

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.

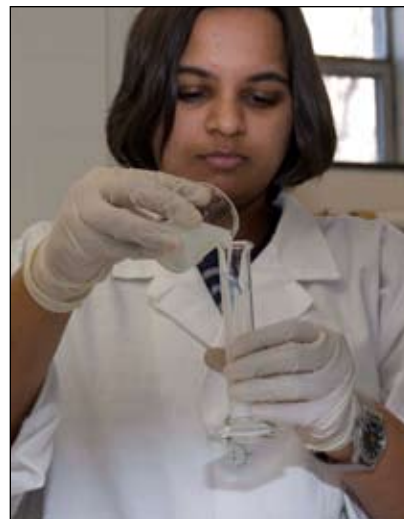
Accounting

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, Shamoan, 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/artsci/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.