 1982, University of Rhode Island.
- Dedhiya, Mahendra, *Adjunct Associate Professor of Biomedical and Pharmaceutical Sciences*, 2002. M.B.A., 1982, University of Bridgeport.
- DeFede, Susanne G., *Adjunct Instructor of Nursing*, 2002. M.S., 2001, University of Rhode Island.
- Dehner, Kevin, *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2007. M.B.A., 2001, University of Rhode Island.
- Delaney, Deborah, *Adjunct Instructor of Nursing*, 2009. M.S., 1981, University of Arizona, Tempe.
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- Scorpio, Ralph, *Adjunct Professor of Biochemistry, Microbiology and Molecular Genetics*, 1999. Ph.D., 1966, University of Rhode Island.
- ★Sebelia, Linda, *Adjunct Professor of Nutrition and Food Science*, 2007, 1989. M.S., 1974, Ohio State University.
- ★Seifer, Ronald, *Adjunct Associate Professor of Psychology*, 1990. Ph.D., 1981, University of Rochester.
- Seifert, Gerald, *Adjunct Professor of Marine Affairs*, 1982. J.D., 1964, Indiana University.
- Sepe, Anna Marie, *Adjunct Instructor of Nursing*, 2007. M.S., 1992, Rhode Island College.
- Sepe, Raymond, *Adjunct Assistant Professor of Electrical Engineering*, 1996. Ph.D., 1990, Massachusetts Institute of Technology.
- Serabian, Beverly, *Adjunct Assistant Professor of Gerontology*, 1983. Ph.D., 1981, California School of Professional Psychology.
- Serdakowski, Joseph A., *Adjunct Assistant Professor of Chemical Engineering*, 1992. Ph.D., 1990, Brown University.
- ★Serra, David A., *Adjunct Clinical Assistant Professor of Fisheries, Animal and Veterinary Science*, 1997. V.M.D., 1983, University of Pennsylvania.
- Sesin, Paul, *Adjunct Clinical Professor of Pharmacy Practice*, 2003. Pharm.D., 1975, Duquesne University.
- ★Shamoon, Samuel J., *Adjunct Associate Professor of Community Planning and Urban Affairs*, 1995. M.C.P., 1970, University of Rhode Island.
- ★Sharma, Surendra, *Adjunct Professor of Biomedical and Pharmaceutical Sciences*, 2006. Ph.D., 1975, Indian Institute of Technology.
- Sharpe, Henry, *Adjunct Professor of Ocean Engineering*, 2007. M.S., 1982, University of Rhode Island.
- Shea, Nancy, *Adjunct Instructor of Nursing*, 2008. M.S., 1980, University of Iowa.
- Sheehan, Judy L., *Adjunct Instructor of Nursing*, 1994. M.S., 1984, University of Rhode Island.
- ★Sheehan, Peter M., *Adjunct Professor of Oceanography*, 2004. Ph.D., 1971, University of California, Berkeley.
- ★Sheff, Michael, *Adjunct Professor of Clinical Laboratory Science*, 1988. Ph.D., 1957, University of Sheffield, England.
- Shepp, Bryan E., *Adjunct Professor of Communicative Disorders*, 1985. Ph.D., 1959, University of Maryland.
- Sher, Alam, *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2008. Pharm.D., 1971, Karachi University.
- Sheremet, Vitalii, *Adjunct Professor of Oceanography*, 2005. Ph.D., 1996, Scripps Institution of Oceanography, University of California, San Diego.
- Sherouse, Linda D., *Adjunct Instructor of Library and Information Studies*, 2004. M.L.I.S., 1996, University of Rhode Island.
- Sherwood, Jessica, *Adjunct Assistant Professor of Sociology and Anthropology*, 2005. Ph.D., 2004, North Carolina State University.
- ★Shogren, Jason F., *Adjunct Professor of Environmental and Natural Resource Economics*, 1995. Ph.D., 1986, University of Wyoming.
- ★Shonting, David H., *Adjunct Professor of Ocean Engineering*, 1987. Sc.D., 1966, Massachusetts Institute of Technology.
- Sienkiewicz, George, *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2002. Ph.D., 1995, University of Rhode Island.
- ★Silver, Barbara E., *Adjunct Assistant Professor of Psychology*, 2007. Ph.D., 1999, University of Rhode Island.
- Simeone, Michael L., *Adjunct Assistant Professor of Pharmacy Practice*, 1990. M.B.A., 1987, Bryant College.
- Sindir, Munir M., *Adjunct Professor of Mechanical Engineering*, 2007. Ph.D., 1981, University of California, Davis.
- Singer, Janet, *Adjunct Instructor of Nursing*, 2005. M.S.N., 1991, Yale University.
- Singer, Roberta N., *Adjunct Assistant Professor of Communicative Disorders*, 1986. M.S., 1978, University of Rhode Island.
- ★Sjöström, Björn Alvar, *Adjunct Professor of Nursing*, 2004, 2001. D.N.Sc., 2000, Göteborg University, Sweden.
- Skeffington, Patrick J., *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2003. Pharm.D., 2000, University of Rhode Island.
- Slonka, Dennis J., *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 1998. Pharm.D., 1997, University of Rhode Island.
- Smeal, Steven, *Adjunct Clinical Instructor of Clinical Laboratory Science*, 1980. B.S., 1978, University of Rhode Island.
- Smith, Kevin B., *Adjunct Professor of Ocean Engineering*, 2009. Ph.D., 1991, University of Rhode Island.
- Smith, Michele M. Hayeur, *Adjunct Assistant Professor of Anthropology*, 2009. Ph.D., 2003, University of Glasgow.
- ★Smith, Peter D., *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2007. B.S., 1971, Roger Williams University.
- Smith, Richardson, *Adjunct Assistant Professor of Film Media*, 2006. J.D., 1977, Suffolk University School of Law.

- Smokler, Herbert J., *Adjunct Associate Professor of Nursing and Adjunct Clinical Assistant Professor of Pharmacy Practice*, 1997. M.D., 1959, State University of New York, College of Medicine.
- ★Smolowitz, Roxanna M., *Adjunct Professor of Fisheries, Animal and Veterinary Science*, 2000. D.V.M., 1981, Purdue University.
- Soja, Walter D., *Adjunct Clinical Associate Professor of Pharmacy Practice*, 2003, 1981. Pharm.D., 1999, University of Rhode Island.
- Sokoloff, Christina Bond, *Adjunct Instructor of Nursing*, 2006. M.S., 1985, University of Rhode Island.
- Solis, Jon, *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2003. M.D., 1990, Walter Reed Army Medical Center.
- Sonderman, Timothy J., *Adjunct Instructor of Library and Information Studies*, 2004. M.L.I.S., 2001, University of Rhode Island.
- Sorensen, Jens C., *Adjunct Associate Professor of Marine Affairs*, 1985. Ph.D., 1978, University of California, Berkeley.
- ★Sparks, R., Stephen J., *Adjunct Professor of Oceanography*, 2008. Ph.D., 1974, Imperial College.
- ★Spiegelman, Marc W., *Adjunct Associate Professor of Geosciences*, 2000. Ph.D., 1989, University of Cambridge, United Kingdom.
- Spindell Lentz, Marcia D., *Adjunct Instructor of Nursing*, 1999. M.A., 1977, New York University School of Education, Nursing and Allied Health Professionals.
- Spink, June T., *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2003. B.S., 1976, University of Rhode Island.
- Squillante, Emilio, *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2002. Ph.D., 1993, University of Rhode Island.
- Stapley, Todd, *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2006. D.O., 1997, Philadelphia College of Osteopathic Medicine.
- ★Steele, Mark A., *Adjunct Assistant Professor of Natural Resources Science*, 2003. Ph.D., 1995, University of California, Santa Barbara.
- Steller, Julie V., *Adjunct Assistant Professor of Nursing*, 2008. M.S., 1991, University of Rhode Island.
- Steinhardt, Linda, *Adjunct Instructor of Nursing*, 2005. M.S., 1993, Pace University, Lienhard School of Nursing.
- Steinhoff, Margaret, *Adjunct Professor of Clinical Laboratory Science*, 1997. M.D., 1983, Washington University.
- ★Stephenson, Peter, *Adjunct Assistant Professor of Computer Science*, 2001. Ph.D., 1998, James Cook University of North Queensland.
- Sterling, Harry S., *Adjunct Assistant Professor of Human Development and Family Studies*, 1986. Ph.D., 1979, Cornell University.
- ★Stern, Robert Andrew, *Adjunct Professor of Psychology*, 1996. Ph.D., 1988, University of Rhode Island.
- ★Stevens, Karen, *Adjunct Associate Professor of Biomedical and Pharmaceutical Sciences*, 2009. Ph.D., 1989, University of California, Irvine.
- Stoukides, John Aristotle, *Adjunct Associate Professor of Nursing*, 1998. M.D., 1989, Tufts University.
- ★Strauss, Charles M., *Adjunct Associate Professor of Computer Science*, 1992. Ph.D., 1969, Brown University.
- ★Streit, Roy L., *Adjunct Professor of Mathematics*, 1996. Ph.D., 1978, University of Rhode Island.
- Stringer, Sharon E., *Adjunct Clinical Instructor of Clinical Laboratory Science*, 1993. B.S., 1979, Framingham State College.
- ★Stucker, Brent, *Adjunct Assistant Professor of Industrial and Manufacturing Engineering*, 2002. Ph.D., 1997, Texas A&M University.
- ★Sullivan, Edmund J., *Adjunct Professor of Ocean Engineering*, 1997. Ph.D., 1970, University of Rhode Island.
- Sung, C. James, *Adjunct Professor of Clinical Laboratory Science*, 1997. M.D., 1984, Chung Shan Medical and Dental College.
- ★Sutyryn, Georgi G., *Adjunct Professor of Oceanography*, 2003. Ph.D., 1974, Russian Academy of Sciences.
- Sylvia, J. Gerin, *Adjunct Special Lecturer in Industrial Engineering*, 1980. M.Ed., 1969, Northeastern University.
- Szumita, Paul, *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2009. Pharm.D., 1999, Northeastern University.
- Tapley, Ronald, *Adjunct Assistant Professor of Pharmacy Practice*, 1997. Pharm.D., 1996, Idaho State University.
- Tashiro, Lynne, *Adjunct Clinical Instructor of Pharmacy Practice*, 2008. B.S., 1969, University of Rhode Island.
- ★Tavtravahi, Umadevi, *Adjunct Associate Professor of Clinical Laboratory Science*, 1997. Ph.D., 1980, Columbia University.
- ★Taylor, Suzanne, *Adjunct Professor of Labor and Industrial Relations*, 1987. Ph.D., 1970, University of Connecticut.
- ★Taylorson, Raymond B., *Adjunct Professor of Plant Sciences*, 1990. Ph.D., 1960, University of Wisconsin, Madison.
- Tebbetts, Diane R., *Adjunct Assistant Professor of Library and Information Studies*, 1985. D.A., 1985, Simmons College.
- Tefft, Brian C., *Adjunct Assistant Professor of Natural Resources Science*, 2003. M.S., 1981, Frostburg State University.
- Tehan, Kerrie E., *Adjunct Instructor of Nursing*, 2007. M.A., 2001, Hofstra University.
- Thai, Xia, *Adjunct Assistant Professor of Pharmacy Practice*, 2006. Pharm.D., 2001, Massachusetts College of Pharmacy.
- ★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.
- ★Thursby, Glen B., *Adjunct Associate Professor of Biological Sciences*, 1987. Ph.D., 1983, University of Rhode Island.
- Tierney, Eileen M., *Adjunct Instructor of Library and Information Studies*, 2004. M.L.S., 1982, University of Rhode Island.
- Tierney, Timothy, *Adjunct Assistant Professor of Education*, 1981, *Adjunct Assistant Professor of Library and Information Studies*, 2004; and *Adjunct Assistant Professor of Film Media*, 2007. M.A., 1976, University of Rhode Island.
- ★Tigan, Mark, *Adjunct Assistant Professor of Community Planning and Urban Affairs*, 1995. M.P.A., 1972, San Jose State University.
- Tillotson, Mary Ellen K., *Adjunct Assistant Professor of Psychology*, 2003. Ph.D., 1998, University of Rhode Island.
- ★Ting, Naitee, *Adjunct Associate Professor of Computer Science and Statistics*, 1998. Ph.D., 1987, Colorado State University.
- Tobias, Jerry V., *Adjunct Professor of Communicative Disorders*, 1985. Ph.D., 1950, Case Western Reserve University.
- Toscani, Michael R., *Adjunct Clinical Associate Professor of Pharmacy Practice*, 2003. Pharm.D., 1982, St. John's University.
- Towers, Nancy Holden, *Adjunct Instructor of Nursing*, 2005. M.S., 1978, University of Rhode Island.
- Trevino, Belzahet, *Adjunct Assistant Professor of Chemical Engineering*, 1994. Ph.D., 1993, University of Rhode Island.
- ★Tucker, Wayne, *Adjunct Associate Professor of Mechanical Engineering and Applied Mechanics*, 1991. Ph.D., 1987, University of Rhode Island.
- Turnbaugh, Sarah R. Peabody, *Adjunct Associate Professor of Sociology and Anthropology*, 2006, 1985. M.S., 1977, University of Rhode Island.
- ★Twardowski, Michael S., *Adjunct Professor of Oceanography*, 2003. Ph.D., 1998, University of Rhode Island.
- ★Tyack, Peter L., *Adjunct Professor of Oceanography*, 2001. Ph.D., 1982, Rockefeller University.
- ★Uhlman, James S., *Adjunct Associate Professor of Ocean Engineering*, 1993. Ph.D., 1983, Massachusetts Institute of Technology.
- Ulbricht, Catherine E., *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2003. Pharm.D., 2001, Massachusetts College of Pharmacy.
- ★Ullman, David S., *Adjunct Professor of Oceanography*, 2002. Ph.D., 1996, State University of New York at Stony Brook.
- ★Undey, Cenk, *Adjunct Assistant Professor of Biomedical and Pharmaceutical Sciences*, 2008. Ph.D., 1999, University of Istanbul, Turkey.
- Urbani, Lynne A., *Adjunct Assistant Professor of Pharmacy Practice*, 2002. M.S., 1990, Salve Regina College.
- Valencia, Patricia R., *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2007. Pharm.D., 2002, University of Rhode Island.
- Valee, Glenn E., *Adjunct Assistant Professor of Mechanical Engineering and Applied Mechanics*, 1995. Ph.D., 1995, University of Rhode Island.
- Vanderslice, Robert R., *Adjunct Associate Professor of Nursing*, 2007. Ph.D., 1986, North Carolina State University.
- VanHaaren, Anne, *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2005. Pharm.D., 2000, University of Rhode Island.
- ★Varna-Garis, Ann M., *Adjunct Associate Professor of Psychology*, 1997. Ph.D., 1977, University of Rhode Island.
- ★Venkatraman, Padma T., *Adjunct Professor of Oceanography*, 2007. Ph.D., 2001, College of William and Mary.
- Verbeek, Olga, *Adjunct Instructor of Library and Information Studies*, 2004. M.L.I.S., 1998, University of Rhode Island.
- Veri, Albert R., *Adjunct Associate Professor of Community Planning and Area Development*, 1984. M.L.A., 1969, Harvard University.
- Veza, Phyllis, *Adjunct Assistant Professor of Clinical Laboratory Science*, 2003. M.D., 1992, George Washington University.

- ★Vincent, Il, Harold Thomas, *Adjunct Assistant Professor of Ocean Engineering*, 2001. Ph.D., 2001, University of Rhode Island.
- Vollucci, Elizabeth A., *Adjunct Instructor of Nursing*, 2005. M.S., 2000, University of Rhode Island.
- Vouros, Paul, *Adjunct Professor of Biochemistry and Biophysics*, 1988. Ph.D., 1965, Massachusetts Institute of Technology.
- Wagner, Richard L., *Adjunct Professor of Pharmacy Practice*, 1985. M.D., 1975, Yale Medical School.
- Wallace, Mark C., *Adjunct Assistant Professor of Natural Resources Science*, 1993. Ph.D., 1991, University of Arizona.
- Walsh, Edward J., *Adjunct Professor of Oceanography*, 2005. Ph.D., 1967, Northeastern University.
- †★Wang, Yong, *Adjunct Assistant Professor of Natural Resources Science*, 2000. Ph.D., 1993, University of Southern Mississippi.
- Ward, John, *Adjunct Professor of Environmental and Natural Resource Economics*, 2003. Ph.D., 1991, University of Rhode Island.
- Ward, Morris A., *Adjunct Assistant Professor of Journalism*, 2002. M.A., 1971, Pennsylvania State University.
- Wardwell, Douglas O., *Adjunct Assistant Professor of Communication Studies*, 1998. Ed.D., 1975, Nova University.
- Warford, Susan D.G., *Adjunct Instructor of Human Development and Family Studies*, 1999. M.Ed., 1983, University of Massachusetts, Amherst.
- ★Warner, Patricia C., *Adjunct Associate Professor of Textiles, Fashion Merchandising, and Design*, 1999. Ph.D., 1986, University of Minnesota.
- ★Warnes, Gregory, *Adjunct Assistant Professor of Computer Science and Statistics*, 2004. Ph.D., 2000, University of Washington.
- Watkins, William D., *Adjunct Professor of Microbiology*, 1987. Ph.D., 1979, University of Rhode Island.
- Watson, Irene, *Adjunct Instructor of Nursing*, 2005. M.S., 1996, University of Rhode Island.
- Webster, Pamela, *Adjunct Associate Professor of Sociology*, 2002. Ph.D., 1991, University of Michigan.
- 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, 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.
- ★Westcott, David, *Adjunct Associate Professor of Community Planning and Area Development*, 1995. M.C.P., 1979, University of Rhode Island.
- ★Westrick, Edward, *Adjunct Professor of Pharmacy Practice*, 2002. Ph.D., 1999, University of Rhode Island.
- ★Wetherbee, Bradley M., *Adjunct Assistant Professor of Fisheries, Animal and Veterinary Science*, 1999. Ph.D., 1998, University of Hawaii.
- 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.
- Wheeler, Maurice B., *Adjunct Associate Professor of Library and Information Studies*, 2007. Ph.D., 1994, University of Pittsburgh.

- ★Whitlatch, Robert B., *Adjunct Professor of Oceanography*, 2005. Ph.D., 1976, University of Chicago.
- ★Wiener, Judith, *Adjunct Professor of Psychology* 2003. Ph.D., 1978, University of Michigan.
- ★Wigand, Cathleen, *Adjunct Professor of Oceanography*, 2005. Ph.D., 1994, University of Maryland.
- Wild, Eugenia, *Adjunct Assistant Professor of Women's Studies*, 1990. M.A., 1983, University of Rhode Island.
- Wilk, Jacqueline B., *Adjunct Assistant Professor of Psychology*, 1988. Ph.D., 1983, University of Rhode Island.
- ★Williams, David O., *Adjunct Assistant Professor of Biomedical Engineering*, 1977. M.D., 1969, Hahnemann Medical College.
- Wilson, Christine M., *Adjunct Assistant Professor of Human Development and Family Studies*, 1997. M.S., 1990, Indiana State University.
- ★Winsor, David S., *Adjunct Assistant Professor of Community Planning and Area Development*, 1985. M.C.P., 1980, University of Rhode Island.
- Winthrop, Elizabeth F., *Adjunct Associate Professor of Food Science and Nutrition*, 1994. M.S., 1983, Tufts University.
- Wolinski, Mary E., *Adjunct Assistant Professor of Music*, 1992. Ph.D., 1988, Brandeis University.
- Won, Si Yeon, *Adjunct Assistant Professor of Women's Studies*, 2004. A.B.D., 2004, Seoul National University.
- ★Wood, David H., *Adjunct Associate Professor of Mathematics*, 1988. Ph.D., 1972, University of Rhode Island.
- ★Woodside, Arch G., *Adjunct Professor of Business Administration*, 2008. Ph.D., 1968, Penn State 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.
- ★Yen, Shirley, *Adjunct Assistant Professor of Psychology*, 2002. Ph.D., 1998, Duke University.
- Yorks, Kathleen C., *Adjunct Instructor of Nursing*, 2005. M.S., 1996, University of Rhode Island.
- Young, John R., *Adjunct Associate Professor of Human Science and Services*, 2003. B.A., 1972, Clark University.
- Zack, Connie, *Adjunct Instructor of Library and Information Studies*, 2007. M.L.I.S., 1976, University of Rhode Island.
- Zartler, Ann S., *Adjunct Assistant Professor of Psychology*, 1986. Ph.D., 1978, University of Rhode Island.
- Zhang, Cunxian, *Adjunct Assistant Professor of Clinical Laboratory Science*, 2004. M.D., 1983, Shanxi Medical University.
- Zhang, Shunli, *Adjunct Assistant Professor of Clinical Laboratory Science*, 2004. M.D., 1982, Shandong Medical University.
- Zolnierz, Michael, *Adjunct Clinical Assistant Professor of Pharmacy Practice*, 2008. M.S., 1983, Massachusetts College of Pharmacy.
- Zorabedian, Thomas R., *Adjunct Assistant Professor of Communication Studies*, 1998. Ed.D., 1991, Boston University.
- ZuWallack, Alicia R., *Adjunct Assistant Professor of Pharmacy Practice*, 2003. Pharm.D., 2000, University of Rhode Island.

Clinical Appointments

★Denotes graduate faculty

- Audette, Jennifer, *Clinical Assistant Professor of Physical Therapy*, 2003. M.S., 1992, Boston University.
- Bourque, Melissa D., *Clinical Assistant Professor of Pharmacy Practice*, 2005. Pharm.D., 1998, Butler University.
- Bratberg, Jeffrey P., *Clinical Associate Professor of Pharmacy Practice*, 2008, 2002. Pharm.D., 2000, North Dakota State University.
- ★Carley, Rebecca, *Clinical Assistant Professor of Nursing*, 1991, 1990. M.S., 1982, Boston University.
- Carr, Suzanne M., *Clinical Assistant Professor of Nursing*, 2005. M.S., 2002, University of Rhode Island.
- Charpentier, Margaret, *Clinical Associate Professor of Pharmacy Practice*, 2008, 2003. Pharm.D., 1993, University of Rhode Island.
- Congdon, Karen S., R.N., E.M.T., *Clinical Coordinator of Cardiac Rehabilitation*, 1986. M.S., 1986, University of Rhode Island.
- Connors, Elizabeth C., *Coordinator of the Speech and Hearing Center and Clinical Assistant Professor of Communicative Disorders*, 1998, 1986. M.A., 1981, Northern Michigan University.
- Dassie, Wylie J., *Clinical Assistant Professor of Nursing*, 2002., M.S.N., 2001, Florida Agricultural and Mechanical University.
- Dooley, Andrea G., *Clinical Assistant Professor of Pharmacy Practice*, 2007. Pharm.D., 2006, University of Rhode Island.
- Doyle-Moss, Nancy A., *Clinical Associate Professor of Nursing*, 2009, 1997. M.S., 1996, University of Rhode Island.
- Dugas, Joan R., *Clinical Assistant Professor of Nursing*, 2006. M.S., 2006, University of Rhode Island.
- Estus, Erica, *Clinical Assistant Professor of Pharmacy Practice*, 2007. Pharm.D., 2000, University of Rhode Island.
- Feret, Brett M., *Clinical Associate of Pharmacy Practice*, 2007, 2001. Pharm.D., 1998, University of Rhode Island.
- Gerzevitz, Diane R., *Clinical Assistant Professor of Nursing*, 1994. M.S., 1987, University of Rhode Island.
- Guerin, Joshua R., *Clinical Assistant Professor of Pharmacy Practice*, 2005. Pharm.D., 2004, University of Rhode Island.
- Guthrie, James R., *Clinical Professor of Health Sciences*, 1977. M.D., 1948, New York University College of Medicine.
- Hulme, Janice, *Clinical Assistant Professor of Physical Therapy*, 1999. D.P.T., 1999, University of St. Augustine.
- ★Kinsey, Dianne C., *Clinical Assistant Professor of Nursing*, 2007. Ed.D., 1985, Lehigh University.
- Lavin, Mary J., *Clinical Associate Professor of Nursing*, 1991. M.S., 1978, Boston University.
- Leone, Marion T., *Clinical Instructor of Respiratory Therapy*, 1978. R.N., 1959, Cambridge City Hospital.
- Lin, Sonia, *Clinical Associate Professor of Pharmacy Practice*, 2006, 2000. Pharm.D., 1998, University of Colorado Health Sciences Center, School of Pharmacy.
- ★MacDonnell, Celia P., *Clinical Associate Professor of Pharmacy Practice*, 2007, 2003. Pharm.D., 2000, University of Rhode Island.

- Mastriani, Raymond A., *Clinical Assistant Professor of Pharmacy Practice, 2005*. Pharm.D., 2003, University of Rhode Island.
- Matson, Kelly L., *Clinical Associate Professor of Pharmacy Practice, 2008, 2002*. Pharm.D., 2001, Purdue University.
- McLinden, John P., *Clinical Assistant Professor of Physical Therapy, 1996*. M.S., 1993, University of Rhode Island.
- ★Mercer, Judith, *Clinical Professor of Nursing, 2005, 1998*. D.N.Sc., 1989, Catholic University of America.
- Orr, Katherine Kelly, *Clinical Associate Professor of Pharmacy Practice, 2008, 2002*. Pharm.D., 2001, University of Rhode Island.
- Oyer, Calvin, *Clinical Professor of Clinical Laboratory Science, 1997*. M.D. 1952, Indiana University.
- Palm, Mary Louise, *Clinical Associate Professor of Nursing, 2006, 1982*. M.S., 1975, University of Rhode Island.
- Palmer, Michelle Gemma, *Clinical Instructor of Nursing, 2006*. M.S., 1998, Case Western Reserve University.
- ★Paquette, Gregory E., *Clinical Professor of Clinical Laboratory Science, 2005, 1995*. Ph.D., 1992, University of Rhode Island.
- Paquette, Katherine M., *Clinical Assistant Professor of Nursing, 2007*. M.S., 1993, Russell Sage College.
- Pawasauskas, Jayne E., *Clinical Associate Professor of Pharmacy Practice, 2005, 1999*. Pharm.D., 1998, University of Rhode Island.
- Robinson, Deirdre E., *Clinical Assistant Professor of Physical Therapy, 1995*. M.S., 1975, Long Island University; M.S., 1989, Northeastern University.
- Schwartz, Joanna, *Clinical Assistant Professor of Pharmacy Practice, 2005*. Pharm.D., 2002, Drake University.
- Sonnenschein, Lillian, *Clinical Assistant Professor of Nursing, 2004*. M.S.N., 1988, Anna Maria College.
- Stout, Patricia Z., *Clinical Associate Professor of Nursing, 1991*. M.S., 1989, Catholic University of America.
- Theadore, Geraldine L., *Clinical Associate Professor of Communicative Disorders, 2009, 1998*. M.S., 1987, University of Rhode Island.
- Thulier, Diane, *Clinical Assistant Professor of Nursing, 2006*. M.S., 1999, University of Rhode Island.
- Tortora, Monica, *Clinical Assistant Professor of Pharmacy Practice, 2005*. Pharm.D., 2002, University of Rhode Island.
- Ward, Kristina E., *Clinical Assistant Professor of Pharmacy Practice, 2004*. Pharm.D., 1996, University of Pittsburgh.
- Zakewicz, Helen M., *Clinical Assistant Professor of Nursing, 2007*. M.S.N., 1984, University of Illinois.
- ★Craver, Vinka, O., *Assistant Research Professor of Civil & Environmental Engineering, 2008, 2007*. Ph.D., 2002, University of Santiago de Compostela (Spain).
- Crisman, Everett A., *Research Professor of Chemical Engineering, 2006, 1991*. Ph.D., 1984, Brown University.
- ★Hill, Robert B., *Research Professor of Biological Sciences, 2002*. Ph.D., 1957, Harvard University.
- ★Jenkins, Bethany D., *Research Assistant Professor of Cell and Molecular Biology, 2005*. Ph.D., 2000, University of Oregon.
- ★Jiang, Zhongchun, *Assistant Research Professor of Plant Sciences, 2001*. Ph.D., 1998, University of Rhode Island.
- ★Johnston, Robert J., *Assistant Research Professor of Environmental and Natural Resource Economics, 1999*. Ph.D., 1996, University of Rhode Island.
- ★Maranda, Lucie, *Assistant Research Professor of Biomedical Sciences and Environmental Health, 1990*. Ph.D., 1987, University of Rhode Island.
- ★Marcoux, Rita, *Research Assistant Professor of Pharmacy Practice, 2005, 1990*. M.B.A., 1987, University of Rhode Island.
- Park, Eugene, *Associate Research Professor of Chemical Engineering, 2001, 1994*. Ph.D., 1993, University of Rhode Island.
- Ryneerson, Tatiana A., *Assistant Research Professor of Oceanography, 2005*. Ph.D., 2003, University of Washington.
- ★Smayda, Theodore John, *Research Professor of Oceanography and Botany, 1970, 1959*. Dr.Philos., 1967, University of Oslo, Sweden.
- Stoner, Matthew A., *Research Assistant Professor of Biomedical and Pharmaceutical Sciences, 2006*. Ph.D., 2002, Texas A&M University.
- ★Uchida, Emi, *Research Assistant Professor of Environmental and Natural Resource Economics, 2008*. Ph.D., 2007, University of California, Davis.
- ★Uchida, Hirotsugu, *Research Assistant Professor of Environmental and Natural Resource Economics, 2008*. Ph.D., 2006, University of California, Davis.
- ★Uht, Augustus K., *Distinguished Research Professor in Residence of Electrical and Computer Engineering, 2001*. Ph.D., 1985, Carnegie Mellon University.
- Heidi Kirk Duffy, Chair, International Engineering Program Board
- Phillip Kydd, Assistant Director, Administrative Services Division, Rhode Island Department of Transportation
- Honorable Mary M. Lisi, Judge, U. S. District Court
- Carol J. Makovich, Vice President Worldwide Media Relations, IBM
- Nancy McKinstry, CEO and Chairman of the Executive Board, Wolters Kluwer
- Dr. Norman S. Namerow, Professor of Neurology, UCLA Medical Center
- Douglas D. Ramos, Senior Equity Portfolio Manager, The Dreyfus Corporation
- Robert S. Russell, Vice President, Development, ICON International, Inc.
- Thomas M. Ryan, President and CEO, CVS/Caremark
- Bruce S. Sherman, Chief Executive Officer and Chief Investment Officer, Private Capital Management
- Alfred J. Verrecchia, President and Chief Operating Officer, Hasbro, Inc.

College of Arts and Sciences

- Michael K. Andreozzi, President, Beltone New England
- Richard Beaupre, President, Chemart Company
- Thomas R. Bender, Esq., Hanson Curran LLP
- Scott Bosworth, President and CEO, Fort Hill Advisors
- Bruce D. Campbell
- Henry Guido Caniglia, President, Eastern Food Industries, Inc.
- Victor Capellan, President, Dominican American National Roundtable
- Robbin A. Chaber
- Rep. Shannon Chandley, N.H.
- Dr. Joseph DiMase
- Judge Stephen Erickson, R.I. District Court
- Nicholas Gorham, Esq., Gorham & Gorham
- Howard Gurvitch
- Kenneth Kermes
- Bruce M. Kleinman, Esq., Wilentz, Goldman & Spitzer, P.A.
- Jerome H. Kritz, First American Mortgage Trust
- Nancy McKinstry, President and CEO, Wolters Kluwer
- Lori Merola, Vice President, Operations and Services Group, Fidelity Investments
- Robert S. Messinger Jr.
- Kathy O'Donnell, Senior Vice President, Director of Public Affairs, Citizens Bank
- Anthony Perrotti, President, R.I. Analytical Laboratories, Inc.
- B. Michael Rauh, Senior Vice President, The Washington Trust Company
- Eric D. Roiter, Esq.
- Mark Ross, Vice President, Ross Simons, Inc. (Retired)
- Larry Rubin, Partner, PriceWaterhouseCoopers LLP
- Madelyn Rumowicz
- Dr. Christopher J. Savoie, CEO, Tazze, Inc.
- John Struck, Managing Director, Wand Partners
- M. Beverly Swan, Provost Emerita, URI
- Bruce Wolpert, Esq., Wolpert Associates, Inc.
- Kwok K. Yeung, Vice President, Research and Development, IDEXX Laboratories

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Research Appointments

★ Denotes graduate faculty

† Denotes professors in residence (graduate faculty able to serve as major professors)

- Ahmed, Aftab, *Research Assistant Professor of Biomedical and Pharmaceutical Sciences, 2003*. Ph.D., Planck Institute of Biochemistry
- ★Brand, Stephen, *Research Professor of Education, 2008*. Ph.D., 1992, University of Illinois at Urbana-Champaign.
- Cioffi, Eugene A., *Assistant Research Professor of Chemistry, 1995*. Ph.D., 1985, University of Connecticut.
- ★Coiro, Julie, *Assistant Research Professor of Education, 2008*. Ph.D., 2007, University of Connecticut.

College of Business Administration

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ADDENDUM TO 2009–2010 URI CATALOG

In September 2009, the following information was added or corrected in the undergraduate curriculum:

MATHEMATICS (pp. 60–61):

Faculty: Assistant Professor Bella

Bachelor of Arts: Credits earned in MTH 106 cannot be applied toward this degree.

Bachelor of Science:

General Program: Credits earned in MTH 106 cannot be applied toward this degree.

Applied Mathematics Option: Group II courses include BUS 320, 321 and ISE 412, 432, 433.

Both B.S. programs require 120 credits for graduation.

INDUSTRIAL AND SYSTEMS ENGINEERING Program Curriculum (p. 91):

Sophomore Year First Semester (17 credits): includes MCE 201 (3) and PHY 205 (3).

COURSE DESCRIPTIONS:

ELE 343 Electronics II (p. 210) has the following prerequisites:

Pre: ((338 and 339) or 342) and (credit or concurrent enrollment in 344).

Numerical Linear Algebra (p. 254) bears the course code MTH 472.